



Tennessee's
Comprehensive



Wildlife Conservation
Strategy



September 2005

*Tennessee Wildlife
Resources Agency*

Tennessee's Comprehensive Wildlife Conservation Strategy 2005





Department of Tennessee Wildlife Resources. Authorization No.328610, digital online copy, January 2013. This public document was promulgated at a cost of \$0.00 per copy.



Equal opportunity to participate in and benefit from programs of the Tennessee Wildlife Resources Agency is available to all persons without regard to their race, color, national origin, sex, age, disability, or military service. TWRA is also an equal opportunity/equal access employer. Questions should be directed to TWRA, Human Resources Office, P.O. Box 40747, Nashville, TN 37204, (615) 781-6594 (TDD 781-6691), or to the U.S. Fish and Wildlife Service, Office for Human Resources, 4401 N. Fairfax Dr., Arlington, VA 22203.

Tennessee's Comprehensive Wildlife Conservation Strategy

Citation: Tennessee Wildlife Resources Agency, 2005. Tennessee's Comprehensive Wildlife Conservation Strategy. TWRA Wildlife Technical Report 05-08: Nashville, TN.

Authors: Chris Bullington (The Nature Conservancy - TN Chapter)
Richard Miles (Tennessee Wildlife Resources Agency)
Andrea English (Tennessee Wildlife Resources Agency)
Chris Hunter (Tennessee Wildlife Resources Agency)
Mark Fagg (Tennessee Wildlife Resources Agency)
Mark Thurman (Tennessee Wildlife Resources Agency)
David Rudisail (Tennessee Wildlife Resources Agency)
Heather Garland (The Nature Conservancy – TN Chapter)
Richard Kirk (Tennessee Wildlife Resources Agency)
Greg Wathen (Tennessee Wildlife Resources Agency)

Front cover photo credits: Byron Jorjorian, Bob English, Mike Roedel, and Conservation Fisheries, Inc.

Inside photo credits: Byron Jorjorian & The Nature Conservancy

Map credits: Joey Wisby (The Nature Conservancy – TN Chapter)
Jeanette Jones (Tennessee Wildlife Resources Agency)

This document was produced as a collaborative effort between the Tennessee Wildlife Resources Agency & The Nature Conservancy – TN Chapter:



The mission of the Tennessee Wildlife Resources Agency is to preserve, conserve, protect, and enhance the fish and wildlife of the state and their habitats for the use, benefit, and enjoyment of the citizens of Tennessee and its visitors. The Agency will foster the safe use of the state's waters through a program of law enforcement, education, and access.

In keeping with this mission, the Agency recognizes its long-standing partnership with sportsmen and the significant contributions that sportsmen have made and continue to make to benefit all fish and wildlife, including non-game species. In submitting this Comprehensive Wildlife Conservation Strategy, the Agency expresses its intent that implementation of this plan be conducted in a way to achieve the Agency's mission, while sustaining and promoting hunting and fishing in Tennessee.



The Nature Conservancy is a nonprofit organization with the mission to preserve plants, animals, and natural communities that represent the diversity of life on earth by protecting the lands and waters they need to survive.

Executive Summary

State fish and wildlife agencies are the backbone of our nation's wildlife resource management and conservation programs. However, effective conservation and management programs depend on a firm partnership between states and Congress to provide adequate funding. For decades, dedicated and consistent funding has been provided to states from funds accumulated through the Federal Aid in Wildlife Restoration Act (Pittman-Robertson), the Federal Aid in Sport Fisheries Restoration Act (Dingell-Johnson), and the Aquatic Resources Trust Fund (Wallop-Breaux). Utilizing these funding sources, states have demonstrated the ability to institute successful wildlife conservation and management programs ensuring the sustainable use of game species and often benefiting nongame wildlife species as well. There exists, however, a recognized gap in both state and federal funding dedicated to conservation and management programs targeting nongame species of wildlife across the nation.

The need has never been greater for adequate dedicated funding to support the conservation, planning, and restoration of nongame wildlife species not covered under traditional funding sources. The number of federally listed species has doubled in the last decade. There are currently over 1,000 animal species now listed on the Federal Endangered and Threatened species list. Clearly, it is critical that states adopt proactive conservation programs that provide cost-effective solutions and avoid costly crisis-driven measures undertaken when faced with the imminent loss of wildlife species.

Congress began to provide the first substantial funding for state nongame wildlife conservation in fiscal year 2001 with the Wildlife Conservation and Restoration Program (WCRP) and has maintained that funding through the State Wildlife Grants Program (SWG). To date, Tennessee has received annually an average of \$ 1,200,365 dollars from these programs. States and territories that utilized this new funding accepted the responsibility to develop a Comprehensive Wildlife Conservation Strategy (CWCS). Congress has provided the States and Territories with a list of 8 required elements that the U.S. Fish and Wildlife Service (FWS) must use as criteria to evaluate whether a state's CWCS meets the letter and spirit of the law. This Tennessee CWCS is submitted to satisfy these responsibilities.

The Tennessee Wildlife Resources Agency (TWRA) has been coordinating this planning effort in compliance with its legal mandate to protect and conserve the State's natural resources, including all wildlife species. Work to develop Tennessee's CWCS began in early 2003. Near the end of 2003, TWRA contracted with TNC for the services of its state conservation planning manager to establish and lead a core planning team. Ultimately, the core planning team was responsible for leading the overall planning process and final decision making for the CWCS. However, the strategy's development has been, and its implementation must be, a collective endeavor of Tennessee's conservation partners.

A Steering Committee composed of representatives of various agencies, organizations, and land management groups provided project oversight. Advisory teams addressed specific components of the conservation strategy; these teams included TWRA staff and representatives of other agencies and organizations. Input from the Steering Committee, representatives of other conservation organizations, consulting biologists, academic researchers, and the public was used in the development of the conservation strategy. Educational materials were developed to inform the public about the project's goals and milestones; these materials were posted on a website developed specifically for this project and distributed at public meetings.

The primary goal of this planning process was to develop a CWCS that adequately addressed the 8 elements required by Congress, and in the process, provide a workable conservation tool for agencies, organizations, industries, and academics across the state to apply sound science in the conservation of nongame wildlife species. To that end, the foundation of Tennessee's CWCS is an integrated geographic information system (GIS) model based on the best available wildlife distribution data and comprehensive habitat classification systems and maps.

The key components of the GIS are:

- A comprehensive database of selected Greatest Conservation Need (GCN) species that is spatially relevant – mapped to the individual species occurrence level.
- A terrestrial habitat hierarchy based on the Natureserve ecological systems that can be mapped to various spatial scales (i.e. statewide, eco-regionally, locally).
- Aquatic habitats based on Freshwater Initiative aquatic system classifications that can be mapped to various spatial scales (i.e. statewide, aquatic drainage, hydrologic unit (HUC)).
- Subterranean habitats based on known cave locations and surrounding terrestrial habitat units.
- A database of species - habitat preferences (Preferred, Suitable, Marginal, Unsuitable) evaluated for individual GCN species.
- A stress/source-of-stress hierarchy based on TNC's 5-S system of conservation planning. Stress/source-of-stress combinations are evaluated for individual GCN species.
- A hierarchy of terrestrial, aquatic, and subterranean conservation actions. Conservation actions are evaluated for each stress/source of stress combination.

These key components are linked, via the GIS, to create a fully relational database that is spatially relevant at a wide array of landscape scales. Ultimately, the GIS portion of this CWCS provides Tennessee with an unprecedented conservation planning tool. Never before have conservation planners in Tennessee had the ability to simultaneously analyze this level of data at a variety of landscape scales. Some of the potential uses of the GIS presented in this document include: ecoregional maps that prioritize habitat units based on known species occurrences and the data associated with those occurrences, ecoregional reforestation scenarios, prioritized sources of stress linked to GCN species, prioritized conservation actions for terrestrial, aquatic, and subterranean habitats, and prioritized inventory/research needs for GCN species.

Finally, it should be emphasized that this CWCS and associated GIS are a work in progress and should continue to evolve during implementation and in future iterations of the CWCS planning process. It should also be noted that this document was developed and presented on a strategic planning level. This CWCS document and the associated GIS can be used by conservation planners as a powerful planning tool. The implementation of activities identified in this CWCS require further consideration of operational details, evaluation in conjunction with other existing conservation plans, setting of explicit ecoregional goals and objectives, etc. The completion of this first edition of Tennessee's CWCS is just the beginning.

Acknowledgements

The following individuals are acknowledged for their assistance and contributions to various components of this Comprehensive Wildlife Conservation Strategy. Special thanks are due to conservation partners in other agencies and organizations that volunteered their time and services for this planning process. In addition, many thanks are offered to the Tennessee Division of Natural Heritage and the Chicago Field Museum of Natural History for sharing database information about various fauna in the state.

All contributors to this effort are listed according to their participation in various teams as leaders, expert advisors, steering committee members, or for assisting with some portion of the planning process. Apologies are offered in advance for omission of anyone who played a role in the development of this project.

Core Planning Team

Chris Bullington (The Nature Conservancy – TN Chapter) – Project Coordinator
Joey Wisby (The Nature Conservancy – TN Chapter) – GIS Scientist
Heather Garland (The Nature Conservancy – TN Chapter) – Cave Biologist
Richard Kirk (TN Wildlife Resources Agency) – Agency Lead
Andrea English (TN Wildlife Resources Agency) – Biologist/Planner
Mark Fagg (TN Wildlife Resources Agency) – Biologist/Planner
Chris Hunter (TN Wildlife Resources Agency) – Biologist/Planner
Kirk Miles (TN Wildlife Resources Agency) – Biologist/Planner
David Rudisail (TN Wildlife Resources Agency) – Data Manager

Advisory Team

Bruce Anderson (TN Wildlife Resources Agency) – Regional Biologist
Jim Hamlington (TN Wildlife Resources Agency) – Regional Biologist
Pete Wyatt (TN Wildlife Resources Agency) – Regional Biologist
Mike Roedel (TN Wildlife Resources Agency) – State Ornithologist
Polly Rooker (TN Wildlife Resources Agency) – Nongame Biologist
Scott Dykes (TN Wildlife Resources Agency) – Field Biologist
Chris Simpson (TN Wildlife Resources Agency) – Field Biologist
Mark Thurman (TN Wildlife Resources Agency) – Field Biologist
Brandon Wear (TN Wildlife Resources Agency) – Field Biologist
David Withers (TN Wildlife Resources Agency) – State Zoologist
Gabby Call (The Nature Conservancy – TN Chapter) – Government Relations
Gina Hancock (The Nature Conservancy – TN Chapter) – Project Management

Steering Committee

Terri Hogan – (National Park Service) Ecologist, Stones River National Battlefield
James Ford – (Natural Resource Conservation Service) State Conservationist
Febe Ortiz – (Natural Resource Conservation Service) Deputy State Conservationist
E. J. Williams – (U.S. Fish & Wildlife Service) Asst. Reg. Director, Migratory Birds, SE Region
Doug Winford – (U.S. Fish & Wildlife Service) Asst. Supervisor, Cookeville Field Office
Laura Lewis – (U.S. Forest Service) Cherokee National Forest, Forest Wildlife Biologist
Susan Shaw – (U.S. Forest Service) Cherokee National Forest, Staff Officer
Jim Fyke – (TN Department of Environment & Conservation) Commissioner
Rob Sherrill – (TN Department of Environment & Conservation) Special Asst. to Commissioner
Charlie Tate – (TN Department of Environment & Conservation) State Parks, Director of Natural & Cultural Resource Management

Steering Committee (cont'd.)

Steve Scott – (TN Division of Forestry) State Forester
David Todd – (TN Division of Forestry) State Forest Systems Unit Leader
Gary Myers – (TN Wildlife Resources Agency) Executive Director
Greg Wathen – (TN Wildlife Resources Agency) Special Assistant to Director
Dr. Charles Nicholson – (Tennessee Ornithological Society)
Mike Butler – (Tennessee Wildlife Federation) Executive Director
Scott Davis – (The Nature Conservancy – TN Chapter) State Director
Wendy Smith – (World Wildlife Fund) Director, Southeast Rivers and Streams Program

Scientific Experts

Jeff Garner (Alabama Division of Wildlife & Fisheries)
Dr. Floyd Scott (Austin Peay State University)
Dr. Steven Murphree (Belmont University)
Pat Rakes (Conservation Fisheries, Inc.)
John R. Shute (Conservation Fisheries, Inc.)
Dr. Jane Fitzgerald (Central Hardwoods Joint Venture) Coordinator
Dr. Brian Butterfield (Freed-Hardeman Univ.)
Dr. Ron Caldwell (Lincoln Memorial University)
Charles Baxter – (Lower Mississippi Valley Joint Venture) Coordinator
Dr. Brian Miller (Middle TN State Univ.)
Rob Evans (NatureServe – *former staff*)
Rita Venable (North American Butterfly Association)
Dr. Virginia Dale (Oak Ridge National Lab)
Dr. Jerry Lewis (private consultant)
Alexa McKerrow (SE Gap Analysis Program)
Dr. Paul Johnson (Tennessee Aquarium)
Joe Douglas (Tennessee Cave Survey)
John Hoffelt (Tennessee Cave Survey)
Gerald Moni (Tennessee Cave Survey)
Lynn Roebuck (Tennessee Cave Survey)
Thany Mann (Tennessee Cave Survey)
Hill Henry (Tennessee Valley Authority)
Charlie Saylor (Tennessee Valley Authority)
Ray Jordan (Tennessee Technological University)
Ryan Smith (The Nature Conservancy)
Roger McCoy (TN Division of Natural Heritage)
Rick Bivens (TN Wildlife Resources Agency)
Bart Carter (TN Wildlife Resources Agency)
Don Hubbs (TN Wildlife Resources Agency)
Jeanette Jones (TN Wildlife Resources Agency)
Sue Lanier (TN Wildlife Resources Agency)
Carl Williams (TN Wildlife Resources Agency)
Dr. Tom Barr (University of Kentucky – *retired*)
Dr. Michael Kennedy (University of Memphis)
Dr. David Etnier (University of Tennessee - Knoxville – *retired*)
Dr. David Buehler – (University of Tennessee - Knoxville)
Dr. Lisa Muller (University of Tennessee - Knoxville)
Dr. Tom Blanchard (University of Tennessee - Martin)
Geoff Call (U.S. Fish & Wildlife Service – Cookeville Field Office)
Steve Ahlstedt (U.S. Geological Survey – *retired*)