ALABAMA

Introduction and General Description

Alabama is one of the most ecologically diverse States in the nation. The geography, ranging from the Appalachian mountains in northeast Alabama to the lower coastal plain in the southern part of the State, encompasses a whole host of ecological communities including coastal marsh, pitcher plant bogs, coastal pine savannah, bottomland hardwoods, upland hardwoods, karst springs and sinkholes leading to underground caverns, and unique gravel/cobble and bedrock streams. The majority of the State is drained by the sixth largest river system in the United States – the Mobile River system. The Tennessee River flows through the Cumberland Plateau region of the northern portion of the State and the Chattahoochee, Pea, Choctawhatchee, and Conecuh rivers drain the southeastern portion of the State.

Alabama has 9 national wildlife refuges – Wheeler NWR, Eufaula NWR, Choctaw NWR, Bon Secour NWR, Grand Bay NWR, Key Cave NWR, Fern Cave NWR, Blowing Wind Cave NWR, and Watercress Darter NWR.

Habitats of Special Concern

Critically endangered habitats (>98 percent decline) that occur in Alabama include longleaf pine forests and savannahs in the coastal plain, black belt prairie, and Atlantic white cedar swamps. Gulf Coast pitcher plant bogs and large streams and rivers are considered endangered with an 85 to 98 percent decline. Riparian forests, including bottomland hardwoods, are considered threatened with significant declines since European settlement. Other habitats of special concern include karst springs and underground caverns, and cedar glades. Many of these habitats are inhabited by species listed as threatened or endangered under the Endangered Species Act. Alabama ranks fourth nationally in the number of listed endangered and threatened species.

Threats

Longleaf pine

Prior to European settlement the longleaf pine ecosystem occupied 90 million acres in the southeast. Today less than 3 million acres remain. The longleaf pine ecosystem has declined in quality and quantity because of land clearing for agriculture and development, fire suppression, and conversion to faster growing loblolly and slash pine plantations. The decline of the longleaf pine ecosystem is important because it is home to at least 87 species that have been designated by State and Federal agencies as rare, threatened, endangered, or of special concern including the gopher tortoise, eastern indigo snake, red-cockaded woodpecker, flatwoods salamander, and dusky gopher frog. The decline of the longleaf pine ecosystem has been implicated in the serious decline of bobwhite quail and Bachman's sparrow.

Pitcher Plant Bogs

Prescribed burns help maintain longleaf pine habitat.
Photo: The Nature Conservancy

Gulf Coast pitcher plant bogs that once occurred on approximately 1.2 million acres in the lower coastal plain are now estimated to occur on less than 5,000 acres in natural or nearly natural condition. Another 24,000 acres of bog habitat probably remains in degraded or hydrologically altered condition. Even these liberal estimates indicate that at least 97 percent of the former bog habitat has been destroyed or

Gulf Coast pitcher plant bog

seriously altered.

Fire suppression is the primary reason for the decline in quality of pitcher plant bogs. Drainage and conversion of bogs to pine monocultures, cropland, pasture, and residential commercial development have combined to reduce both the quality and quantity of bog habitat.

Riparian Forests and Bottomland Hardwoods

Bottomland hardwood and riparian forests have declined significantly since colonial times in Alabama with conversion of approximately 3.8 million acres to some other land use (50 percent decline in acreage). Bottomland hardwood and riparian forest have been converted to cropland, pasture, and extensive reservoir projects for flood control, navigation and water supply.

Perennial Streams

Unaltered or degraded perennial stream habitat may be Alabama's most endangered ecosystem. In the last century at least 75 percent of Alabama's large mainstem rivers have been impounded for hydroelectric generation, flood control, navigation, and water supply. An additional 1,930 miles of perennial streams are degraded due to point and non-point source pollution. Many of the remaining free-flowing streams are inhabited by federally-listed threatened or endangered species including 36 species of mussels, 10 species of snails and 16 species of fish.

Perdido Creek, Escambia County, Alabama, is one of the remaining free-flowing streams in the State.

A healthy longleaf pine stand. ***Photo: Erich Hoffman, The Nature Conservancy***

Conservation Strategies

Longleaf Pine Restoration Initiative

In order to help reduce the decline in the longleaf pine ecosystem, the Partners Program developed a partnership with the Alabama Soil and Water Conservation Committee, the Longleaf Alliance and Auburn University. The partnership encourages private landowners to convert loblolly or slash pine plantations to longleaf pine through cost share assistance. The partnership is not just another tree planting program as landowners are encouraged to plant native grasses and forbs as part of the restoration effort and use controlled burning to maintain the ecosystem. Restoration of the longleaf ecosystem can vary in cost from $210 to $400 per acre.

The Cahaba River Initiative

The Cahaba River focus area is an extraordinary repository of aquatic biodiversity. It supports 66 rare or imperiled species, including 10 fish and mussel species listed as threatened or endangered. The Cahaba, Alabama's longest free-flowing river, supports eleven snails and one fish that are Cahaba River basin endemics. Increased development pressure and streambank erosion from cattle watering from the river and increased nutrients threaten the aquatic system. The Partners Program entered into a cooperative agreement with the Cahaba River Society to develop a grassroots partnership with private landowners along the river to improve water quality and protect the aquatic ecosystem. The agreement provides for fencing, development of alternative water sources for cattle, wetland restoration (tree planting and ditch plugging) and riparian restoration. Fencing costs can range from $3,700 to 5,800 per mile. Riparian vegetation restoration can cost $200 to $300 per acre.

Choccolocco Creek Watershed Initiative

The Choccolocco Creek watershed, located in north central Alabama is home to three federally-listed species -- the blue shiner, the southern pigtoe mussel, and the gray bat. The Partners Program has developed a partnership with the Choccolocco Soil and Water Conservation District and the Natural Resources Conservation Service in restoring riparian vegetation and wetlands in the watershed.

Weeks Bay Watershed Initiative

Weeks Bay, located in south Alabama, is a sub-estuary of Mobile Bay and has been designated a National Estuarine Research Reserve and Outstanding National Resource Water. The watershed has an active watershed group of Federal, State, local governments and private citizens working together to monitor water quality, identify habitat and water quality needs and develop solutions. The Partners Program has developed a cooperative partnership with the Baldwin County Soil and Water Conservation District to help implement some of the on-the-ground solutions to declining wetland trends, marsh erosion, loss of riparian buffers and nutrient enrichment. This project is a joint effort with the Alabama Department of Environmental Management, Weeks Bay Estuarine Research Reserve, the Natural Resources Conservation Service and the District.

Mobile Bay Marsh Restoration Initiative

Upper Mobile Bay marshes have declined by 34 percent since the 1950s due to commercial and residential development, disposal of dredged material from navigation projects, industrial development and erosion and subsidence. Efforts are underway to slow the declining trend of marsh loss via partnerships with Federal, State and private conservation organizations. Partners that have been involved include the Mobile County Wildlife and Conservation Association, the Mobile Bay National Estuary Program, the Gulf Coast Joint Venture, Ducks Unlimited and the Alabama Coastal Foundation. Marsh restoration generally costs $5,000 per acre.

Partners project on Upper Mobile Bay - hand-planted brackish wetland marsh.

Photo: Randy Roach, USFWS.

Threatened and Endangered Species

Alabama has the fourth largest list of federally-listed threatened and endangered species in the United States. Approximately 83 percent are tied to wetlands or stream habitat and the remaining 17 percent are terrestrial species.

The Mobile Basin Recovery plan was developed in partnership with the Mobile Basin Coalition. The Coalition, made up of 31 private industry and conservation organizations, is working toward implementing the Mobile Basin Recovery Plan. The recovery plan involves 22 aquatic species listed as either threatened or endangered including 4 fish, 11 mussels and 7 snails. Implementation of the plan involves a number of actions that will be carried out and funded by the Partners for Fish and Wildlife Program.

Tulotoma snails in the Coosa River.

Exotic Species

Alabama faces some difficult challenges in controlling invasive exotic pests including feral hogs, Chinese tallow trees, Eurasian water milfoil, kudzu, Japanese climbing fern, and Chinese privet. One of the most pernicious exotic plant species is cogon grass because it is adversely affecting the longleaf pine ecosystem. Native to southeast Asia and India, cogon grass was introduced into the United States as packing material 90 years ago in Alabama. In 1951, cogon grass was found on approximately 500 acres in one county in Alabama; and now it is found in 40 counties across Alabama and in 8 other southeastern States.

The Partners Program is working with the Alabama Association of Conservation Districts, the Natural Resources Conservation Service and the Alabama Cooperative Extension Service to develop a cost share program to control this exotic species. Control typically costs between $50 to $150 per acre.

Partners

Alabama Environmental Council
Alabama Rivers Alliance
Kimberly Clark, Inc.
International Paper Co.
Alabama Soil and Water Conservation Committee
Alabama Association of Conservation Districts
Natural Resources Conservation District
Alabama Department of Conservation and Natural Resources
Auburn University
The Longleaf Alliance
Baldwin County Soil and Water Conservation District
Choccolocco Creek Watershed Conservancy District
Alabama Forestry Commission
City of Citronelle
Daphne Middle School
Alabama Audubon Society
Mobile County Wildlife and Conservation Association
Mobile Bay National Estuary Program
Newton Middle School
Weeks Bay Estuarine Research Reserve
Weeks Bay Foundation
Alabama Coastal Foundation
Coastal Land Trust
Cahaba River Society
Alabama Department of Environmental Management
U.S. Army Corps of Engineers
Lauderdale Soil and Water Conservation District
Tennessee Valley Authority
The Nature Conservancy
Alabama Natural Heritage Program
Alabama Water Watch
Youth Conservation Corps
Americorps
Choctawhatchee Watershed Authority
Alabama Forest Resources Center
Volkerts and Associates, Inc
Alabama State Docks
Baldwin County School District
Alabama Forestry Commission
Mobile County Forestry Planning Committee
Baldwin County
Gulf Coast Resource Conservation and Development
Boy Scouts of America
Geological Survey of Alabama
Black Warrior--Cahaba River Land Trust
Society to Advance the Resources of Turkey Creek
Samford University
Jefferson County Land Development Commission

Accomplishments

- 60,000 acres bottomland hardwood management in Mobile Tensaw Delta–Kimberly Clarke and Scott Paper Company
- 3,395 acres of longleaf pine restoration
- 461 acres of wetland restoration
- 5.3 miles of riparian and stream restoration
- 5 acres of cedar glades restoration
- 10 acres of karst spring protection/restoration
- 3 acres of coastal marsh restoration

Future Needs

- Restore 1.5 million acres of longleaf pine habitat by replanting cropland, pasture, and pine monocultures with native forest species.
- Manage 1.5 million acres of longleaf pine habitat by prescribed burns on private land.
- Create new partnerships to help restore longleaf pine/pine savannah or wetland habitats through a joint venture effort.
- Restore 3.7 million acres of wetland. A majority of the acres should be restored to bottomland hardwood wetlands intermixed with freshwater and brackish herbaceous and/or shrub wetland habitat.
- Work with private landowners, State and Federal agencies and conservation organizations to control exotic species.
- Restore or enhance 7,500 miles of riparian and/or stream habitat each year.

Above: Cattle in Weeks Creek--Baldwin County, Alabama before restoration.

Above: Weeks Creek after cattle are fenced out and trees planted.

Above: Tidal bar in Upper Mobile Bay, Alabama before planting.

Above: Same tidal bar being planted with duck potato, giant bullrush and black needle rush.

Above: Partially drained wetland in Baldwin County, Alabama before restoration. Cattle had unlimited access to wetland.

Above: Wetland after restoration – cattle excluded and bottomland hardwoods planted.

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