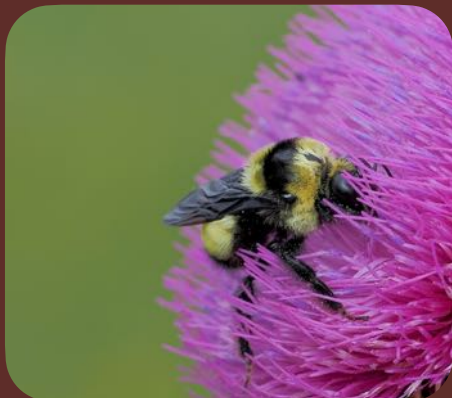




# TENNESSEE





# TENNESSEE STATE WILDLIFE ACTION PLAN 2025

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***This document was produced as a collaborative effort between the Tennessee Wildlife Resources Agency and The Nature Conservancy***

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 State Wildlife Action Plan, 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 the largest nonprofit conservation organization in the world and works collaboratively with individuals & communities, governments, nonprofits and companies across the globe. The mission of The Nature Conservancy is to conserve the lands and waters on which all life depends.



**BILL LEE**  
GOVERNOR  
STATE OF TENNESSEE

September 22, 2025

Mr. Mike Oetker  
U.S. Fish and Wildlife Service  
Regional Director, Southeast Region  
1875 Century Boulevard  
Atlanta, GA 30345

Dear Mr. Oetker:

I am proud to offer my full support for the Tennessee State Wildlife Action Plan (SWAP), coordinated by the Tennessee Wildlife Resources Agency (TWRA) in conjunction with the Tennessee Chapter of Nature Conservancy. This plan represents a proactive and collaborative approach to conserving our state's rich natural heritage and ensuring future generations of Tennesseans can enjoy the abundant fish, wildlife, and habitats that make our state unique.

Tennessee is home to some of the most biologically diverse ecosystems in the country, which play a critical role in our economy, our culture, and our way of life. This State Wildlife Action Plan provides the framework to conserve species and protect the natural systems that support both wildlife and people.

I commend the Tennessee Wildlife Resources Agency and its many partners for their commitment to collaboration, science, and stewardship in developing this plan. It reflects Tennessee's values and demonstrates how public agencies, private landowners, nonprofit organizations, and local partners can work together to sustain our natural resources.

Additionally, I support continued federal investment through programs like the State and Tribal Wildlife Grants Program, which provides essential funding to implement this plan on the ground. These investments are essential to maintaining Tennessee's natural legacy and protecting the wildlife and lands that contribute to our outdoor recreation economy and our quality of life.

As Governor, I look forward to seeing the continued success of the Tennessee State Wildlife Action Plan and reaffirm my administration's commitment to preserving Tennessee's natural treasures for generations to come.

Sincerely,

A handwritten signature in blue ink that reads "Bill Lee".

Bill Lee  
Governor



Governor Bill Lee joined the TWRA in October 2024 on the Duck River and assisted with mussel and fish surveys and the tagging of rare mussels.



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Southeastern Grasslands Institute  
Tennessee Aquarium  
Tennessee Department of Agriculture  
Tennessee Department of Environment  
and Conservation  
Tennessee Department of Transportation  
Tennessee State Parks  
Tennessee State University  
Tennessee Valley Authority  
Tennessee Wildlife Federation  
Tennessee Wildlife Resources Agency  
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Wolf River Conservancy

## EXECUTIVE SUMMARY

Congress first funded the State and Tribal Wildlife Grants Program (SWG Program) in 2001, and the program requires states to develop comprehensive plans to guide the conservation of nongame species. The SWG Program addresses important wildlife issues that have traditionally been underfunded, and it is now the nation’s core program for preventing endangered species listings. To receive funds, each state and territory is required to develop a “Comprehensive Wildlife Conservation Strategy,” popularly known as a State Wildlife Action Plan or SWAP. At a minimum, SWAPs must be updated every 10 years. This report represents the second revision of Tennessee’s SWAP, originally issued in 2005, and updated for the first time in 2015. This revision has 10 chapters, outlined below. As in 2015, the chapters have been organized along the lines of the “8 Required Elements,” which must be addressed in all SWAPs according to Congressional mandate; however, three new chapters in 2025 cover the topics of a changing environment, regional conservation, and private lands.

The TN-SWAP was developed based upon two key assumptions: (1) that although the focus is conservation of nongame wildlife species, many nongame conservation strategies and actions are habitat based and therefore benefit a wide range of species, including those that are common or hunted recreationally, and (2) that the TN-SWAP serves to promote common understanding of problems facing species and habitats across the state to encourage and prioritize collective action among a wide range of conservation partners.

**The Introduction** elucidates the intent of the 2025 SWAP, provides a summary of revisions, and reviews the history of the SWG program and SWAPs. It describes the guidance materials used during the Plan revision. It also explains the Tennessee Wildlife Resources Agency’s (TWRA) approach in revising the Plan: the revision team structure—including formation of a standing SWAP Steering Committee—and the public outreach and communications employed to engage SWAP partners and obtain public input.

**Chapter 1, State of Tennessee**, provides a broad overview of the State of Tennessee: its history, habitats, and major taxa of wildlife and plants. The discussions of species and habitats are organized by the eight major terrestrial ecoregions commonly recognized in Tennessee, as well as the state’s five major aquatic regions and six subterranean regions. The chapter also provides a broad overview of population changes that have occurred since 2015, as well as a breakdown of the type, extent, and distribution of land cover by ecoregion.

**Chapter 2, TN SWAP Accomplishments**, is a testament to the importance the State Wildlife Grant program guided by the SWAP. The chapter examines just a few of the significant conservation successes from 2015 through 2024 covering (a) restoration and management of oak savanna habitats, (b) aquatic restoration through barrier removal, (c) control of invasive species (carp, feral swine), (d) improved decision-making through data collection and analysis, (e) protection of high priority caves and other specialized habitats critical to Species of Greatest Conservation Need (SGCN), (e) data-driven planning, and (f) species reintroductions (Eastern

Hellbender, Yellowfin Madtom, and freshwater mussels). (A more comprehensive 2015-2024 list of major conservation projects conducted by key conservation partners is provided in Appendix C). A series of 19 two-page Highlights tell the stories of individual species and habitat conservation projects implemented since 2015, interspersed throughout chapters 3 through 8.

**Chapter 3, SGCN and Priority Habitats**, focuses on the identification, distribution, and abundance of SGCN as well as the identification of priority habitats for the conservation of those species (#1 and # 2 of the 8 required Elements). It summarizes updates to the SGCN list, “element occurrence” data (i.e., individual records of species occurrence), and the methodologies for prioritizing habitats critical to SGCN as well as mapping of threats to SGCN and their habitats. The categories used to identify and rank SGCN in 2025 are the same as those employed in 2015, with the exception that TWRA conducted an additional layer of analysis for their state Threatened & Endangered (T&E) species list. The 2025 SWAP identified 1,598 aquatic, terrestrial, and subterranean SGCN species in Tennessee, and of those, 436 are regional priorities (i.e., priorities for additional states bordering Tennessee). In 2025, over 1,100,000 species occurrence records were added to Tennessee’s SWAP analysis, more than triple the 316,000 occurrence records available during the 2015 revision. Methods for mapping and prioritizing SGCN habitats are described, including a summary of new data incorporated into the SWAP relational database system since 2015: updated land use base layers, proprietary flood frequency data, and an updated mapping unit system. Habitat priorities within each of Tennessee’s eight ecoregions are summarized.

**Chapter 4, Problems Affecting Species and Habitats**, identifies, categorizes, and prioritizes threats to SGCN species and habitats (#3 of the 8 Required Elements). Ten major threat categories defined by the Conservation Measures Partnership were identified in 2025, adding Climate Change as a major category since 2015. Urbanization; agricultural land management; forestry practices; water management; energy development; transportation and utility corridors; biological resource use/natural system modifications; and invasive and problematic species and pathogens were identified as the top issues affecting SGCN and their habitats in 2025.

**Chapter 5, Resilience in a Changing Environment**, focuses on how changing environmental conditions are likely to have pervasive impacts on natural habitats, ecological processes, and ecosystem services in the coming years. Trends in weather data and modeling of future conditions generally point to more hot days and more intense heat waves; an increase in the number of extremely dry days; a decrease in the number of extremely cold days; and an increased trend in number and intensity of extreme precipitation events. Species vulnerability to environmental change is assessed using two methods: (1) the CCVI, which summarizes both a species exposure and sensitivity to change, and (2) ecological niche models, which estimate changes to suitable habitat for species. Mussels, fish, plants, and amphibians in Tennessee are likely to have the most species vulnerable to changing environmental conditions.

**Chapter 6, Conservation Actions and Strategies**, focuses on the type of projects and management that can address identified problems (#4 of the 8 Required Elements). The SWAP planning team determined that the 2015 strategy hierarchy remained applicable to SGCN statewide conservation efforts. In 2025, the team elaborated in detail on 27 General Actions (in 7 Classes) that are most commonly implemented by TWRA and partners to address the major problems affecting SGCN and their habitats. Conservation Opportunity Areas (COAs) previously defined in 2015 were updated with input from key conservation partners, resulting in the identification of eight new COAs and 17 COAs with regional (multi-state) importance. Eleven COAs retained their original boundaries and one was eliminated.

**Chapter 7, Regional Conservation Assessment**, highlights the importance of collaborating at landscape scales by using a list of priority regional animal species developed by the Southeast Association of Fish and Wildlife Agencies (SEAFWA) and priority regional plant species developed by the Southeast Plant Conservation Alliance. Known as Regional Species of Greatest Conservation Need (RSGCN), these species' ranges are shared across states in the Southeast (and sometimes beyond), helping to identify opportunities for collaboration and coordination of activities. The range of Tennessee's RSGCN also helped to identify which COAs should be considered Regional COAs (17 out of 36). Four case studies of Regional COAs are provided.

**Chapter 8, Private Lands Conservation**, was created both to highlight the critical role that private lands and landowners play in conserving Tennessee's natural heritage and to serve as a resource for private landowners and conservation practitioners. It recognizes that landowner priorities drive conservation on private lands. It summarizes top environmental concerns of landowners in Tennessee, as well as sources of support for stewardship and protection of private lands, illustrated with numerous project examples. A Landowner's Conservation Planning Guide helps answer:

- What are the natural and economic characteristics of your property?
- What are your conservation goals?
- What is your capacity for working on the land?
- Who are the potential partners that can help you reach your goals?

**Chapter 9, Implementing the Tennessee SWAP 2025-2034**, highlights future use of the SWAP to help (1) data-backed support for funding requests, (2) guide organizations and individuals by showing them where to work, and (3) indicate knowledge gaps and incomplete understanding of SGCN and the habitats vital to their survival. The chapter addresses the importance of effectiveness monitoring in Tennessee (#5 of the 8 Required Elements), which is imperative for both adaptive management and for increased understanding/modeling of species and habitat changes through time. The chapter lists and highlights the utility of regional-scale monitoring efforts, including a proposed ESRI-based SWAP conservation project reporting tool, which will be shared annually among cooperating partners to allow consolidation of a variety of project and monitoring data.

**Chapter 10, Tennessee SWAP Review and Revision**, acknowledges the continuing requirement to update SWAPs every 10 years. It summarizes how TWRA intends to use information and products provided annually by the Steering Committee and supporting working groups to provide the foundation for the next ten-year comprehensive SWAP review in 2035. Existing strategic, operational, and project planning cycles within TWRA will be integrated into SWAP review procedures with the goal of producing a digital SWAP in 2035. Updates to the SWAP Relational Database, as well as emerging issues such as Highly Pathogenic Avian Influenza, will be incorporated into future SWAPs. The chapter concludes with lessons learned. Highlights of appendices to this SWAP include:

- ◆ The revised 2025 list of SGCN
- ◆ A SWAP Map Atlas that can be used independently or in conjunction with the SWAP
- ◆ A set of factsheets about each of Tennessee’s 37 COAs, which include descriptions of habitats, issues, conservation and monitoring priorities, and partners as well as COA maps and detailed lists of GCN species occurrences within each COA.

In addition, the following sections of the SWAP can be used independently of the plan itself:

- ◆ 19 Conservation Highlights targeted to practitioners and laypersons alike, which can be used for outreach and education.
- ◆ The Tennessee Landowner’s Conservation Planning Guide, a Tennessee Private Landowner Resources table, and a Calendar of Seasonal Conservation Actions can serve as useful guidance and outreach materials for landowners.

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## **SUMMARY OF CHANGES**

In the 2025 Tennessee SWAP, enough has changed since 2015 that a detailed summary of changes would be virtually a recapitulation of the entire document. Each chapter—with the exception of Chapter 1 (Tennessee), and Chapter 2 (Accomplishments, all new since 2015), Chapter 7 (Regional, all new since 2015)—provides a summary of the chapter’s content, usually in the beginning, sometimes later. Please refer to these summaries, which list new methods, new approaches, and new data summaries.

Moreover, chapters 5 (Resilience in a Changing Environment), 7 (Regional Conservation Assessment), and 8 (Private Lands Conservation) are all completely new in 2025. They are evidence of the commitment that TWRA, TNC, and conservation partners bring to achieving the goal of preserving Tennessee’s precious natural heritage for current and future generations.

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## ACRONYMS

AFWA	Association of Fish and Wildlife Agencies
AKN	Avian Knowledge Network
ALAN	Artificial Light at Night
ANS	Aquatic Nuisance Species
APSU	Austin Peay State University
ATV	All Terrain Vehicle
B. suis	<i>Brucella suis</i>
Bd	Chytrid fungus
BLM	Bureau of Land Management
BMPs	Best Management Practices
Bsal	<i>Batrachochytrium salamandrivorans</i>
CASC	Climate Adaptation Science Center
CCVI	Climate Change Vulnerability Index
CDC	Centers for Disease Control and Prevention
CDL	Cropland Data Layer
CFI	Conservation Fisheries Incorporated
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLO	Clothianidin
cm	centimeter(s)
CMP	Conservation Measures Partnership
CNF	Cherokee National Forest
COA	Conservation Opportunity Area
CRAC	Cumberland River Aquatic Center
CRCS	Center for Resilient Conservation Science
CSAPR	Cross-State Air Pollution Rule
CWA	Clean Water Act
DNA	Division of Natural Areas
DU	Ducks Unlimited
E. coli	<i>Escherichia coli</i>
EAB	Emerald Ash Borer
EEB	Dept. of Ecology and Evolutionary Biology
EGCPJV	East Gulf Coastal Plain Joint Venture
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAP	Forest Action Plan
ft	foot/feet
FUTURES	Future Urban-Regional Environment Simulation
G-Rank	Global Rarity
GA DNR	Georgia Department of Natural Resources
GAP	Gap Analysis Project

GHG	Greenhouse Gas
GLC	GIS Geographic Information Systems
GSMNP	GAP/LANDFIRE and Cropland Data Layer
GWL	Great Smoky Mountains National Park
HPAI	Global Warming Level
HR	Highly Pathogenic Avian Influenza
HR	High Resolution
HUC12	Herbicide-resistant
HWA	12-digit hydrologic units
IMI	Hemlock Woolly Adelgid
in	Imidacloprid
INOM	inch(es)
IRP	In Need of Management
IUCN	Integrated Resource Plan
km	International Union for Conservation of Nature
LMP	kilometer(s)
m	Landscape Management Plan
MAP	meter(s)
MATS	Mississippi Alluvial Plain
mi	Mercury and Air Toxics Standards
MSA	mile(s)
MTSU	Metropolitan Statistical Area
NABat	Middle Tennessee State University
NALCC	North American Bat Monitoring Program
NF	North Atlantic Landscape Conservation Cooperative
NFWF	National Forest
NGOs	National Fish and Wildlife Foundation
NHDPlusV2	Nongovernmental Organizations
NID	National Hydrography Plus, Version 2
NOAA	National Inventory of Dams
NOx	National Oceanic and Atmospheric Administration
NP	Nitric Oxide + Nitrogen Dioxide
NPS	National Park
NRCS	National Park Service
NWF	Natural Resources Conservation Service
NWR	National Wildlife Federation
OHV	National Wildlife Refuge
OHV	Off Highway Vehicle
PAD	Off Highway Vehicle
PARCAs	Protected Area Database
PCB	Priority Amphibian and Reptile Conservation Areas
Pd.	Polychlorinated Biphenyl
PFAS	<i>Pseudogymnoascus destructans</i>
	Per-and polyfluoroalkyl

PV	Photovoltaic
QF	Quail Forever
RC&D	Resource, Conservation, and Development Agency
RCPP	Regional Conservation Partnership Program
RCN	Resilient and Connected Network
RCOA	Regional Conservation Opportunity Areas
RCPs	Representative Concentration Pathways
RSGCN	Regional Species of Greatest Conservation Need
S-Rank	State Rarity
SARP	Southeast Aquatic Resources Partnership
SC	Steering Committee
SE CASC	Southeast Climate Adaptation Science Center
SEAFWA	Southeast Association of Fish and Wildlife Agencies
SEAR	Southeastern Avian Research ??
SECAS	Southeast Conservation Adaptation Strategy
SF	State Forest
SFD	Snake fungal disease
SGCN	Species of Greatest Conservation Need
SGI	Southeastern Grasslands Institute
SHSD	Suitable Habitat Separation Distance
SNA	State Natural Area
SNAPS	Student Network for Amphibian Pathogen Surveillance
SO2	Sulfur Dioxide
SP	State Park
SPB	Southern Pine Beetle
SPI	Shortleaf Pine Initiative
SSA	Species Status Assessment
SSPs	Shared Socioeconomic Pathways
SWG	State and Tribal Wildlife Grants
T&E	Threatened and Endangered
TACT	Tennessee Aquatic Connectivity Team
TCF	The Conservation Fund
TDA	Tennessee Department of Agriculture
TDEC	Tennessee Department of Environment and Conservation
TDF	Tennessee Division of Forestry
TDOT	Tennessee Department of Transportation
TGLC	TennGreen Land Conservancy
THS	Tennessee Herpetological Society
TN AQ	Tennessee Aquarium
TN-IPC	Tennessee Invasive Plant Council
TNACI	Tennessee Aquarium Conservation Institute
TNBWG	Tennessee Bat Working Group
TNC	The Nature Conservancy

TNFO	Tennessee Field Office (of USFWS)
TOS	Tennessee Ornithological Society
TRGT	Tennessee River Gorge Trust
TSI	Timber Stand Improvement
TSU	Tennessee State University
TTU	Tennessee Tech University
TWRA	Tennessee Wildlife Resources Agency
US	United States
UAH	University of Alabama in Huntsville
UBT	Urban Bird Treaty
UM	University of Memphis
UNEP	UN Environment Programme
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
USFS	US Forest Service
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
USNVC	US National Vegetation Classification
UTC	University of Tennessee, Chattanooga
UTK	University of Tennessee, Knoxville
VA TECH	Virginia Tech
WDNR	Wisconsin Department of Natural Resources
WG	Working Group
WMA	Wildlife Management Area
WNS	White-nose syndrome
WNV	West Nile Virus
WTRBA	West Tennessee River Basin Authority
WUI	Wildland Urban Interface
WWF	World Wildlife Fund



SINCE 2000, WHEN THE US CONGRESS first funded the State and Tribal Wildlife Grants (SWG) Program, each state, territory, and the District of Columbia has been required to develop comprehensive plans to guide the conservation of a diverse array of wildlife and associated habitats, including species that are not hunted or fished (Pub. L. 106-153, § 902(a) 2000, AFWA 2022). The SWG Program addresses important wildlife issues that have traditionally been underfunded, and it is now the nation’s core program for preventing endangered species listings and to keep common species common. To receive funds, each state and territory must develop a “Comprehensive Wildlife Conservation Strategy,” better known as a State Wildlife Action Plan or SWAP.

In 2005, each state submitted its first SWAP to Congress. State plans addressed eight elements required by the US Fish and Wildlife Service to receive SWG Program funds.

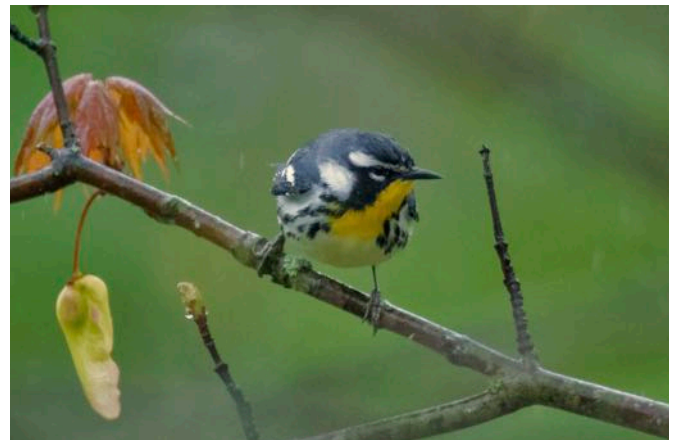
Fall colors in middle Tennessee /  
Greg Wathen

Plans are revised and updated on a 10-year cycle to explore and implement the most innovative approaches to conservation and to reflect changing conditions. This is Tennessee’s second comprehensive update to its SWAP.

As one of the nation’s most biologically diverse states, Tennessee must continue to provide suitable habitat for its endemic and geographically rare species, especially aquatic species, in the face of growing threats. Tennessee’s SWAP is a collaborative, living guide, intended for use by all Tennesseans to conserve, protect, and manage wildlife, fish, and plant Species of Greatest Conservation Need (SGCN) and the ecological communities they need to survive.

Tennessee’s SWAP is a statewide plan focused on conservation of the state’s immense biodiversity. From this perspective, there are number of anthropogenic activities that have been identified as significant threats or sources of stress to SGCN. The identification of a source of stress or threat has not occurred to cast blame or single out individual user groups or industries, but rather to identify ways in which on-the-ground practices and policies can be improved, modified, or replaced with alternatives to reduce or eliminate the stresses and threats. Addressing the threats and sources of stress is a critical component to species conservation and recovery. The goal of Tennessee’s SWAP is to conserve and recover SGCN, all while keeping common species common.

A systematic analysis of observational data and conditions across the state drives each 10-year revision. After identifying species and habitats most in need of protection and/or restoration, stressors affecting those species and habitats are assessed for mitigation. Lastly, through the evaluation of partner priorities and resources, the revision team stacks the resulting data layers to reveal Conservation Opportunity Areas (COAs), in which stewardship projects can be anticipated to attain maximum impact.



Yellow-throated Warbler (*Setophaga dominica*), a SGCN in Tennessee / Daniel Istvanko, TWRA

The 27 types of conservation strategies outlined and described within the SWAP are guided by science, leading scientists, conservationists, private landowners, and other stakeholders to protect and address the decline of the state’s 1,598 SGCN and their habitats. Federal, state, and local governments, private organizations, and individuals are engaged during SWAP development to prioritize, plan for, and fund conservation across Tennessee.

## I-1. Intent of the SWAP 2025 Revision

By engaging conservation-focused governmental agencies and private organizations during the SWAP development process, we seek to maximize project efficiency and achieve the following outcomes through the 2025 SWAP revision:

- Identify conservation priorities and goals shared between partners
- Leverage resources through accountable collaboration
- Cooperatively monitor environmental and disease stressors
- Assess priority conservation areas of opportunity
- Work together to plan and guide future conservation successes across Tennessee.

This revision includes critical updates to species status and needs, monitoring guidelines, and programs to conduct disease surveillance and prevention. Additionally, due to the increasing rate of land development, urban sprawl, and associated impacts on native species, we are incorporating a new chapter on private lands to highlight conservation resources available to private landowners. By involving more partners, we focus Tennessee’s conservation objectives and strategies and enhance collaboration in the protection and recovery of SGCN. Lastly, the 2025 revision will include analyses of species and habitat conservation priorities shared between Tennessee and neighboring states in the Southeast Region to foster collaboration and improved results, and to avoid unnecessary duplication of effort.

### **I-1.1. From 2005 to 2025: Overview of the SWAP Revisions**

Tennessee’s first SWAP (at that time, called *Tennessee’s Comprehensive Wildlife Conservation Strategy*) was completed in 2005. In developing the 2005 SWAP, the Tennessee Wildlife Resources Agency (TWRA), in collaboration with The Nature Conservancy (TNC), invested in the development of an integrated relational database and Geographic Information Systems (GIS) tool to serve three main purposes: (1) consolidate numerous datasets on species occurrences and habitats managed by different agencies and organizations in the state; (2) link the species and habitat data to a GIS platform to facilitate conservation priority mapping statewide; and (3) promote common understanding of problems facing species and habitats across the state to encourage and prioritize collective action (TWRA 2005, pp. 28-29).

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***This revision includes critical updates to species status and needs, monitoring guidelines, and programs to conduct disease surveillance and prevention.***

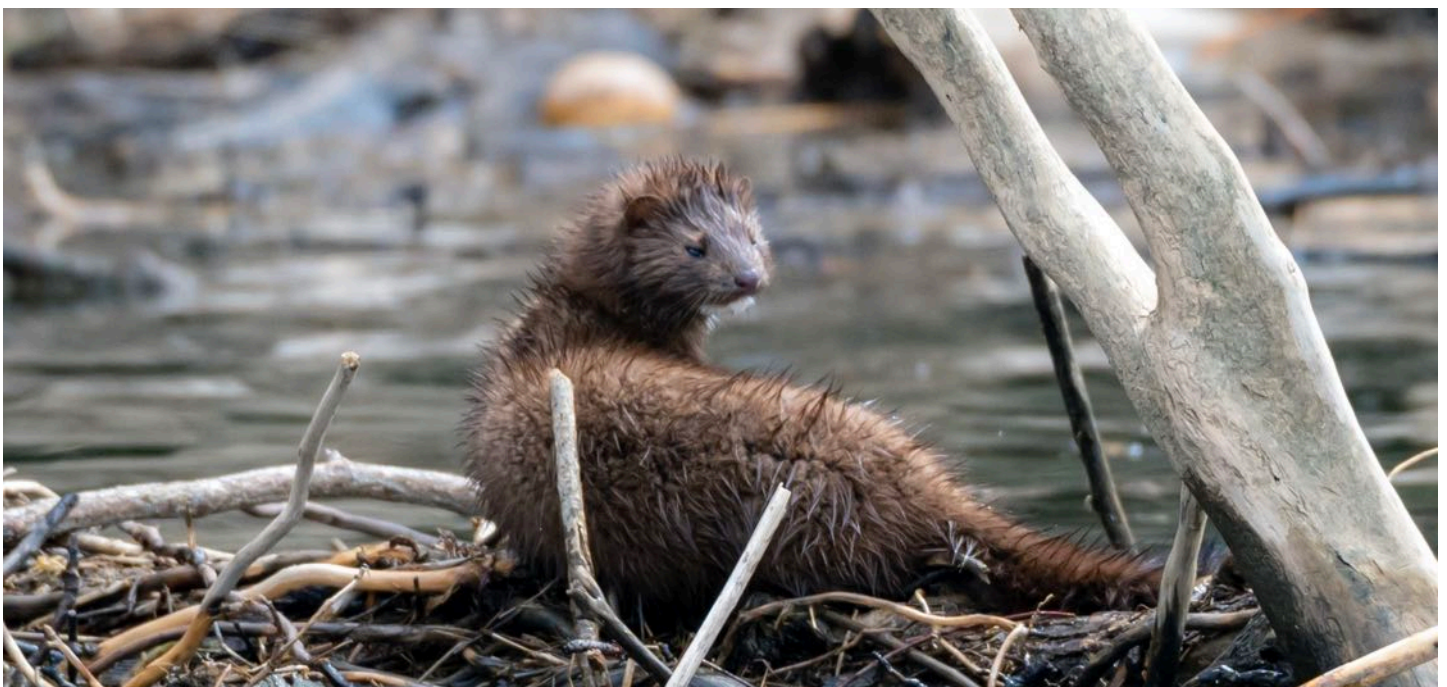
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The 2015 SWAP update was a comprehensive revision intended to build upon the original 2005 assessment methods, tools, and planning process addressing the Eight Required Elements (see I-2.1). Likewise, in the creation of this 2025 revision document, the emphasis is placed on highlighting where data and methods have been added, revised, and updated; how decisions on addressing priority problems and strategies have been made; and the rationale for decision-making throughout the process.

Key attributes of this 2025 comprehensive revision include:

- The use of EPA Level III Ecoregions to define ecoregions across the state, making them congruent with many national datasets

- Updated statewide maps to include priority problems affecting habitats, including updated land use data and updated urbanization projections
- The revision of Conservation Opportunity Area boundaries based on partner/expert input
- Creation of a SWAP Steering Committee comprised of government agency and non-governmental organizations to help guide the SWAP, identify conservation opportunities, and monitor progress
- Targeting of priority conservation actions with the formal participation of Steering Committee partners
- Creation of ad hoc Working Groups comprised of experts who can address specific issues and questions
- Incorporation of 2020 State Forest Action Plan information, objectives, and priorities as appropriate
- The addition of a Private Lands Conservation chapter to provide greater focus on conservation opportunities for private landowners
- The addition of a Regional Conservation Assessment chapter that integrates the priorities of bordering states' wildlife and rare plants that are shared with Tennessee
- The addition of a chapter on Climate and Resilience and how these issues impact SGCNs and priority habitats
- An appendix on the One Health approach to addressing wildlife diseases, focusing on pathogens, disease vectors, toxicants, and environmental and community stressors that exacerbate disease risk (Appendix J)
- Developing content with a view to future, more user-friendly modes of sharing SWAP data online
- Participation of the Steering Committee



Mink (*Neovison vison*), not a SGCN / Daniel Istvanko, TWRA

## I-2. Precedents and Requirements for State Wildlife Action Plans and Revisions

The development of State Wildlife Action Plans in every state and territory in 2005 and their revisions by the year 2015 were historic milestones. All states completed plans following a similar, recommended format, which set the stage for better collaboration and decision-making on conservation priorities.

Although the focus of the SWG program and SWAPs is conservation of nongame wildlife species, many nongame conservation strategies and actions are habitat-based and therefore benefit a wide range of species, including those that are common or hunted recreationally. SWAPs are intended to serve as adaptive management plans to be updated at regular intervals, and the maximum interval is 10 years. The 2015 update plan was Tennessee's first comprehensive revision of all Eight Elements from its 2005 SWAP, and this 2025 update is its second.

### I-2.1. SWAPs Must Address 8 Key Elements

In its directive to states on the development of State Wildlife Action Plans, Congress identified eight required elements and directed that the strategies must identify and focus on the "species in greatest need of conservation," as well as address the "full array of wildlife" and wildlife-related issues (TWRA 2005). The following summarizes the Eight Required Elements and the chapters of this revision document that address each element:

1. Information on the distribution and abundance of species of wildlife, including low and declining populations as the state fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the state's wildlife; [Ch 3]
2. Descriptions of extent and condition of habitats and community types essential to conservation of species identified in (1); [Ch 3]
3. Descriptions of problems which may adversely affect species identified in (1) or their habitats, and priority research and survey efforts needed to identify factors that may assist in restoration and improved conservation of these species and habitats; [Ch 4, 5, 6]
4. Descriptions of conservation actions proposed to conserve the identified species and habitats and priorities for implementing such actions; [Ch 6, 7, 8]
5. Proposed plans for monitoring species identified in (1) and their habitats, for monitoring the effectiveness of the conservation actions proposed in (4), and for adapting these conservation actions to respond appropriately to new information or changing conditions; [Ch 7, 9]
6. Descriptions of procedures to review the plan at intervals not to exceed ten years; [Ch 10]
7. Plans for coordinating the development, implementation, review, and revision of the plan with federal, state, and local agencies and Indian tribes that manage significant land and water areas within the state or administer programs that significantly affect the conservation of identified species and habitats; [Ch 1, 7, 10]
8. Processes for broad public participation in developing, revising, and implementing these plans, the projects that are carried out in accordance with these plans, and the designation of species in greatest need of conservation. [Ch 1, 3, 8, 10]

## I-2.2. Agency Guidance for Plan Revision and Implementation

Since the first round of State Wildlife Action Plans completed in 2005, the US Fish and Wildlife Service, the Association of Fish and Wildlife Agencies, and conservation partners have developed voluntary guidance to help states revise and improve their plans. These flexible guidance documents focus on identifying best practices for meeting each of the Eight Required Elements and also assist states in determining their approach to addressing climate change vulnerabilities for species and their habitats. Below are the most up-to-date guidance documents used to guide the 2025 version of the Tennessee SWAP:

- 2012 Association of Fish & Wildlife Agencies (AFWA) Best Practices for State Wildlife Action Plans
- 2017 SWAP Revision Guidance
- 2019 Fish and Wildlife Relevancy Roadmap
- 2022 Voluntary Climate Adaptation Guidance for SWAPs 2nd Edition
- 2022 Guidance to Add Plants to SWAPs
- 2024 State Wildlife Action Plan Digital Revision Interim Guidance
- 2024 National Fish, Wildlife, and Plants Climate Adaptation Network Climate Adaptation Strategy

The 2025 revision team has used these guidance materials throughout the update development process. Although Tennessee does not contain land and water areas currently under Indian Tribal management, a plan to redistribute over 76 acres in Monroe County to the Cherokee Tribe via the Eastern Band of Cherokee Historic Lands Reacquisition Act has passed the US House five times, most recently in February 2025, and is awaiting consideration by the Senate. It is essential for conservation planners to stay informed on such matters and proactively engage with Tribal natural resources partners, should such actions be implemented. During the 2025 SWAP revision, multiple attempts were made to coordinate with conservation-focused members of the Eastern Band of Cherokee Indians to obtain their feedback and input. While the revision team was unable to connect directly with Tribal representatives, numerous opportunities exist for Tribal collaboration to both serve Tennessee's conservation needs and expand the protection and appreciation of culturally important species and sites.



Spring Salamander, (*Gyrinophilus porphyriticus*) / Daniel Istvanko, TWRA



Rainbow Darter (*Etheostoma caeruleum*) / Daniel Istvanko, TWRA

### I-3. Approach to the 2025 Plan Revision

Each iteration of Tennessee’s SWAP illustrates many of the features highlighted in AFWA guidance documents issued at the time. The 2015 SWAP used the NatureServe ranking methodology to assess species conservation status; standardized habitat classifications; problem and strategy



Janie Becker, TNC, leading a discussion at the first SWAP Steering Committee meeting in July 2024 / Daniel Istvanko, TWRA

hierarchies; mapping of habitat priorities statewide; and the input of many public and private partners in the plan’s development. The 2015 SWAP also included the designation of Conservation Opportunity Areas, plants as SGCN, and a section focusing on climate change.

This 2025 update effort expands on these approaches, with the formal creation of a Steering Committee that not only provides knowledge and priorities for conservation, but which is also committed to serving over the next 10-year SWAP period to

implement SWAP priorities, monitor and report back on conservation successes, and share information related to SWAP goals.

#### I-3.1. Alignment with Tennessee Wildlife Resources Agency (TWRA) Strategic and Operational Planning

In 2005, Tennessee’s planning team developed the first SWAP document in alignment with the guidance available from the US Fish and Wildlife Service (USFWS) at the time. The next step after completing the SWAP was to develop a 2006-2012 Operational Plan (TWRA 2006) to align agency nongame species and habitat conservation activities with the Tennessee Wildlife Resource Agency’s overall strategic planning approach.

In 2014, TWRA completed its 2014-2020 Strategic Plan, which provides an overarching vision, broad-based goals, and strategies for achieving those goals in four main areas of operation: wildlife management, outdoor recreation, law enforcement, and information/education (TWRA 2014). To a significant degree, the operations of all four of these programs are essential to successfully managing Tennessee’s SGCN. The planning approach of the 2005 SWAP, particularly the approach to using standardized habitat classification and species data, influenced the development of TWRA’s 2014 Strategic Plan. For the first time, a habitat-based approach to defining priority management outcomes was used as the focus of the agency’s Wildlife Resource Program. TWRA maintained the habitat-based approach when updating its strategic plan in 2021.

For this reason, the 2025 SWAP Revision aligns with TWRA's 2021-2027 Strategic Plan in the following ways:

- The plans use the same classification scheme for defining habitats.
- The plans focus on habitat conservation priorities to facilitate species management.
- The plans are oriented toward achieving similar high-level outcomes.

The 2025 SWAP revision team worked intentionally with other divisions of TWRA to maintain collaboration and identification of shared conservation priorities using common understandings of habitats and problems affecting species and habitats statewide.

### **I-3.2. Revision Team Structure, Planning Objectives, and Database Updates**

TWRA and TNC have made continuous investments in species monitoring data development and the SWAP relational database/GIS tool since the publication of the first SWAP in 2005 and revision in 2015. Chapter 2 of this plan highlights many examples of on-the-ground conservation implementation as well as improvements to conservation data and planning methods. TWRA also completed an internal revision of the 2005 SWAP examining potential climate vulnerabilities of species and habitats statewide in 2009.

For the 2015 Comprehensive Review process, TWRA and TNC designed a team planning process (see Figure 1) focused on the following objectives:

- Take advantage of core competencies within TWRA staff and meet capacity gaps with additional technical advisors (e.g., subject matter experts, communications, and technical writing).
- Effectively engage all TWRA divisions and leadership at appropriate junctures in the planning process.
- Achieve broad review of updated species list by technical experts.
- Effectively engage government and non-government conservation partners to identify priorities for collaboration.



Josh Campbell, TWRA Biodiversity Chief, presenting at the first SWAP Steering Committee meeting in July 2024 / Daniel Istvanko, TWRA

- Develop the foundation for improved public communications, access, and engagement with the SWAP.

In addition, a separate report, Climate Change Vulnerability Assessment for Tennessee Wildlife and Habitats (2015), was jointly prepared by the National Wildlife Federation and TNC to inform the 2015 SWAP.

As in previous iterations of the SWAP, the core planning team designed a 2025 project approach to ensure a comprehensive review of all Eight Required Elements using the 2012 AFWA Best Practice Guidance recommendations wherever feasible.

The overarching objectives of the 2025 revision process were to expand from the solid data assimilation and methodological approaches developed by the team in 2015, re-engage a diverse set of technical reviewers and collaborators, and revise previously created Conservation Opportunity Areas as an additional strategic framework to continue on-the-ground conservation delivery with a variety of partners. For the first time in 2025, separate chapters on climate-related threats and regional conservation opportunities were included in the SWAP.

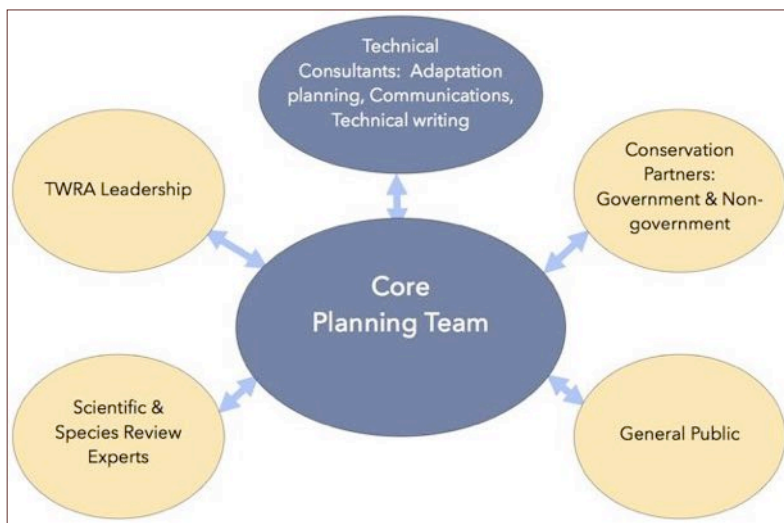


Figure I-1. Conceptual diagram of the relationship between the core planning team, advisors, partners, and the general public

### I-3.3. Conservation Partners Engagement

This SWAP is a collaborative, living guide, intended to be used by all Tennesseans. It is a customized document, designed to direct efforts to conserve, protect, and manage wildlife, fish, and plant SGCN, as well as the ecological communities they depend on for survival. A systematic analysis of observational data and conditions across the state drives each 10-year revision. After identifying species and habitats most in need of protection and/or restoration, stressors affecting those species and habitats are assessed for mitigation. Lastly, through the evaluation of partner priorities and resources, the revision team stacks the resulting data layers to reveal COAs in which stewardship projects can be anticipated to attain maximum impact.

The strategies outlined and described within the SWAP are guided by leading scientists, conservationists, private landowners, and other stakeholders to protect and address the decline of SGCN and their habitats. Federal, state, and local governments, private organizations, and individuals are engaged during SWAP development to prioritize, plan for, and fund conservation across Tennessee.

### **I-3.4. Public Outreach and Communications: Process, website, press release, public comments**

For maximum efficiency during the public comment period, a new SWAP web page was cross-linked with the TWRA website (hosted on [www.tn.gov](http://www.tn.gov)) in 2025, while TWRA’s existing public comment function was used to solicit and capture public comments on the draft SWAP. Comments were sorted by category or topic, then considered and answered by the appropriate experts on the SWAP team. Appendix A provides an explanation of what actions, if any, were taken in response to comments raised during the review period.

Email communications were maintained regularly between the SWAP Coordinator and Steering Committee, with outreach to other experts conducted by various TWRA personnel as needed.

The final 2025 Tennessee State Wildlife Action Plan will be hosted on a stand-alone website sponsored by TWRA, with links to it provided on all of TWRA’s pages with a focus on non-game wildlife. This will allow increased efficiency and greater flexibility for TWRA’s Biodiversity staff to maintain the site with up-to-date information.



Group photo from April 2025 meeting of the Tennessee 2025 SWAP Steering Committee / Lee Wilmot, TWRA

### I-3.5. Revision Process Timeline and Activities

The time schedule on the following page provides a summary of the major activities executed during the comprehensive review period from February 2023 through September 2025. Chapters 3 through 10 provide detailed information regarding approaches, results, and outcomes of the revision.



Eastern Newt (*Notophthalmus viridescens*) in the Red Eft stage / Chris Simpson, TWRA

## 2025 SWAP Revision Time Schedule of Major Activities

### January - December 2023: Project Launch

- Notify USFWS of intent to perform comprehensive revision
- Notification to the Service of the formal revision process
- Core planning team formed and subject matter experts identified
- Subject Matter Experts engaged to review 2015 SGCN list, rerank species, and make recommendations

### January - March 2024: Updates to Database

- Initiate compilation of species occurrence data
- Update definitions for Tennessee ecoregions, using the 8 Level III Ecoregions defined
- Core team review of initial update document draft to approve format and primary content
- Development of draft "Highlight" documents begins for the purpose of providing examples and context for species and habitat conservation
- USFWS Science Applications staff engaged to develop Regional chapter
- Coordinate with Southeast Climate Adaptation Science Center (SE-CASC) and Univ. of Tennessee, Knoxville's Dept. of Ecology & Evolutionary Biology for development of the Climate Resilience chapter to examine potential threats to habitats in TN and surrounding states in the region, as forecast by the latest climate models
- Communications program for key conservation partners across the state developed

### April - June 2024: Review of SGCN, Problem and Action Assessments updated for 2025

- First draft of revised SGCN list completed
- First draft of statewide habitat prioritization maps completed
- Private lands partners engaged to provide guidance and comment on Private Lands chapter
- Outlines of new Private Lands, Regional, and Climate Change chapters produced
- Outreach to key conservation partners across the state begins, for participation in SWAP development and recruitment to serve as part of the statewide SWAP Steering Committee

### July - September 2024: Stakeholder Participation and COA revisions begin

- SWAP Steering Committee workshop held to obtain input on COA statewide
- COA boundaries revised on the basis of partner input, changes in habitat and GCN species occurrences
- 36 COAs defined/revised in collaboration with Steering Committee partners: 8 new COAs defined; 1 COA eliminated; 15 existing COA boundaries were redefined as RCOAs, i.e., regional COAs extending across state boundaries and 2 new COAs defined as RCOAs; 7 existing COAs had boundaries expanded or adjusted based on watershed information or to follow EPA Level IV Ecoregional boundaries; 11 COAs remain unchanged (see Table 6.2, Summary of COA Changes, for more detail)

### October - December 2024: Draft Document and COA Revisions Continue

- Steering Committee workshop held to gather feedback on statewide conservation collaboration process, COAs, and partnership recommendations
- First internal text-only draft of revised SWAP produced

### January 2025 - March 2025: Conservation Stressors and Opportunity Areas

- SGCN list revision complete and species occurrence data fully compiled
- Determination of high-level stressors and desired outcomes for COAs and assignment of draft primary conservation actions by core team
- Draft COA factsheets completed

### April 2025 - August 2025: Public Comments and Revision of Draft SWAP

- Final draft of revised habitat prioritizations completed
- First draft of illustrated 2025 SWAP pdf completed and posted online for public comment
- Public comments and additional Steering Committee and partners feedback collected

### July 2025 - December 2025: Revision and Submission

- 19 Highlight documents completed
- Response to public comments and completion of final 2025 Update report
- Final SWAP maps completed, including third quarter 2025 revisions to the SGCN list
- Submission of Update report to USFWS for review prior to December 15