



Tennessee

Introduction and General Description

The State of Tennessee extends from the Blue Ridge Mountains in the east to the Mississippi River Alluvial Plain in the west, encompassing parts of ten physiographic provinces within its borders. Historically, hardwood forests dominated the landscape across Tennessee. Bottomland hardwood forests predominately occurred in the Coastal Plain and Mississippi River Alluvial Plain regions in west Tennessee. Tennessee has over 60,000 miles of streams that occur within 13 major basins. The State's streams support over 300 species of fish. Additionally, over 40 percent of the 300 species of freshwater mussels known to occur within the United States, occur (or occurred) within the State. The large number of aquatic species in the State's waters results in the most diverse assemblage of aquatic fauna in the country. Human population growth and associated development, along with changes in land use practices, have resulted in significant changes in the State's natural resources. Over 50 percent of the State's wetlands have been lost, most streams in west Tennessee have been channelized, and 20

percent of the streams across the State have been impounded. Also, over 30 percent of the river miles within the State are either partially or not supporting their designated uses with only 50 percent having been assessed. In addition, approximately 155 miles of rivers are posted due to high bacterial levels hazardous to humans, and 120 miles are posted due to contaminated fish.

Tennessee Activities

- Restoration, enhancement, protection of habitat for threatened, endangered, or rare species
- Stream bank stabilization and restoration
- In-stream restoration
- Bottomland hardwood reforestation
- Wetland restoration (plugging ditches, building levees, installation of water control structures, etc.)
- Upland restoration
- Restoration, enhancement, protection of habitat for migratory birds
- Restoration of riparian and flood plain areas
- Wetland enhancement
- Restoration of fish habitat



Intact riparian zone along Little Chucky Creek. Brad Bingham, USFWS Photo

- Cave gating and fencing to protect cave-adapted species
- Native grass restoration
- Outdoor classrooms

Habitats of Special Concern

Although the streams of Tennessee support a high diversity of aquatic fauna, many species of freshwater mussels and fish inhabiting the streams are considered rare or are federally listed as threatened or endangered. Tennessee streams harbor 70 species of fish and mussels that are listed as either federally threatened or endangered or are considered at risk. Many of these species occur within the middle and upper reaches of watersheds that are influenced directly by surface runoff from various land use practices.



Geographic Focus Areas developed in collaboration with our partners

Threats

Habitat loss from stream and riparian (streamside) habitat alteration and water quality degradation from non-point sources are the greatest threats to aquatic resources within the upper reaches of many watersheds. As you move downstream in the watersheds, point source and multiple-use issues increase the complexity of efforts needed to maintain healthy communities of native aquatic organisms.

Conservation Strategies

The conservation activities of

the Partners for Fish and Wildlife Program of the U.S. Fish and Wildlife Service are concentrated in Tennessee within watersheds that have federally listed aquatic species. The headwaters of tributary streams are priorities because small changes to land use practices can create great benefits for aquatic resources. Because of the land ownership patterns, use of natural resources, and the landowners' desire to manage their lands in an environmentally sensitive manner, the greatest opportunities to benefit fish and wildlife resources occur on agricultural lands. Additionally, due to the availability of various agricultural programs and incentives, funds expended by the Partners Program can be leveraged to accomplish more restoration work. Typical activities include fencing to exclude livestock from streams, providing offstream water supplies, streambank stabilization, riparian reforestation, and restoration of in-stream habitats. Removing livestock from a stream,



Cattle exclusion fencing reduces erosion along rivers with rare species. Brad Bingham, USFWS photo

providing alternative water supplies, and reforestation of riparian habitat costs approximately \$18,000 per mile in these headwater reaches. Streambank stabilization and restoration of instream habitats are significantly more expensive and can exceed \$50,000 per mile. The Partners Program also restores bottomland hardwood forest wetlands within these priority watersheds. Restorations are done on lands previously converted to agricultural crop use. Drainage tiles are removed, ditches are plugged, and the site is replanted with bottomland hardwood tree seedlings. The cost of wetland restoration averages \$500 per acre.



The federally endangered bluemask darter benefits from livestock exclusion fencing along Rocky River. Dick Higgins.

In order to better achieve the program goals, the Partners for Fish and Wildlife Program will work with the Tennessee Wildlife Resources Agency to use the Comprehensive Wildlife Conservation Strategy (CWCS) to help guide its restoration efforts. One aspect of the CWCS's mission, which is similar to the Partners program, emphasizes identifying, protecting, and managing habitat for rare species. The CWCS will provide much needed information on species location

and will assist in locating target areas for future Partners Program funds. With the help of the CWCS, the Partners Program will continue to work with the Tennessee Wildlife Resources Agency and other partners in addressing



Degraded riparian zones will regenerate naturally when livestock are excluded. Brad Bingham, USFWS photo



Daddy's Creek a high gradient river located in east Tennessee, is home to the federally threatened spotfin chub. Brad Bingham, USFWS photo.

conservation needs throughout Tennessee. For more information about the CWCS, reference the internet link www.state.tn.us/twra/wildlife/wcs/cwcsindex.html.

Partners

Tennessee Wildlife Resources Agency
Tennessee Department of Agriculture
Tennessee Department of Environment and Conservation

Tennessee Chapter of The Nature Conservancy
Tennessee Valley Authority
Tennessee Tech University
The Tennessee Aquarium
National Fish and Wildlife Foundation
Virginia Chapter of The Nature Conservancy
Georgia Chapter of The Nature Conservancy
Southeast Aquatic Research Institute
Coffee County Soil Conservation District
Coffee County Soil and Water Conservation Board
The Friends of the Clinch-Powell Rivers
Clinch Valley Program
Clinch-Powell Resources Conservation and Development Council
Five Rivers Resource Conservation and Development Council
Southern Middle Tennessee Resource Conservation and Development Council
Duck/Buffalo Resource Conservation and Development Council
Duck River Initiative
Hiawasse River Coalition
The National Wild Turkey Federation
Quail Unlimited
Farm Services Agency
Blount County Soil Conservation District
Nashville Metropolitan Board of Parks and Recreation
City of Columbia
City of Pulaski
City of Smithville
City of Manchester
City of Tullahoma
City of Chattanooga, Department of Parks and Recreation
Natural Resources Conservation Service
Department of Defense,

Arnold Air Force Base
U.S. Forest Service
U.S. Geological Survey
Environmental Protection Agency
Greene County Soil Conservation District
Moore County Soil Conservation District
Warren County Soil Conservation District
Van Buren County Soil Conservation District
Central Basin Resource Conservation and Development Council
Smoky Mountain Resource Conservation and Development Council
Putnam County Soil and Water Conservation District
Conservation Fisheries Incorporated
World Wildlife Fund
International Paper
Tennessee Wildlife Federation
North Chickamauga Creek Conservancy

Accomplishments

The Service's Partners for Fish and Wildlife Program started in Tennessee in 1997. From 1998 through 2006:

- Wildlife habitat on private lands has been restored, enhanced, or protected on over 130 Partners for Fish and Wildlife projects
- 64 miles of riparian habitat have been restored
- Over 233 acres of riparian buffers have been protected by excluding livestock from streams
- Over 100 acres of exotic pest plant control have been implemented
- Over 100 acres of native grasses have been planted

for early successional migratory bird species

occur within the karst region of the Lower Tennessee/Cumberland Rivers ecosystem

woodpecker and other bottomland hardwood species

Future Needs

- Restore, protect, and/or enhance cave habitats for species of concern, threatened, and endangered species which

- 36,000 miles of degraded stream and riparian habitat are in need of restoration
- Restore bottomland hardwood habitat for the prothonotary warbler, wood duck, ivory bill

- Over 1,200,000 acres of lost or degraded wetlands could be restored in the State

Contact

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