# SPECIAL REPORT:

## Celebrating the Tenth Anniversary of State Wildlife Grants in Tennessee

**A New Wildlife Tradition of "Keeping Common Species Common" is Key to the Ecosystems and Economic Health of the Volunteer State**

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## Celebrating the Tenth Anniversary of State Wildlife Grants in Tennessee

**A New Wildlife Tradition of Keeping Common "Species Common" is Key to the Ecosystems and Economic Health of the Volunteer State**

**December 1, 2010**

**Written, compiled, and designed by K. Gregg Elliott,**
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# State Wildlife Grants

*The State Wildlife Grants program is the first significant funding that Tennessee Wildlife Resources Agency has received to manage and conserve non-game fish and wildlife in our state. The SWG program has enabled our Agency to better fulfill our mission of conserving all of Tennessee's fish and wildlife resources. - Greg Wathen, Chief of Wildlife, TWRA*

**Hibernating gray bats,** *Myotis grisescens,* **with biologists from TWRA and TNC, photo by Josh Campbell, TWRA**

The United States has a proud tradition of wildlife conservation and habitat management. In the late 1800s and early 1900s, the country was facing the elimination of species from broad swathes of their former range, caused by rapid logging, clearing for agriculture, fur trapping, market hunting and the plume trade.

However, during the 20th century, prominent conservationists like Theodore Roosevelt, Gifford Pinchot, and Aldo Leopold recognized that wildlife were not inexhaustible. They worked alongside sportsmen, state and federal wildlife agencies, and Congress to bring the White-tailed Deer, Wood Duck, Wild Turkey, egrets and many other species back from the brink through a series of regulations and funding programs designed to manage game and fish as a valuable resource.

One of the country's newer wildlife traditions is that of "keeping common species common." This is a philosophy that recognizes the need to preserve wildlife for future generations while acting in a cost-effective way to create and conserve their habitats. Until 2001, state fish and game agencies like the Tennessee Wildlife Resources Agency (TWRA) had a mandate to conserve all forms of wildlife, yet most of their resources were obtained through excise taxes on fishing and hunting equipment (See "Federal Funding Programs for Wildlife," p. 2.)

**Box Turtle** *Terrapene carolina* **and Kingfisher,** *Megaceryle alcyon*
**Photos by Chris Simpson, TWRA and Dave Hawkins**

# The Teaming With Wildlife Coalition

As early as 1980, Congress recognized the lack of dedicated funds for game and fish management by passing the Fish and Wildlife Conservation Act, which remained unfunded.

Yet the concept of keeping common species common kept gaining momentum. The growing success of Joint Venture partnerships focused on comprehensive planning for waterfowl, established under the 1986 North American Waterfowl Management Plan (and funded by the North American Waterfowl Conservation Act), spawned a new initiative aimed at nongame migratory songbirds. This 1990 Partners in Flight initiative recognized the need for nongame funding to achieve their conservation objectives.

**Congressman John Tanner (TN-8) and American Eagle Foundation representatives with "Challenger," on Capitol Hill at the first Teaming With Wildlife fly-in, 2000. Photo by Greg Wathen**

In 1990, the Association of Fish and Wildlife Agencies formed a Nongame Funding Committee. The Committee began the task of developing a legislative strategy for getting a Nongame trust fund established, modeled after the Pittman-Robertson and Dingell-Johnson trust funds for managing game species (See "Federal Funding Programs for Wildlife.") Teaming With Wildlife was soon launched as a grassroots movement in support of nongame wildlife conservation.

The Teaming With Wildlife (TWW) coalition's first effort to establish an excise tax on recreational equipment, a mechanism similar to that used to fund fish and game conservation for decades, fell short. By 1998, TWW had grown to more than 3,000 member organizations including nonprofits, scientific and educational associations, businesses, and local, state and federal governments.

Members of these groups were participating in annual late winter-early spring "fly-ins" to educate lawmakers on Capitol Hill about the importance of comprehensive wildlife management resources.

## Federal Funding Programs for Wildlife And the North American Wildlife Conservation Model

*Since the latter half of the 19th century, the U.S. has led the world in conserving its natural resources and using science-based guidelines for protecting the environment. In 1871, Congress established the U.S. Commission of Fish, a precursor to the Fish and Wildlife Service (FWS), and in the following year, 1872, Yellowstone became the country's first national park.*

*In 1896 Gifford Pinchot was appointed to head the new National Forest Service. In 1918, Congress passed the Migratory Bird Treaty Act, which provided comprehensive protection of migratory birds from unregulated hunting or collecting.*

*The next four decades saw a growing system of federal and state natural resource reserves supported by a series of far-sighted legislative funding acts described below. In particular the measures that have required hunters and anglers to fund state wildlife conservation through excise taxes on outdoor equipment provide the foundation of the North American Model of Wildlife Conservation.*

*Although focused on habitat conservation to benefit hunted species, many non-game species also benefit. The tenets of this model, one of the most successful in the world for proactively conserving wildlife, are:*

- *wildlife is held in public trust, therefore hunting and angling*

*opportunities are available to everyone;*

- *commerce in wildlife is regulated by laws created through the public process;*
- *those who consume wildlife - hunters and anglers - pay for its conservation;*
- *wildlife is an international resource;*
- *science is the basis for wildlife policy.*

*In 1973, the national focus shifted to water and air quality and endangered species, with the passage of the Clean Air Act, the Clean Water Act, and the Endangered Species Act in 1970, 1972, and 1973, respectively.*

*There are many places in today's federal budget where programs allocate monies to projects with important or ancillary benefits to wildlife. These include Land and Water Conservation Fund recreation expenditures by the National Park Service, U.S. Forest Service conservation and management programs for nonindustrial private forest landowners, recreational facility expenditures by the Department of Transportation, and the many conservation provisions of the Farm Bill, administered by the Natural Resources Conservation Service and Farm Services Agency.*

West Tennessee Bottomlands, photo by Greg Wathen, TWRA

*However it is only U.S. Fish and Wildlife Service expenditures that are dedicated first and foremost to wildlife and habitat management and conservation. These include some of the nation's oldest funds allocated almost entirely to the states for managing fish and game. Moreover, State Wildlife grants are the only funds in the federal budget specifically aimed at preventing America's more than 10,000 non-game species from becoming listed as threatened or endangered in every state.*

*The following is a brief timeline of federal wildlife programs, their purposes, and levels of funding in* ***FY 2008****. It was originally compiled by Resources for the Future for the private bipartisan Outdoor Resources Review Group co-chaired by Senator Lamar Alexander.*

***1929*** *Migratory Bird Conservation Fund $45,144,000 - Land and water acquisition funding to benefit migratory species; funding comes from Duck Stamp revenues, appropriations under the 1961 Wetlands Loan Act, import duties on arms & ammunition, and refuge admission fees.*

***1937*** *Wildlife Restoration Program (Pittman-Robertson Act) $309,687,000 - Funds to states to restore, conserve and manage wild birds and mammals and their habitat; funded through excise taxes on hunting equipment.*

***1950*** *Sportfish Restoration Program (Dingell-Johnson Act, or Wallop-Breaux for the 1984 amendment) $398,338,000 - Funds to states for fishery projects, boating access and aquatic education; funded through excise taxes on fishing equipment, motorboat and small engine fuels and by import duties.*

*1973 FWS Cooperative Endangered Species Conservation $66,200,000 - Federal grants matching grants to states and territories to implement conservation projects for listed species and at-risk species on non-federal lands. Funded activities include developing Habitat Conservation Plans, land acquisition, habitat restoration, research, and wildlife management.*

***1989*** *North American Wetlands Conservation Act (NAWCA) $83,484,000 - Federal matching grants to organizations for wetlands conservation projects in the United States, Canada, and Mexico. Funding comes from Congressional appropriations as well as fines and penalties collected under the Migratory Bird Treaty Act of 1918, the Sport Fish Restoration and Boating Trust Fund, and interest on the Wildlife Restoration Trust Fund.*

***1990*** *National Coastal Wetlands Conservation Grants $20,500,000 - Matching grants to states for acquisition, restoration and enhancement of coastal wetlands. As with the Sportfish Restoration Program, funding comes from excise taxes on fishing equipment, motorboat and small engine fuels, and import duties.*

***2002*** *State and Tribal Wildlife Grants Program (SWG) $60,509,000 Matching grants to states, tribes, and territories for planning and implementing programs that benefit wildlife and habitats, including species not hunted or fished. Funding comes through annual Congressional appropriations. (Grants for the same purpose were disbursed in FY01 under the one-time Wildlife Conservation and Restoration Act).*

**Al Cecere, American Eagle Foundation and Naomi Edelson, Association of Fish and Wildlife Agencies, 2000. Photo by Greg Wathen, TWRA**

Important TWW partners from Tennessee include The Nature Conservancy, Tennessee Wildlife Federation, and World Wildlife Fund - all of which committed staff time, resources, and even a video (see "Our Legacy" on the TWRA website) toward the effort to meet with Tennessee's congressional delegation and get the word out.

At times, they were assisted in this effort by the unique organization American Eagle Foundation (based in Pigeon Forge, TN) and its ambassador, a Bald Eagle named "Challenger." Challenger has made several trips to Washington, DC over the years, truly "flying in" to promote State Wildlife Grants to Congress!

Eventually, lawmakers added a dedicated $350 million annual fund for nongame wildlife conservation to The Conservation and Reinvestment Act (CARA), a bill that supported many conservation, historic preservation, parks, and coastal protection interests. Though it passed the House in 2000, CARA's mammoth $3.1 billion conservation fund did not survive a compromise deal between the White House and Senate. Instead, legislators established the Wildlife Conservation and Restoration Act (WCRP in 2001 only) and the State Wildlife Grants Program (technically, the State and Tribal Wildlife Grants Program).

The new State Wildlife Grants Program authorized annual appropriations for all wildlife to be divided among state wildlife agencies on a formula basis. The program required that all states develop "Comprehensive Wildlife Conservation Strategies" by 2005 to guide their grant expenditures. Most people call these documents State Wildlife Action Plans or SWAPs.

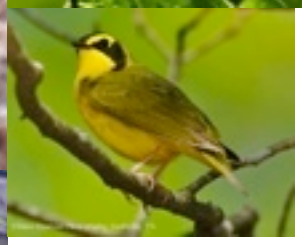
Teaming with Wildlife today is a national bipartisan coalition of more than 6,500 member organizations. Its work continues in advocating consistent broad-based support for wildlife management and habitat conservation, specifically:

- continued funding for State Wildlife Grants;
- implementation of State Wildlife Action Plans;
- expanding its already diverse coalition of game, nongame, and recreational interests.

# The Tennessee Watchable Wildlife Endowment

The year 2001 marked the first year of funding for states from the Wildlife Conservation and Restoration Act as well as State Wildlife Grants (or SWG - pronounced "swig"). Tennessee received $841,000 of the $75 million total that year, and in 2002, its share increased to $1,354,020. Appendices I and II list the annual allocations of WCRP and SWG monies to Tennessee projects since 2001.

SWG requires 50% in nonfederal matching funds for all "on-the-ground" projects and a 25% nonfederal match for creating or updating State Wildlife Action Plans. Since its inception, TWRA has raised more than $8 million in match. In 2010, the state General Assembly appropriated $1.5 million for conservation.



The General Assembly also had the foresight to create the Watchable Wildlife Endowment Fund in 1994. Built through sales of the "Bluebird License Plate," the program bankrolls only projects that conserve nongame and endangered wildlife species. The Fund is one example of state matching funds for the SWG program, and the Watchable Wildlife website is a valuable source of educational information too.

More than $1 million in interest from the Watchable Wildlife Endowment has been spent on wildlife projects across Tennessee. A sampling of State Wildlife Grants grants that have received matching funds from the Watchable Wildlife Endowment include:

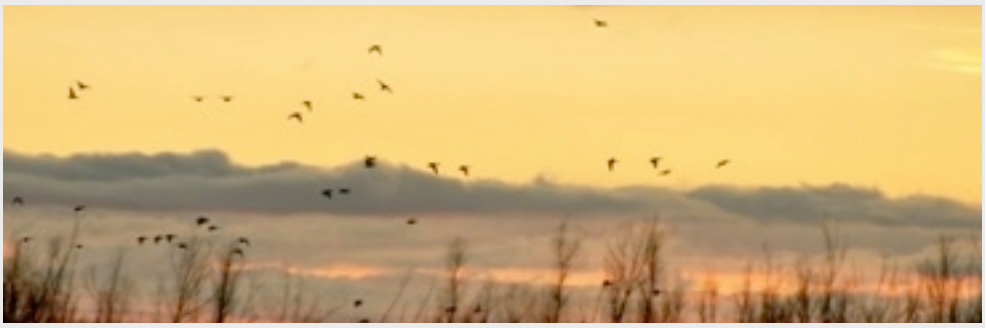
•The Tennessee Amphibian Monitoring Program (TAMP) - which collects data on frog, toad, and salamander status across the state - now has 21 active volunteer survey routes in Tennessee. In 2009 the program added a new Eastern Spadefoot record for Warren County.

•Field research projects focused on nesting of declining species, such as Cerulean Warbler and Golden-winged Warbler.

•The Tennessee Important Bird Areas program, part of an international effort, identifies the most critical bird habitat for resident and migratory species.

**Tennessee's Bluebird License Plate**

*The State Wildlife Grants Program is an intensively planned vision for all Tennesseans. It helps TWRA and its partners ensure that Tennessee's rich diversity of fish and wildlife will be protected and conserved, not only for today, but more importantly for those generations of Tennesseans that will follow us. - Ed Carter, TWRA Director*



**Green Salamander,** *Aneides aeneus*
**Photo by Josh Campbell, TWRA**

**Bald Eagles,** *Haliaeetus leucocephalus*,
**Photo by Greg Wathen, TWRA**

**Corn Snake,** *Elaphe guttata*
**Photo by Michael Hodge, Flickr Creative Commons**

**Photos from previous page:**
**Barred Owl,** *Strix varia,* **by Michael Hodge, Flickr Creative Commons**
**Eastern Spadefoot Toad,** *Scaphipus holbrookii,* **by Josh Campbell, TWRA**
**Cerulean Warbler,** *Dendroica cerulea,* **in flight by Dave Hawkins**
**Kentucky Warbler,** *Oporornis formosus cyanea,* **by Dave Hawkins**
**Northern Cardinal,** *Cardinalis cardinalis,* **by Illine Smith**

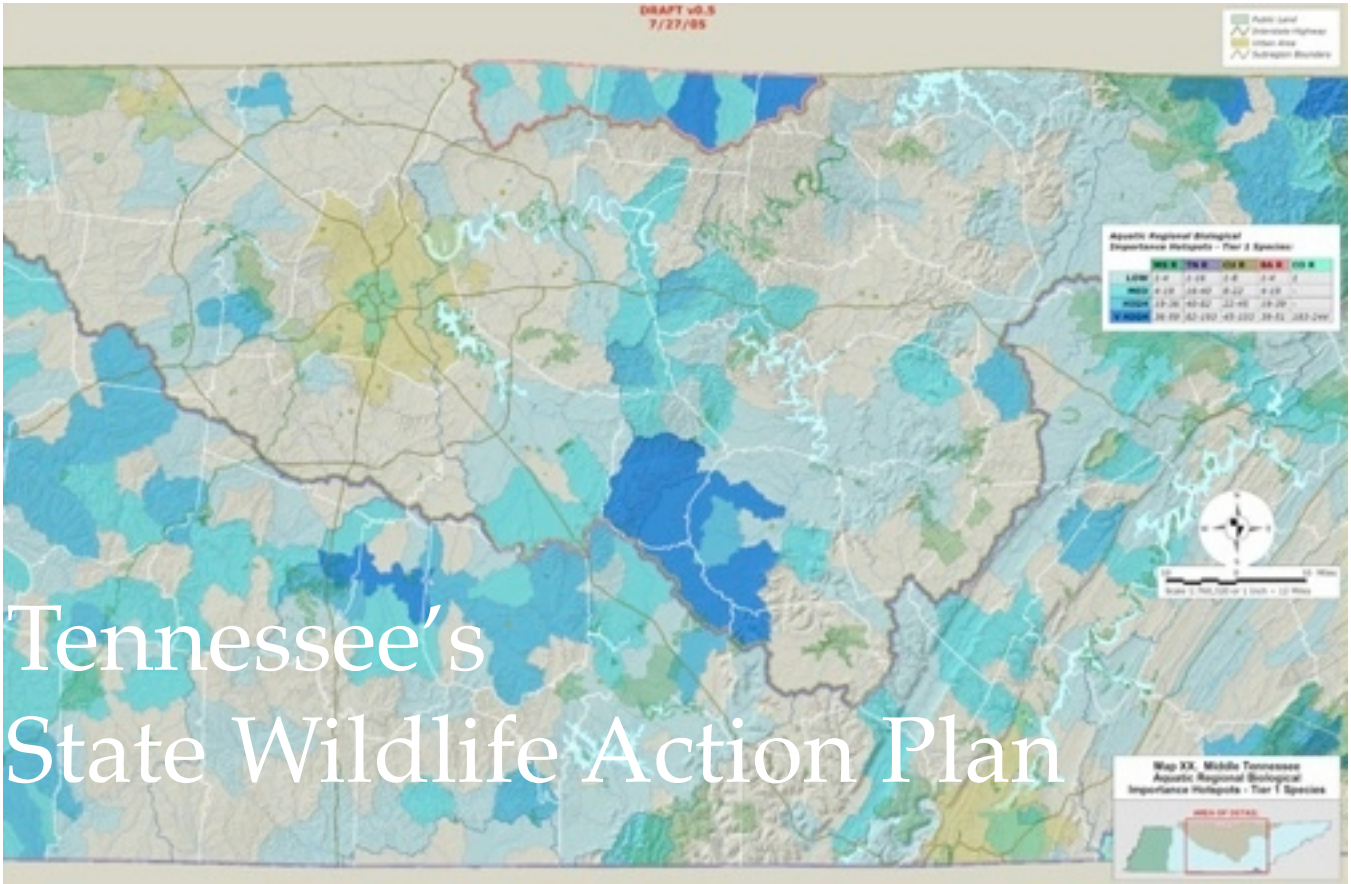
In addition to the annual allocations, a Competitive State Wildlife Grant program has been available during some years. Open to all states with approved Wildlife Action Plans, it requires only a 25% nonfederal match for implementation, compared to the standard 50%. Under this new initiative, the U.S. Fish and Wildlife Service ranked proposals to be funded in 2008-09. Tennessee successfully applied for a competitive State Wildlife Grant, obtaining $3,250,000 for the Sundquist acquisition (see p. 17).

**Timber Rattlesnake,** *Crotalus horridus,* **photo by Chris Simpson**

**Black-bellied Plover,** *Pluvialis squatarola,*
**Photo by Chris Sloan**

*"SWG inventories have allowed for the collection of data pertaining to nongame species on wildlife management areas. Wildlife management areas have highly diverse animal populations. Through the inventory process, many fragile, diverse habitats and faunal populations have been documented. Incorporation of this information into management plans ensures populations of rare, threatened, and endangered animals will persist into the future." - Josh Campbell, Wildlife Manager, TWRA*

**Peregrine Falcon,** *Falco peregrinus* **with both legs banded, Photo by Chris Simpson**




# Tennessee's State Wildlife Action Plan

Tennessee has the greatest diversity of wildlife of any inland state in the country! The Cumberland Plateau harbors hundreds of rare and unique species, and Great Smoky Mountains National Park has more tree species than all of northern Europe. The geography of the state varies from wetlands and bottomland hardwoods of the Mississippi Flyway to the Appalachians at elevations of 6000-plus feet. Seven of the eight most ecologically rich rivers in the country are found here, including the Duck River, recognized as one of the most biologically rich places on Earth. There are six major terrestrial regions, each supporting unique species.

| Species Measure | National Rank |
|---|---|
| Overall Species Diversity | 13 |
| Number of Caves (~9000) | 1 |
| Number of Fish Species | 2 |
| Number of Amphibian Species | 4 |
| Species Endemism (found nowhere else on Earth) | 15 |
| Diversity of Crustaceans | 1 |
| Diversity of Mussels | 2 |

**Endangered Fanshell Mussel,** *Cyprogenia stegaria*, **photo by Janet Butler, USFWS, Flickr Creative Commons**

*"It is my belief that Tennessee's State Wildlife Action Plan answers Congress's call to address the conservation of the full array of our state's wildlife. The Plan's grounding in scientific data and innovative use of technology makes it an important tool for state and local conservation planning and development."*
*– Phil Bredesen, former Governor, State of Tennessee*

*"The centerpiece of the Tennessee State Wildlife Action Plan is the development of a geographically based, comprehensive GIS database that will be used to inform and help guide management decisions in conserving our state's rare and imperiled fish and wildlife."*
*– Gary T. Myers, retired Director, Tennessee Wildlife Resources*

Tennessee's nationally recognized *Comprehensive Wildlife Conservation Strategy* is the most exhaustive analysis of the state's wildlife conservation needs ever completed. Written to satisfy the requirements of the State Wildlife Grant program and guide the conservation of all species statewide, the document produced by the Tennessee Wildlife Resources Agency and The Nature Conservancy's Tennessee Chapter is far more than simply a plan. It is a tool for taking action, including a GIS-based database of wildlife occurrences and habitats.

Congress requires that State Wildlife Action Plans address the following eight broad criteria:

✦Distribution and abundance of species of wildlife, including low and declining populations, that are indicative of the diversity and health of the state's fish and wildlife
✦Location and condition of key habitats and community types
✦Problems that affect species and their habitats, and research and inventories required to identify these factors
✦Recommended conservation actions
✦Proposed plans for monitoring species and the effectiveness of conservation actions
✦Procedures for strategy review at regular intervals
✦Coordination with other federal, state, and local agencies and Indian tribes
✦Broad public participation in plan development

Tennessee's plan is one of the best. In its 2006 report *Conservation Across the Landscape* assessing all the state wildlife plans, Defenders of Wildlife recognized Tennessee as one of 12 "state leaders." The top 12 plans were characterized by sound assessments, clear strategies, and a framework for successful implementation.

## Tennessee's Planning Approach

The Nature Conservancy (TNC) was a key partner in developing the plan, and invaluable assistance also came from the Tennessee Wildlife Federation, Tennessee Ornithological Society, World Wildlife Fund, and other state and federal agencies. The plan's GIS database combines species occurrences with information about the species, such as how rare it is or how far it roams, to help wildlife managers assess the importance of specific habitats and regions across the state.

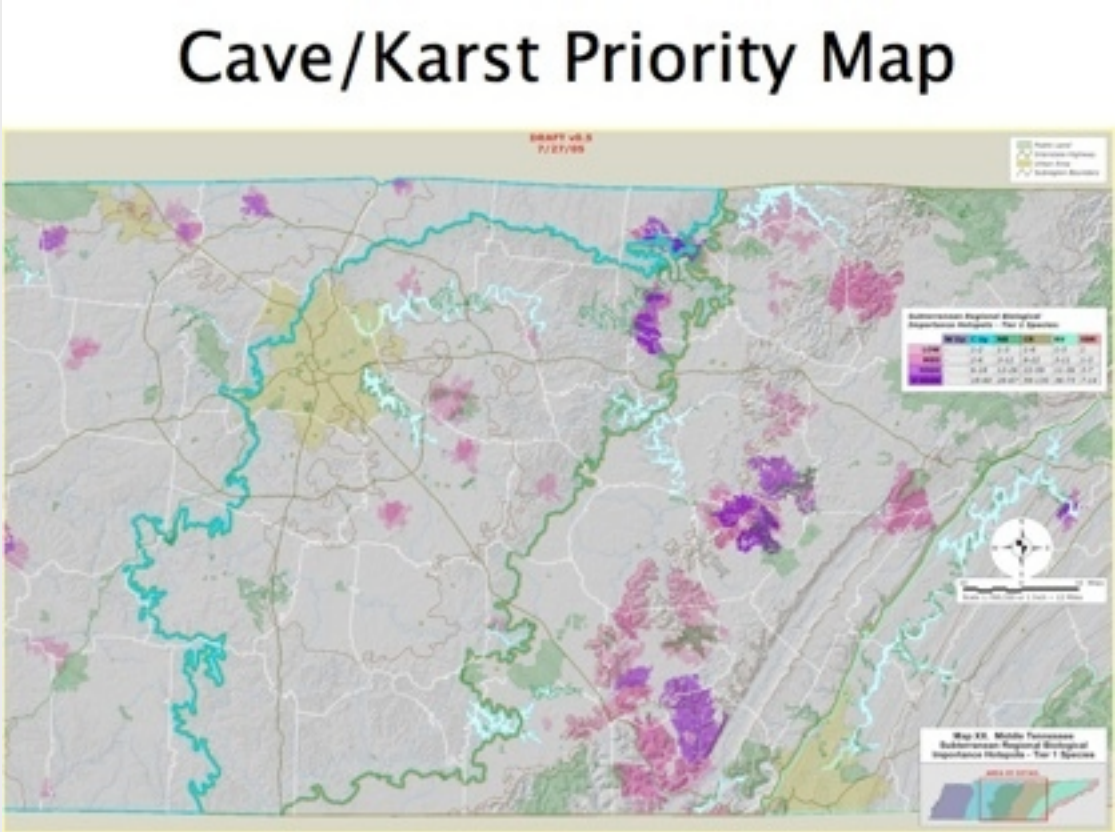
*"In my view, the opportunity offered to the Conservancy to collaborate with TWRA on development of the State Wildlife Action Plan marked a turning point in the history of conservation. This partnership allowed conservation leaders the time to craft a truly comprehensive vision for how to address the major environmental challenges facing wildlife in Tennessee. Though implementation of the plan is a long-term endeavor, there is now a forum for consistent dialogue and remediation to occur. Such a forum for agency and private organizational collaboration could not have happened without the existence of State Wildlife Grants from the federal government." - Chris Bullington, TNC*

*"The Nature Conservancy is known internationally for its planning approach and abilities. We are fortunate to count TNC as an Agency partner. Working with them in this effort produced a nationally recognized wildlife action plan - a plan that netted $2 million in habitat acquisition funds the first year." - Richard Kirk, TWRA Nongame and Endangered Species Coordinator*

**The Cumberland Mountains, photo by Byron Jorjorian**

The heart of the planning process was the identification of species of greatest conservation need (GCN), which would be used to identify and focus specific conservation actions. All known rare, threatened, endangered, or declining animal species in need of management in Tennessee were designated as greatest conservation need.

In all, Tennessee's SWAP chose 664 GCN species. They represent all major vertebrate and invertebrate groups known within the state, with a far greater proportion of freshwater invertebrate species identified. Invertebrates also comprise a higher percentage of aquatic and subterranean GCN species, but almost 60% of terrestrial GCN fauna are vertebrates. The number of endemic species - those that are unique to an area and occur nowhere else - is much higher in Tennessee for invertebrates compared to vertebrates (65% vs. 22%).




**Example of a SWAP Geographic Information System (GIS) analysis of subterranean habitats in middle Tennessee. Shades of purple indicate caves, with darkest purple indicating the highest value for species of greatest conservation need. Image courtesy of TNC**

*"It was the goal of the planning team to develop a planning tool that would complement the written document. We wanted a robust, dynamic GIS tool that could be continually updated and answer real world questions about where the critical places were in our state as well as the species that make their homes there. The GIS tool that was developed is backed by a powerful database of species' information that gives us a real world snap shot of what is happening in Tennessee." - Gina Hancock, Associate State Director, The Nature Conservancy*

# Putting the "Action" into an Action Plan

**Black Bear,** *Ursus americanus*, **in Great Smoky Mountains National Park, Photo by Lee Coursey, Flickr Creative Commons**

The GIS component of the SWAP allows TWRA and others to manipulate biological data, then combine it with information on habitat quality or threats to identify the best sites for protection and restoration. For example, in Middle Tennessee, the 3.4 million-acre, 10-county region surrounding Nashville has utilized the data in the Wildlife Action Plan to develop a "Greenprint" to aid in informed decision making for future regional growth and development.

The very process of systematically identifying conservation priorities within the state has been invaluable. In 2007, The Nature Conservancy was instrumental in working with Governor Bredesen to broker the "Connecting the Cumberlands" project. The state of Tennessee invested $82 million in the protection of 127,000 acres of lands on the Cumberland Plateau, connecting to 66,000 acres already in public ownership. This allowed TWRA to secure the timber rights on the 74,900-acre Sundquist tract that had already been previously protected using SWG dollars. As a result, 193,000 acres of contiguous Cumberland Plateau habitat has been protected in a spot considered to be one of the most ecologically significant places on Earth.

*"Tennessee's State Wildlife Action Plan was the Agency's first comprehensive review of over 1000 species of nongame wildlife and associated habitats. A GIS database was created to house over 60,000 species distribution records and statewide satellite imagery of habitats. This data was used to model priority conservation areas statewide, another first. Additionally, sources of potential threats were identified and conservation strategies assigned."*
*- Richard Kirk, TWRA Nongame and Endangered Species Coordinator*

Tennessee's Wildlife Action Plan is a snapshot of the present, incorporating the Agency's first comprehensive review of over 1000 species of nongame wildlife and habitats. It is also the state's view into the future.

It provides a detailed inventory of the state's most sensitive habitats and species occurrences. It consistently identifies trends that threaten Tennessee's natural wealth. It prescribes and prioritizes the actions needed to protect species and their habitats from those threats. It provides this information in the interactive form of a GIS database, which lends itself to creative forms of analysis. Its aim is to ensure enduring wildlife and natural beauty for future generations of Tennesseans.

**Golden Mouse,** *Ochrotomys nuttalli*, **Photo by Josh Campbell, TWRA**

# *Greenprinting for Quality Growth*

*With assistance from TWRA and a $45,000 State Wildlife Grant in 2008, Cumberland Region Tomorrow (CRT) developed the "Greenprint Tools for Quality Growth." This first-of-its-kind web-based publication and decision making tool for Tennessee is a key part of the CRT "Quality Growth Toolbox." It fulfills the need for a regional GIS based planning tool that can be used by local, regional and state government planners who want to avoid building houses on critical lands for conservation.*

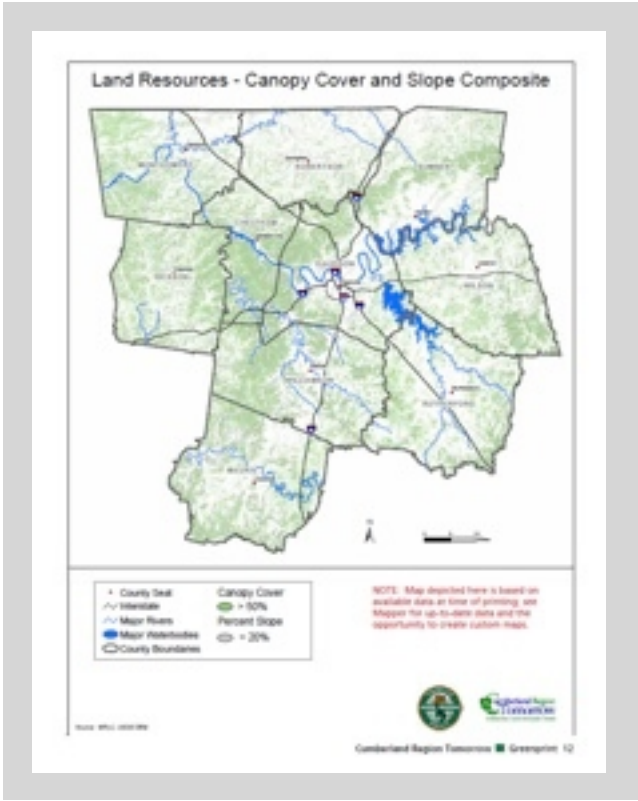
*CRT's Greenprint Tools will provide a better basis for decision making in two ways: (1) by showing the projected impacts and costs of land use and transportation decisions, and (2) by defining land and water resource conservation priorities to be included in local and regional plans. Consolidated GIS information will also assist other lead agencies in identifying land, water, natural and cultural resource priorities.*

*CRT worked with TWRA and a Steering Committee of twelve local, regional and state agency leaders to develop the tools and ensure that knowledge of critical conservation lands becomes a core part of comprehensive planning and development in middle Tennessee. The GIS data is housed at the Metropolitan Nashville Planning Department, a key partner in this project.*

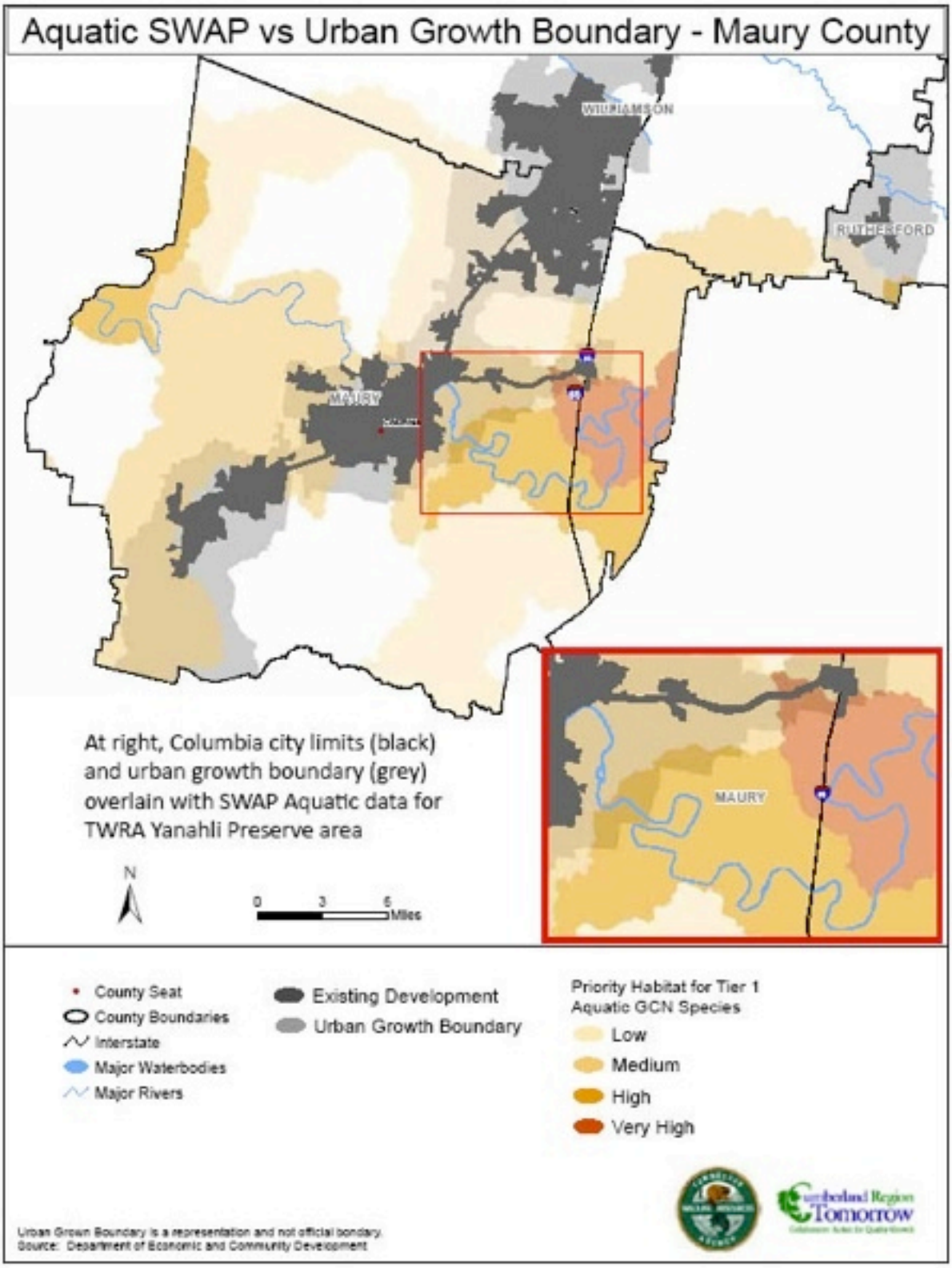
*Examples of GIS data layers include:*

- *prime soils and farmland*
- *terrain*
- *protected lands*
- *hydric soils*
- *major rivers and water bodies*
- *wetlands*
- *floodplains*
- *terrestrial habitat priority areas*
- *aquatic habitat priority areas*
- *subterranean habitat priority areas*
- *historic, cultural and scenic assets*
- *county lines*
- *urban growth plans*
- *roadways*

*As of November 2010, CRT has trained hundreds of community leaders in the use of the Quality Growth Toolbox and Greenprint Tools. Four counties and six municipalities have used these tools and GIS data to develop or update their comprehensive plans. The Nashville Area Metropolitan Planning Organization has also used Greenprint data in developing regional transportation plans and tri-county studies. Leaders in the design and engineering community also report good results in their use of the GIS data in many facets of their work across this region.*



*"Today our ten-county region in Middle Tennessee is proactively working to ensure our future livability and economic vitality through balanced economic growth, land development, and resource conservation. The integrity of vital and threatened lands, waters, and cultural resources is being better conserved through increased knowledge, comprehensive planning and sustainable design and development practices." - Bridget Jones, Cumberland Region Tomorrow Executive Director*



# The State Wildlife Grants Program in Tennessee

Tennessee mountain stream by Joelk75, Flickr Creative Commons

From 2001 to 2010, almost $618 million has been granted to all 50 states and territories under the State Wildlife Grant program. This amount, so miniscule within the size of the overall federal budget, has made a huge difference for American wildlife. In Tennessee, the program benefits both wildlife and the public's quality of life, both of which are inextricably intertwined in this diverse and still lightly developed state.

The SWG program provides grants to States using a formula that includes land area and population. Initially, a significant portion of state wildlife grants in Tennessee, as in most states, paid for development of the State Wildlife Action Plans. Once the plans were completed, Congress made it clear it was time for action: a majority of SWG grants should bankroll implementation of priority conservation actions.

Tennessee's plan, completed in 2005, has catalogued both species of greatest conservation need (GCN) as well as gaps in knowledge. The SWAP consistently identifies a set of key threats throughout the state.

The story of State Wildlife Grants in Tennessee is, in many ways, the story of how these threats have been addressed, using a combination of creativity and science.

Over the past five years, State Wildlife Grants have become the backbone of habitat and species conservation throughout the state, guided by priorities defined in the State Wildlife Action Plan.

**Unplanned development is a threat to Tennessee landscapes, photo by Greg Wathen, TWRA**

# Threats: Opportunities to Address the Root Causes of Decline

The SWAP identifies 37 potential sources of stress affecting GCN species and their habitats. ***Incompatible land use and development, driven by Tennessee's high rate of population growth, was number one.*** Poorly planned or unplanned patterns of land development and road construction contribute to habitat fragmentation, block migratory routes, or simply eliminate habitat. From 2000 to 2009, Tennessee's population grew at a rate higher than the nation's, increasing by almost 11%.

However, even with the increasing pressures of urbanization, Tennessee still has an abundance of rural landscapes. This presents an opportunity for communities with the power of knowledge to plan for the future in a way that will preserve not only wildlife, but quality of life for generations to come.

The SWAP identifies the following threats. Section III describes the ways in which State Wildlife Grants have addressed these threats, balancing economic growth with the preservation of biological integrity.

### Exotic Species

Chestnut blight, first accidentally introduced from Asia in 1904, wiped out virtually all mature Chestnut trees by 1940, eliminating 40 to 45% of the total canopy in southern forests and forever changing forest composition. The introduction of tall fescue and other exotic species has contributed to widespread conversion of native grasslands since the 1940s.

Today, land managers remain vigilant in seeking to stem the spread of diseases like White Nose Syndrome in bats, beech canker and gypsy moth infestations in forests, and aggressive new exotics such as Cogongrass, currently found in three Mississippi counties bordering Tennessee. In recent decades, populations of wild hogs have exploded across the south. In Tennessee, they destroy habitats and sometimes prey on GCN species, particularly salamanders.

Nonnative aquatic species threaten the core of Tennessee's incredible diversity: its fish and invertebrate fauna. Though some nonnatives, such as Brown Trout and Striped Bass, are considered desirable and not invasive, many others pose problems. Tennessee's 2008 Aquatic Nuisance Species Management Plan identifies 22 plant and 33 animal species that are aquatic and invasive.

*"With SWG funding, our Agency has been able to increase our knowledge of Tennessee's 1,300-plus species of wildlife and their habitats, invest Agency personnel and resources in their protection, and reach out to many partners with mutual interests in the conservation of our state's natural resources." - Greg Wathen, Chief of Wildlife, TWRA*

The aquatic plant Hydrilla, which can fill an entire body of freshwater, was ranked the number one threat. Among

*Hydrilla verticillata*, **Louisiana Sea Grant College Program, LSU, Flickr Creative Commons**

aquatic fauna, several species of Asian carp and Zebra Mussels ranked as the most threatening fish and invertebrate species. Aquatic management focuses on managing impacts of existing exotics and above all, preventing additional introductions through a campaign of outreach, public education, and new regulations.

**Spring Peepers,** *Pseudacris crucifer*, **Photo by Josh Campbell, TWRA**

### Water Use and Watercourse Alterations

Since the 1950s and 1960s, the dredging and channelization of major tributaries to the Mississippi River has affected stream flows and fauna and has allowed the clearing of up to 90% of bottomland hardwood forests in some west Tennessee counties. While flood control dams and levees are essential to protect urban areas, dam construction and impoundments have destroyed much native habitat and disrupted the natural flow regimes of many of the state's river systems. For this reason, rivers like the Duck and the Hatchie, which have remained free-flowing and unchannelized, are of prime importance for aquatic and floodplain habitat conservation.

Population growth can also lead to excessive withdrawals of both surface and groundwater. Information is lacking concerning movement of water into and through Tennessee's extensive underground systems.

### Pollution

Acid rain and agricultural runoff, which carries both toxins and nutrients, are the primary culprits in water pollution. Recent declines in mollusks of the Conasauga watershed (a tributary of the Mobile River) have led to research showing that chronic and acute toxicity in river sediments comes from a number of specific herbicides.

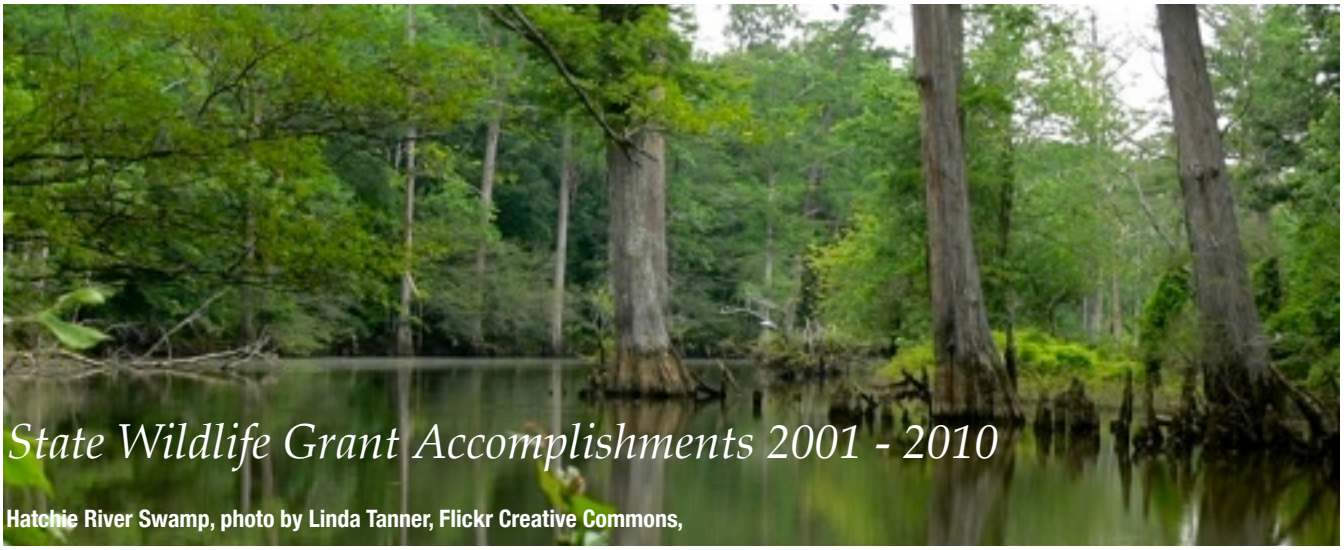
### Poor Stewardship

Although there are many excellent stewards of the land in Tennessee, some areas suffer from fire suppression and incompatible practices such as forest type conversions, overgrazing, disposal of mining waste, illegal dumping/hunting/fishing/collecting, or a simple lack of knowledge about practices beneficial to wildlife.

**Ghost River Hall of Mirrors, Wolf River, photo by Steve Davis, Flickr Creative Commons**

**Gatlinburg waterfall, photo by Jamin, Flickr Creative Commons**

**Least Sandpiper,** ***Calidris minutilla*** **photo by Scott Somershoe, TWRA**



# *State Wildlife Grant Accomplishments 2001 - 2010*

Hatchie River Swamp, photo by Linda Tanner, Flickr Creative Commons,

Tennessee's nationally recognized Wildlife Action Plan has guided a diverse set of SWG expenditures in its short 5-year history, ranging from research and monitoring to habitat restoration and water conservation. The following are highlights of Tennessee's achievements using State Wildlife Grants, and Appendix I is a complete list of all SWG projects approved FY2001 to 2010.

## Inventory and Monitoring: Biological Wealth

Because the SWAP's GIS is only as good as the data that have been used to build it, a basic lack of knowledge about the distribution and abundance of many species in Tennessee urgently needed to be addressed. Using SWG funding, TWRA has conducted inventories of state lands by hiring nongame biologists statewide. Inventories have focused on GCN species in wildlife management Areas.

Inventories have included:

✦Avian monitoring, including bald eagles, neotropical migrants, and shorebirds in the Mississippi Alluvial Valley. Some of the data have already indicated that to meet the goal of a stable breeding population of Golden-winged Warblers, the state must increase its acreage under management with prescribed burning. Through a contract with Middle Tennessee State University, the volunteer Tennessee Amphibian Monitoring Program (TAMP) has continued operating.

✦Several team efforts among regional TWRA staff have resulted in Bio-blitzes, which are intensive and cost-effective two- to three-day inventories of virtually all taxa within a limited area. Bio-blitzes have been held at Catoosa WMA, Wolf River WMA, Bear Hollow WMA, Rocky Fork, and others. The 2008 Bear Hollow Bio-blitz identified the occurrence of four GCN species: Spiny Soft-shell Turtle, Timber Rattlesnake, Hoary Bat, and the endangered Gray Bat. Gray Bat records will help track the response of this critical population to White Nose Syndrome.

✦TWRA, working with the Instream Flow Council, is coordinating a statewide program to monitor four rivers with the goal of ensuring that human uses allow for minimum flows to support fish and other aquatic species. Data on instream flow and fish diversity have been used to develop public service announcements and radio spots touting water conservation in Nashville. TWRA also initiated a mini-grant program for local watershed associations and assessed climate change impacts on water supply.

✦TWRA nongame biologists undertook systematic surveys of amphibians, reptiles, small mammals and bats on 31 wildlife management areas, state forests and natural areas. They used traps, drift fences, telemetry, snorkel surveys and thermal imaging. This massive effort has produced almost 20,000 captures and from that, records of over 600 additional occurrences of species of greatest conservation need. This knowledge of species distribution and abundance is the crucial first step to ensuring that species and their habitats are considered in planning land use, timber harvests, recreational facilities and many other activities.

*"SWG has ensured TWRA is getting current inventories for species of Greatest Conservation Need on our Wildlife Management Areas, which enables us to better manage and protect all wildlife." - Chris Simpson, TWRA Wildlife Manager*

## Habitat Protection: Saving for the Future

State agencies, nonprofit conservation organizations, and many federal agencies such as the Fish and Wildlife Service, Environmental Protection Agency, and U.S. Forest Service, are increasingly recognizing that healthy wildlife populations mean healthy ecosystems. Healthy ecosystems, in turn, are essential to support human quality of life - providing clean water, clean air, plentiful food, and opportunities for recreation and spiritual renewal.

Lands protected in Tennessee through the SWG program have not only helped wildlife, they have provided cherished opportunities for outdoor recreation to people from within the state and outside it. According to the Fish & Wildlife Service, outdoor recreation in Tennessee in 2006 translated into $2.3 billion in expenditures for travel, equipment, licenses and contributions. Activities such as hunting, fishing, and wildlife watching are all supported by SWG expenditures by conserving and restoring essential habitats for all wildlife.

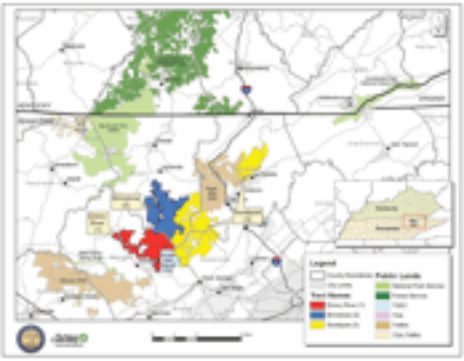
**Streamside Salamander,** *Ambystoma barbouri*, **photo by Matt Niemiller**

The Tennessee Wildlife Resources Agency is also fortunate to be assisted in its habitat conservation mission by a number of truly committed and effective organizations around the state:

- The Conservation Fund
- Ducks Unlimited
- Land Trust for Tennessee
- The Nature Conservancy
- Tennessee Parks & Greenways Foundation
- Tennessee Scenic Rivers Association
- Tennessee Wildlife Federation
- Trust for Public Land
- World Wildlife Fund

With the help of SWG funding, priority habitats identified in the State Wildlife Action Plan have led to critical land acquisitions over the past decade, including:

✦The 74,900-acre Sundquist Wildlife Management Area acquisition of 2003, precursor to "Connecting the Cumberlands," was secured when TWRA collaborated with The Conservation Fund, The Nature Conservancy, and other partners. The area is noted for its high biodiversity and its high populations of breeding Cerulean and Golden-winged Warblers.



**Map of eastern Tennessee: green (federal) and tan (state) are public lands, yellow shows Sundquist acquisition, image by TNC**

Early successional habitat, photo by Greg Wathen, TWRA

# *The Importance of Native Warm Season Grasses*

*In the early 1990s, Richard Conley and other TWRA biologists began planting native warm season grasses (NWSG) on private lands and state wildlife management areas. These warm season grasses provide many benefits for wildlife, in contrast to the exotic annual grasses that now dominate most of the state's open space.*

**Prescribed burn**

**Emerging Bluestem**

**Savannah in spring**

**Big Blue Stem NWSG**

*A severe beetle infestation struck the state's largest Wildlife Management Area, Catoosa, in 1999-2000. TWRA had to make a decision regarding the looming loss of timber on Catoosa, and eventually they salvaged as much pine as possible before the beetles took their toll and the market bottomed out. Following this, TWRA managers decided to reintroduce fire to some promising sites on Catoosa. The results now speak for themselves.*

*The thinning of the forest canopy and removal of the duff layer on the ground by prescribed fire allowed the native grasses and wildflowers to spring forth. This strategy resulted in a thriving savannah habitat that may well be the largest in the southeastern United States. TWRA biologists began point counts in the area and have found that grassland birds responded almost immediately to the restored habitat. Many other species find the restored savannah to their liking as well.*

*In 2004, TWRA received a State Wildlife Grant grant for $94,373 to further advance and manage the Catoosa savannah. The money was spent on much needed equipment to establish fire breaks, reintroduce prescribed burning and share the cost of a stewardship position.*

*The success of the Catoosa savannah has influenced later projects, such as the Big Bottom burn unit managed as part of the Bridgestone/Firestone Centennial Wilderness WMA. This site has responded dramatically to prescribed fire, and the loblolly pine there may soon be replaced by native shortleaf pine.*

**Bushy Bluestem NWSG**

**Tiger Swallowtail** ***Papilio glaucus*** **on thistle**

**Goldenrod and pollinator**

**Savannah in autumn**

**All photos & text by Clarence Coffey, retired TWRA**

Planted native oaks after five years, all photos by Jason Maxedon, TWRA

# *Bringing Back the Bottomland Hardwoods*

*Bottomland forests, also known as swamps, have been called the "rain forests" of the Southeast because of their high species diversity. Only about 4% of bottomland hardwoods remain in the lower Mississippi Valley. It's no surprise that TWRA seizes every opportunity to restore them, using SWG funds and other sources of support.*

**Recontour of restoration site**

**Acorn collection**

**Planting seedlings**

**Oaks in fall**

*TWRA has also adopted the strict, but ecologically smart, policy of planting only seedlings grown from the acorns of local oaks in western Tennessee. Oaks are keystone species within the forest: they provide food and shelter for an amazing variety of wildlife - from jays and songbirds to deer and turkey. Planting only local seed stock preserves the genetic diversity of the tree community, ensures that seedlings are likely to be suited to their microenvironment, and probably increases survival.*

*Each autumn, TWRA staff collect acorns of the following oak (Quercus) species:*

- *willow (Q. phellos L.)*
- *water (Q. nigra L.)*
- *cherrybark (Q. pagoda Raf.)*
- *pin (Q. palustris Muenchh.)*
- *Nuttall (Q. texana Buckley)*
- *overcup (Q. lyrata Walt.)*
- *swamp chestnut (Q. michauxii Nutt.)*
- *bur (Q. macrocarpa Michx.)*
- *Shumard (Q. shumardii Buckl.)*

*Bad acorns are eliminated using the "float test" (if it floats, it's empty or rotten). Each year, acorns are transported to the Georgia Forestry Commission's Flint River Nursery near Montezuma, Georgia. There they grow seedlings using methods that promote maximum growth in a single season. By January or February, seedlings are ready to be planted.*

*Shipped under refrigeration, the seedlings arrive ready to go into fields, which may have been disced, ripped, or left completely undisturbed. Hired field laborers plant according to a layout marked by colored flags. The flags indicate which mix of species is most suited to the elevation at that part of the field - a decision that has been aided by the use of powerful GPS technology, which provides field contour measurements to centimeter-level accuracy.*

*Plantings consist of 65% oak and 35% supplemental tree species (grown professionally). Care for the seedlings after planting varies by site, ranging from nothing to applications of herbicides or mowing. Restoration sites are monitored by censusing sample plots, noting both survival of oak seedlings as well as naturally seeded species.*

✦Lick Creek Bottoms in Greene county is an important wetland complex acquisition in eastern Tennessee, an area where wetland ecosystems are relatively rare. TWRA is restoring the Bottoms to natural wetlands, which will provide critical habitat for waterfowl as well as a number of species identified in the SWAP.

✦Bear Hollow Mountain in Franklin county, an area of rich biodiversity and intact forest, benefits a number of songbirds that require mature hardwood forest, as well as other GCN species, some of which were discovered during a SWG-funded bio-blitz (see p.16).

✦Karst zones, made of limestone that has eroded over time, are cave-rich enclaves of subterranean species. They also underlie the unique Cedar Glades ecosystem in middle Tennessee. Several important karst acquisitions have protected rare cave habitats for GCN species such as the Tennessee Cave Salamander, the Blind Crayfish, and the endangered Gray Bat.

**Great Blue Heron,** *Ardea herodias*, **photo by Dave Hawkins**

# Habitat Restoration and Species Reintroductions: Solving Past Problems

Habitat restoration runs the gamut from minimal protection against human disturbance - allowing natural regeneration - all the way to intensive propagation, planting and maintenance of native species.

**Female Prothonotary Warbler,** *Protonotaria citrea*, **photo by Dave Hawkins**

TWRA's habitat restoration projects generally fall into one of three types:

✦Bottomland hardwood reforestation restores lowland forests, the vast majority of which have been cleared for agriculture. These bottomland habitats support many species of birds, Alligator Snapping Turtles and other GCN species. Using SWG funds, TWRA has restored 512 acres of former agricultural lands to forest.

✦Native grasslands have been restored in critical landscapes across the state to benefit species of greatest conservation need, such as the Golden-winged Warbler, Star-nosed Mole, Meadow Jumping Mouse, and Appalachian Cottontail. The Bark Camp Barrens WMA, North Cumberland WMA, and Hampton Creek Cove State Natural Area have all benefited.

For example, at Hampton Creek, male Golden-winged Warblers established breeding territories in restored sites one year later. In addition, Appalachian Cottontails were documented in restored habitats at Hampton Creek for the first time. Grassland restoration provides habitat for species that rely on early successional habitat. Many of them, such as Loggerhead Shrike, Eastern Meadowlark, and Northern Bobwhite quail, are in decline throughout the country.

✦Removal of exotic species has occurred in the context of habitat restoration. Because native warm season grasses do not compete well with established exotic grasses, particularly fescue, herbicide application is usually required prior to planting. This has occurred on grassland restoration projects including Hampton Creek Cove, Catoosa and Forks of the River WMAs.

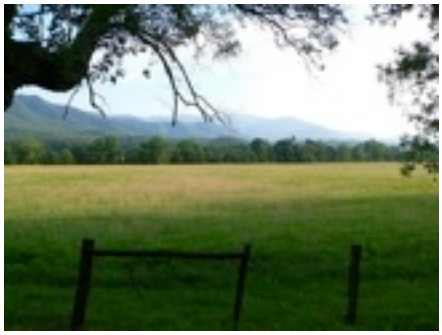
Species reintroductions occur both as a means of preventing listing under the Endangered Species Act - as in the case of the Barrens Topminnow - or to bring back populations of rare species where they have declined or disappeared. The SWG program has supported both goals:

✦Tennessee's *Mollusk Recovery Plan* calls for the propagation and reintroduction of important mussel species into priority streams, which has been augmented through SWG-funded equipment and facilities.
✦Tennessee's Barrens Topminnow propagation project, in collaboration with many partners including the U.S. Fish and Wildlife Service, continues.

## Community Planning: Accounting for Nature's Value

The SWAP recognizes sprawl as the single greatest threat to Tennessee's remaining natural landscapes. TWRA put SWG funding to work facilitating smart growth policies across the state.

✦Cumberland Region Tomorrow (see pp. 11-12) used the SWAP GIS database to create a "Greenprint" for the Middle Tennessee Region, which has been used in the comprehensive planning process for four counties and two cities.
✦The Southeast Watershed Forum has conducted workshops in several communities throughout the state to promote improved local planning.
✦The Tennessee Wildlife Federation developed a rural county planning document to better understand issues surrounding conservation planning in rural counties of the Southern Cumberlands.



**Cades Cove, Smoky Mountains National Park, PHoto by Lee Coursey, Flickr Creative Commons**

## *The Treasure in Our Own Backyards*

*The landscape of the South Cumberland Plateau experienced drastic land-use changes during 2004-2008 as timber companies divested thousands of acres for rural residential development. While development is often welcomed in rural counties seeking new growth, many sportsmen were concerned that too many places were being lost to a type of development that was detrimental, not only to hunting, but wildlife habitat in general.*

*The Tennessee Wildlife Federation, thanks to a State Wildlife Grant and matching funds from the Lyndhurst Foundation, undertook a one year study to digitize data showing major and future developments to determine if these land-uses were in fact occurring in high priority habitat areas. The GIS technology clearly demonstrated that many planned developments were the same landscapes that ranked extremely high in TWRA's GIS database of priority habitats.*

*As a component of the project, planners met with local leaders throughout the region to increase awareness and advocate for a balance of growth and development in the region. As a result, many leaders signed letters outlining their support for a major land protection initiative in the region.*

*"The desire for local leaders to protect local priority habitats illustrates why it is so important that Congress fully fund a program that will help protect our most important landscapes. The great thing about the SWAP is that it makes an unbiased attempt to prioritize landscapes for protection, recognizing land conservation dollars are limited. The SWAP is exactly the type of priority modeling that will ensure taxpayer dollars are spent in the right places." - Daniel Carter, PhD, Sewanee Environmental Policy Fellow*

**Summer Tanager, *Piranga rubra*, photo by Dave Hawkins**

# Research and Stewardship: Science and Diligence

SWG funding has supported several research projects and species reintroductions across the state. As the basis for almost all management actions, research is essential for good stewardship.

**Red-shouldered Hawk,** ***Buteo lineatus*****, photo by Dave Hawkins**

✦In middle Tennessee (Region II), biologists have undertaken the study of a complex amphibian and reptile community. The research is designed to give a better understanding of amphibian movements on the Bear Hollow WMA. It may also indicate the best times to implement management techniques to avoid mortality and not interfere with mating and reproduction. Over 13,200 animals were captured immigrating and emigrating at two wetlands on the WMA. Of these, 104 individuals were species deemed in need of management and represented four species: Four-toed Salamander, Eastern Box Turtle, Eastern Hognosed Snake and Timber Rattlesnake.

✦Since 2009, a study initiated in several locations across Tennessee is assessing bird response to three different types of grasslands: (1) native warm season grasses grown for hay on private lands, produced with the aid of EQIP grants from the U.S. Dept. of Agriculture; (2) switchgrass being grown for biofuels; and (3) unmanaged grasslands enrolled in the Conservation Reserve Program (no longer cropped). The study will analyze usage of the three types by nine species of birds that are dependent on grasslands. Initial results indicate a greater number of species in switchgrass but greater bird abundance in the native warm season grasses grown for hay.

✦Reintroduction of declining species into areas where their populations are dangerously low has boosted population viability. SWG-funded reintroductions in Tennessee include the native species Lake Sturgeon, Alligator Gar, and Alligator Snapping Turtle, among others.

**Chuck-will's-widow chicks,** ***Caprimulgus carolinensis*****, photo by Clyde Blum**

# Conservation Planning: Thinking on a Landscape Scale

SWG funding has also supported several large-scale conservation planning enterprises.

✦The Center for Native Grassland Management is the first such center east of the Great Plains committed to researching ways of incorporating native grasses into traditional land uses, such as pasture, livestock grazing, and bio-mass production.

✦The Joint Ventures (JVs) for bird conservation (the Lower Mississippi Valley JV, East Gulf Coastal Plain JV, Central Hardwoods JV, and the Appalachian Mountain JV) have conducted surveys of GCN birds as part of a long-term statewide monitoring effort designed to assess songbird population trends.

✦The Southeast Aquatic Resources Partnership facilitates on-the-ground and in-the-water science-based action to improve and protect the southeast's most economically and socially significant aquatic habitats.

✦The Mississippi River Corridor is a collaborative effort, along the length of Tennessee's Mississippi River coastline, to conserve and interpret the region's natural, cultural and scenic resources.

✦Tennessee's Mollusk recovery Plan, developed by TWRA, TNC, the U.S. Fish and Wildlife Service and others, creates a comprehensive conservation program for the state's mollusks. Tennessee's rivers and streams harbor 129 mussel species, representing almost half of the nation's mussel diversity, and 40 of which are listed as endangered. The plan focuses on identification of priority areas for protection and restoration, as well as propagation and reintroduction of mussel species.

*"SWAP left no doubt about the importance of freshwater mussels to the diversity of our Tennessee rivers. To build on that, state, federal & NGO partners have come together to develop a specific action plan to help these threatened animals." - Gina Hancock, Associate State Director, TNC*

## New Threats: Addressing Problems Before They Mushroom

SWG funding continues to be essential as TWRA and its partners deal with new threats to Tennessee's fish and wildlife. The following are some of the more troubling examples.

✦The Hemlock wooly adelgid is now in Tennessee, having originated from Japan. This introduced insect attacks both eastern (Canadian) and Carolina hemlock, which often die within a few years of becoming infested. TWRA is assessing the status of hemlock forest communities and developing a strategy for protecting priority areas.

✦White nose syndrome is caused by a fungus that could wreak havoc on bat populations in Tennessee. The ecosystem roles of bats in controlling insect pests and pollinating plants are extremely valuable to society; therefore TWRA will be working with partners to limit the syndrome in Tennessee's bats.

Bat sampling protocols have been altered since 2009 to prevent the spread of this disease by reducing human disturbance and cave entry, using acoustic call surveys and thermal imagery recordings of cave emergences instead. To date, the fungus has reached six caves in six Tennessee counties as far west as Montgomery, and three bat species have tested positive for white nose syndrome. TWRA has co-authored the *White-nose Syndrome Cooperative Surveillance and Monitoring Plan*, and continued surveillance will be critical in keeping this threat under control.

**Northern Long-eared Bat,** *Nyctophilus arnhemensis*, **photo by Josh Campbell, TWRA**

✦Climate change is an issue so broad it has the potential to exacerbate some problems, ameliorate others, and cause unpredictable changes both in species survival and in the effectiveness of well-planned conservation measures. TWRA has completed its report *Climate Change and Potential Impacts to Wildlife in Tennessee*. The Agency will be working with partners and the newly forming Landscape Conservation Cooperatives created by the U.S. Fish and Wildlife Service to better inform responses to climate change and other environmental stresses. Using SWG funding, TWRA coordinated and participated in the development of a climate change addendum to Tennessee's Wildlife Action Plan and a brochure summarizing climate change issues in Tennessee.

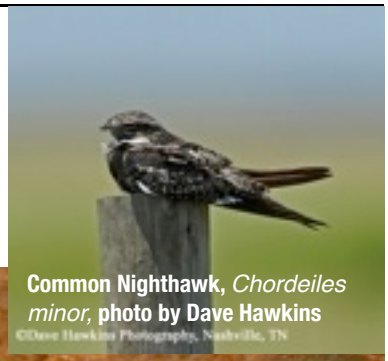
**Barn Swallow,** *Hirundo rustica*, **photo by Dave Hawkins**

✦A SWG-funded research program aimed at assessing factors that increase amphibian ranavirus infections showed that outbreaks can occur in the absence of human stressors. However, differences in frog abundance between ponds with and without cattle imply that cattle may cause increased prevalence of the virus.

**Bird-voiced Tree Frog,** *Hyla avivoca,* **photo by Bob English, Flickr Creative Commons**

✦The presence of Chytrid fungus in East Tennessee is a wake-up call for the state's herpetologists. Though the causes of the fungus are obscure, its role as the single greatest threat to amphibian species worldwide is not in dispute. Fully one-third of amphibians are currently at risk. These declines are of concern to everyone because frogs and salamanders are voracious consumers of insects and algae, as well as a food source enjoyed by many other animals.

**Upland Chorus Frog,** *Pseudacris feriarum*, **photo by Matt Niemiller**



**Common Nighthawk,** *Chordeiles minor,* **photo by Dave Hawkins**

**Carolina Dusky Salamander,** *Desmognathus carolinensis*, **photo by Matt Niemiller**

**Ocoee Salamander,** *Desmognathus ocoee*, **photo by Matt Niemiller**

**Lark Sparrow,** *.Chondestes grammacus*, **photo by Scott Somershoe, TWRA**

**Black-capped Chickadee,** *Poecile atricapillus*, **photo by Carl Sheely**

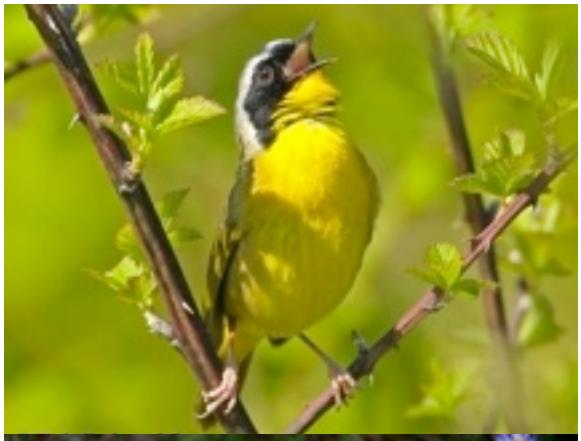
# Conclusion

*"The State Wildlife Grants Program is the nation's core program to prevent wildlife from becoming endangered in every state. It is a mission-critical element of the Interior Department's budget, as no other program in the federal budget is focused on this goal."*
*- Teaming with Wildlife's Senate SWG support letter 2008*

**Sandhill Cranes**, *Grus canadensis*

Nothing could be a better indicator of ecosystem health than sustainable and diverse populations of wildlife. This is why conserving wildlife and their habitats by seeking to "keep common species common" is no longer simply cost-effective. It's not simply one pillar of a recreation-oriented economy. It means no less than maintaining the living systems that support humanity.

Since the beginning of the 21st century innumerable institutions have looked into the future to anticipate challenges on the horizon. Climate change, population growth, loss of biodiversity, the supply of clean fresh water, clean air, energy demands, agricultural soils and productivity, and the state of world fisheries: all have enormous implications for the way in which we live. And every single one is linked to wildlife or their habitats.



**Common Yellowthroat,** *Geothlypis trichas*, **photo by Ed Schneider and Asters in restored Catoosa Savannah, photo by Clarence Coffey**

# In Appreciation

*With thanks and appreciation to all of the organizations and individuals in Tennessee and nationwide who have helped to make the State Wildlife Grants Program a reality and a success.*

**Special thanks to the following individuals for their assistance and quick turnaround in providing information, quotes, photographs, and review of this document:**

**Tennessee Wildlife Resources Agency**

Greg Wathen
Josh Campbell
Clarence Coffey
Scott Dykes
Richard Kirk
Jason Maxedon
Steve Patrick
Chris Simpson
Mark Thurman
R. L. Pete Wyatt

**Nonprofit Organizations**

Chris Bullington, The Nature Conservancy
Michael Butler, Tennessee Wildlife Federation
Daniel Carter, Sewanee University
Gina Hancock, The Nature Conservancy
Bridget Jones, Cumberland Region Tomorrow

**Red-headed Woodpecker,** *Melanerpes erythrocephalus,* **photo by Ed Schneider**

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615-781-6500 or

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http://www.state.tn.us/twra/contact.html

**Restoration planting large bareroot seedlings, photo by Jason Maxedon, TWRA**

**Written, compiled, and designed by K. Gregg Elliott, kgreggconsulting.com**

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**Published December 1, 2010**

# APPENDIX I

## State Wildlife Grants Project List
## 2001 - 2010

**December 1, 2010**

| Projects approved for funding using State Wildlife Grant/WCRP funds, by fiscal year: | | | | FY 2001 - FY 2010 | |
|---|---|---|---|---|---|
| Grant Name and Year | Project Name | Federal $ | State $ | Other $ | Total Budget |
| SWG-01 | South Cumberland Acquisition | $ 3,250,000.00 | $ 1,437,500.00 | | $ 4,687,500.00 |
| SWG-01 | South Cumberland Management (boundary) | $ 376,805.00 | $ 125,601.67 | | $ 502,406.67 |
| | | $ 3,626,805.00 | $ 1,563,101.67 | $ 0.00 | $ 5,189,906.67 |
| | | | | | |
| WCRP | Eagle Lake water control | $ 40,085.00 | $ 13,361.67 | | $ 53,446.67 |
| WCRP | Mississippi River viewing trail | $ 56,259.00 | $ 18,753.00 | | $ 75,012.00 |
| WCRP | Grassland songbird habitat | $ 7,880.00 | $ 2,626.67 | | $ 10,506.67 |
| WCRP | Yuchi viewing/education | $ 60,000.00 | $ 20,000.00 | | $ 80,000.00 |
| WCRP | Hiwassee Platform | $ 50,558.00 | $ 16,852.67 | | $ 67,410.67 |
| WCRP | Crayfish surveys 1 | $ 6,077.00 | $ 2,025.67 | | $ 8,102.67 |
| WCRP | Kyker bottoms Education platform | $ 7,231.00 | $ 2,410.33 | | $ 9,641.33 |
| WCRP | Tennessee Wildscape | $ 7,573.00 | $ 2,524.33 | | $ 10,097.33 |
| WCRP | Nongame webpage | $ 5,738.00 | $ 1,912.67 | | $ 7,650.67 |
| WCRP | Mussel propagation trailer | $ 30,128.00 | $ 10,042.67 | | $ 40,170.67 |
| WCRP | Native grass establishment | $ 66,595.00 | $ 22,198.33 | | $ 88,793.33 |
| WCRP | Bluebird printing | $ 3,000.00 | $ 1,000.00 | | $ 4,000.00 |
| WCRP | Karst Species & Habitats | $ 73,210.00 | | $ 24,403.33 | $ 97,613.33 |
| WCRP | WCRP coordination | $ 22,528.00 | $ 7,509.33 | | $ 30,037.33 |
| WCRP | Duck River Riverwalk | $ 12,000.00 | | $ 4,000.00 | $ 16,000.00 |
| WCRP | Hatchie River Intrepretive Room | $ 5,000.00 | | $ 1,666.67 | $ 6,666.67 |
| WCRP | Frogs & Toads of Reelfoot | $ 16,750.00 | | $ 5,583.33 | $ 22,333.33 |
| WCRP | Amphibians & Reptiles of TN: | $ 9,900.00 | | $ 3,300.00 | $ 13,200.00 |
| WCRP | Fragile Fauna Software | $ 13,500.00 | | $ 4,500.00 | $ 18,000.00 |
| WCRP | Conasauga River Mussel Propagation | $ 4,000.00 | | $ 1,333.33 | $ 5,333.33 |
| WCRP | Impact of Bait Trade on salamanders | $ 8,500.00 | | $ 2,833.33 | $ 11,333.33 |
| WCRP | Survey of Wehrle's Salamander | $ 7,400.00 | | $ 2,466.67 | $ 9,866.67 |
| WCRP | TN Amphibian & Reptile Database | $ 33,750.00 | | $ 11,250.00 | $ 45,000.00 |
| WCRP | Barrens Topminnow Propagation | $ 25,000.00 | | $ 8,333.33 | $ 33,333.33 |
| WCRP | Upper TN River Sturgeon | $ 10,000.00 | | $ 3,333.33 | $ 13,333.33 |
| WCRP | Bog Turtle Telemetry | $ 4,000.00 | | $ 1,333.33 | $ 5,333.33 |
| WCRP | Important Bird Areas | $ 16,875.00 | $ 5,625.00 | | $ 22,500.00 |
| WCRP | TAMP coordination | $ 5,250.00 | $ 1,750.00 | | $ 7,000.00 |

| Projects approved for funding using State Wildlife Grant/WCRP funds, by fiscal year: | | | | FY 2001 - FY 2010 | |
|---|---|---|---|---|---|
| Grant Name and Year | Project Name | Federal $ | State $ | Other $ | Total Budget |
| WCRP | TN Wildside Nongame | $ 65,000.00 | $ 21,666.67 | | $ 86,666.67 |
| WCRP | Sutton Acquisition | $ 165,000.00 | $ 55,000.00 | | $ 220,000.00 |
| | | $ 838,787.00 | $ 205,259.00 | $ 74,336.67 | $ 1,118,382.67 |
| | | | | | |
| SWG-02 Impl. | Neotropical Songbird Habitat- Royal Blue | $ 79,900.00 | $ 79,900.00 | | $ 159,800.00 |
| SWG-02 Impl. | Mississippi River Trail Coordination | $ 50,000.00 | | $ 50,000.00 | $ 100,000.00 |
| SWG-02 Impl. | State Ornithologist | $ 383,850.00 | $ 383,850.00 | | $ 767,700.00 |
| SWG-02 Impl. | Sundquist boundary | $ 271,651.00 | $ 271,651.00 | | $ 543,302.00 |
| SWG-02 Plan. | Species Conservation Planning | $ 559,619.00 | $ 186,539.67 | | $ 746,158.67 |
| | | $ 1,345,020.00 | $ 921,940.67 | $ 50,000.00 | $ 2,316,960.67 |
| | | | | | |
| SWG-03 Plan. | Species Surveys | $ 566,393.00 | $ 188,797.67 | | $ 755,190.67 |
| SWG-03 Plan. | GIS Services | $ 74,291.00 | $ 24,763.67 | | $ 99,054.67 |
| SWG-03 Plan. | Statewide CWCP Coordination | $ 210,000.00 | $ 70,000.00 | | $ 280,000.00 |
| SWG-03 Plan. | Coord. Bird Monitoring Plan | $ 20,000.00 | $ 6,666.67 | | $ 26,666.67 |
| SWG-03 Plan. | East Gulf Coastal Plain Bird Coord. | $ 10,000.00 | $ 3,333.33 | | $ 13,333.33 |
| SWG-03 Plan. | Duck River Plan | $ 20,000.00 | $ 6,666.67 | | $ 26,666.67 |
| SWG-03 Plan. | Emory River Biological Surveys | $ 45,000.00 | $ 15,000.00 | | $ 60,000.00 |
| SWG-03 Impl. | Partners in Amphibian & Reptile Cons. | $ 4,000.00 | $ 4,000.00 | | $ 8,000.00 |
| SWG-03 Impl. | Panther Branch Restoration | $ 40,000.00 | | $ 40,000.00 | $ 80,000.00 |
| | | $ 989,684.00 | $ 319,228.00 | $ 40,000.00 | $ 1,348,912.00 |
| | | | | | |
| SWG-04 Plan. | R1 MAV Shorebird Survey | $ 19,222.00 | $ 6,407.33 | | $ 25,629.33 |
| SWG-04 Plan. | R1 Reelfoot Turtle Survey (MTSU) | $ 75,000.00 | | $ 25,000.00 | $ 100,000.00 |
| SWG-04 Plan. | R3 Terrestrial Species Surveys | $ 56,779.00 | $ 18,926.33 | | $ 75,705.33 |
| SWG-04 Plan. | R3 Aquatic Species Surveys | $ 33,000.00 | $ 11,000.00 | | $ 44,000.00 |
| SWG-04 Plan. | R4Kyker Bottoms Surveys | $ 34,377.00 | $ 11,459.00 | | $ 45,836.00 |
| SWG-04 Plan. | R4 Lake Sturgeon Habitat ID (UT) | $ 55,000.00 | $ 10,333.00 | $ 8,000.00 | $ 73,333.00 |
| SWG-04 Plan. | Instream Flow | $ 186,253.00 | $ 62,084.33 | | $ 248,337.33 |
| SWG-04 Plan. | Interns - Planning | $ 10,500.00 | $ 3,500.00 | | $ 14,000.00 |
| SWG-04 Plan. | Natural Heritage Data transfer | $ 70,000.00 | $ 23,333.33 | | $ 93,333.33 |
| SWG-04 Plan. | BCR Coordination | $ 50,000.00 | $ 16,666.67 | | $ 66,666.67 |

| Projects approved for funding using State Wildlife Grant/WCRP funds, by fiscal year: | | | | FY 2001 - FY 2010 | |
|---|---|---|---|---|---|
| Grant Name and Year | Project Name | Federal $ | State $ | Other $ | Total Budget |
| SWG-04 Impl. | R1 Voucher Specimen Collection | $ 7,500.00 | $ 7,500.00 | | $ 15,000.00 |
| SWG-04 Impl. | Catoosa Savannah | $ 94,373.00 | $ 94,373.00 | | $ 188,746.00 |
| SWG-04 Impl. | R4 Exotic Plant Removal | $ 11,200.00 | $ 11,200.00 | | $ 22,400.00 |
| SWG-04 Impl. | R4 Rankin Bottoms Bird Survey | $ 11,219.00 | $ 11,219.00 | | $ 22,438.00 |
| SWG-04 Impl. | Royal Blue Songbirds | $ 8,319.00 | $ 8,319.00 | | $ 16,638.00 |
| SWG-04 Impl. | Hardwood Reforestation | $ 45,074.00 | $ 45,074.00 | | $ 90,148.00 |
| SWG-04 Impl. | Wills Tract Acquisition (Lick Ck.) | $ 266,000.00 | $ 266,000.00 | | $ 532,000.00 |
| SWG-04 Impl. | Barrens Topminnow Propagation | $ 10,000.00 | $ 10,000.00 | | $ 20,000.00 |
| SWG-04 Impl. | Intern – Implementation | $ 2,000.00 | $ 2,000.00 | | $ 4,000.00 |
| SWG-04 Impl. | Mississippi River Corridor Project | $ 75,000.00 | $ 75,000.00 | | $ 150,000.00 |
| | | $ 1,120,816.00 | $ 694,395.00 | $ 33,000.00 | $ 1,848,211.00 |
| | | | | | |
| SWG-05 Plan. | R1 MAV Shorebird Survey | $ 22,000.00 | $ 7,333.33 | | $ 29,333.33 |
| SWG-05 Plan. | Rankin Bttms Bird Survey | $ 15,000.00 | $ 5,000.00 | | $ 20,000.00 |
| SWG-05 Plan. | Kyker Bottoms surveys | $ 41,000.00 | $ 13,666.67 | | $ 54,666.67 |
| SWG-05 Plan. | GIS Specialist | $ 50,000.00 | $ 16,666.67 | | $ 66,666.67 |
| SWG-05 Plan. | Species Surveys | $ 285,000.00 | $ 95,000.00 | | $ 380,000.00 |
| SWG-05 Plan. | Lake Sturgeon Radio-telemetry | $ 25,000.00 | | $ 8,333.33 | $ 33,333.33 |
| SWG-05 Plan. | NWSG Management (UT) | $ 25,000.00 | $ 8,333.33 | | $ 33,333.33 |
| SWG-05 Plan. | Sundquist Cerulean Warbler | $ 6,060.00 | $ 2,020.00 | | $ 8,080.00 |
| SWG-05 Plan. | CWCS Operational Plan and Software (TNC) | $ 170,000.00 | | $ 56,666.67 | $ 226,666.67 |
| SWG-05 Plan. | Nongame Planning (Nongame Bio 2) | $ 275,000.00 | $ 91,666.67 | | $ 366,666.67 |
| SWG-05 Plan. | Interaction of Cattle & Amphibian Pathogens | $ 7,000.00 | | $ 2,333.33 | $ 9,333.33 |
| SWG-05 Plan. | Mammalian Database | $ 21,124.00 | | $ 7,041.33 | $ 28,165.33 |
| SWG-05 Plan. | SWG Coordination | $ 40,000.00 | $ 13,333.33 | | $ 53,333.33 |
| SWG-05 Plan. | Mississippi River Corridor | $ 25,000.00 | | $ 8,333.33 | $ 33,333.33 |
| SWG-05 Impl. | R4 Exotic Plant Removal- Forks of the River WMA | $ 9,000.00 | $ 9,000.00 | | $ 18,000.00 |
| | | $ 1,016,184.00 | $ 262,020.00 | $ 82,708.00 | $ 1,360,912.00 |
| | | | | | |
| SWG-06 Plan. | Mississippi Valley Shorebird Inventory | $ 25,500.00 | $ 8,500.00 | | $ 34,000.00 |
| SWG-06 Plan. | Juvenile Alligator Snapping Turtles | $ 50,000.00 | | $ 16,666.67 | $ 66,666.67 |
| SWG-06 Plan. | Species Survey | $ 332,500.00 | $ 110,833.33 | | $ 443,333.33 |

| Projects approved for funding using State Wildlife Grant/WCRP funds, by fiscal year: | | | | FY 2001 - FY 2010 | |
|---|---|---|---|---|---|
| Grant Name and Year | Project Name | Federal $ | State $ | Other $ | Total Budget |
| SWG-06 Plan. | Nongame Planning | $ 365,000.00 | $ 121,666.67 | | $ 486,666.67 |
| SWG-06 Plan. | Rankin Bottoms Avian Surveys | $ 14,000.00 | $ 4,666.67 | | $ 18,666.67 |
| SWG-06 Plan. | Nongame Inventory, Blount Co. | $ 31,000.00 | $ 10,333.33 | | $ 41,333.33 |
| SWG-06 Plan. | Community Planning Assistance (TWF) | $ 80,125.00 | | $ 26,708.33 | $ 106,833.33 |
| SWG-06 Plan. | Mammalian Database Development | $ 25,000.00 | | $ 8,333.33 | $ 33,333.33 |
| SWG-06 Impl. | Catoosa WMA Savannah | $ 45,000.00 | $ 45,000.00 | | $ 90,000.00 |
| SWG-06 Impl. | Exotic Plant Removal, Forks of the River WMA | $ 10,000.00 | $ 10,000.00 | | $ 20,000.00 |
| SWG-06 Impl. | Shorebird Enhancement, Region 4 | $ 19,000.00 | $ 19,000.00 | | $ 38,000.00 |
| SWG-06 Impl. | Alligator Gar Habitat Evaluation | $ 10,000.00 | $ 10,000.00 | | $ 20,000.00 |
| SWG-06 Impl. | CWCS Model Refinement | $ 38,671.00 | | $ 38,671.00 | $ 77,342.00 |
| | | $ 1,045,796.00 | $ 340,000.00 | $ 90,379.33 | $ 1,476,175.33 |
| | | | | | |
| SWG-07 Impl. | MAV Shorebird Inventory | $ 23,000.00 | $ 23,000.00 | | $ 46,000.00 |
| SWG-07 Impl. | Species Surveys + Bird Surveys | $ 218,000.00 | $ 218,000.00 | | $ 436,000.00 |
| SWG-07 Impl. | Nongame Planning | $ 270,000.00 | $ 270,000.00 | | $ 540,000.00 |
| SWG-07 Impl. | Boils Streambank Restoration | $ 35,000.00 | $ 35,000.00 | | $ 70,000.00 |
| SWG-07 Impl. | Exotic Plant Removal, FORWMA | $ 10,000.00 | $ 10,000.00 | | $ 20,000.00 |
| SWG-07 Impl. | NG Inventory, Blount County | $ 27,000.00 | $ 27,000.00 | | $ 54,000.00 |
| SWG-07 Impl. | Rankin Bottoms Avian Surveys | $ 10,500.00 | $ 10,500.00 | | $ 21,000.00 |
| SWG-07 Impl. | Catoosa WMA Savannah | $ 63,000.00 | $ 63,000.00 | | $ 126,000.00 |
| SWG-07 Impl. | Hampton Creek Cove Restoration | $ 6,000.00 | | $ 6,000.00 | $ 12,000.00 |
| SWG-07 Impl. | Frog Virus 3 Surveillance (UT) | $ 33,000.00 | | $ 33,000.00 | $ 66,000.00 |
| SWG-07 Impl. | Coal Creek Restoration | $ 20,000.00 | | $ 20,000.00 | $ 40,000.00 |
| SWG-07 Impl. | River Cane restoration (U of Memphis) | $ 26,000.00 | | $ 26,000.00 | $ 52,000.00 |
| SWG-07 Impl. | Green Salamander Surveys TTU | $ 20,000.00 | | $ 20,000.00 | $ 40,000.00 |
| SWG-07 Impl. | TN Cave Fish Surveys (UT) | $ 9,000.00 | | $ 9,000.00 | $ 18,000.00 |
| SWG-07 Impl. | Yonalosse Genetics, Disease (ETSU) | $ 7,250.00 | | $ 7,250.00 | $ 14,500.00 |
| SWG-07 Impl. | Amphibian Inventory, S, Holston (ETSU) | $ 13,450.00 | | $ 13,450.00 | $ 26,900.00 |
| SWG-07 Impl. | MAV Bottomland Conservation Easements (DU) | $ 50,000.00 | | $ 50,000.00 | $ 100,000.00 |
| SWG-07 Impl. | Rural Lands Planning Assistance (Cumberland Region Tomorrow) | $ 45,000.00 | | $ 45,000.00 | $ 90,000.00 |
| SWG-07 Impl. | SWG Coordination | $ 16,816.00 | $ 5,605.33 | | $ 22,421.33 |

| Projects approved for funding using State Wildlife Grant/WCRP funds, by fiscal year: | | | | FY 2001 - FY 2010 | |
|---|---|---|---|---|---|
| Grant Name and Year | Project Name | Federal $ | State $ | Other $ | Total Budget |
| | | $ 903,016.00 | $ 662,105.33 | $ 229,700.00 | $ 1,794,821.33 |
| | | | | | |
| SWG-08 Plan. | Climate Change | $ 41,000.00 | $ 13,666.67 | | $ 54,666.67 |
| SWG-08 Impl | MAV Shorebird Inventory | $ 22,500.00 | $ 22,500.00 | | $ 45,000.00 |
| SWG-08 Impl | Species Surveys | $ 70,620.00 | $ 70,620.00 | | $ 141,240.00 |
| SWG-08 Impl | Nongame Planning | $ 230,100.00 | $ 230,100.00 | | $ 460,200.00 |
| SWG-08 Impl | Gallatin Hatchery | $ 25,000.00 | $ 25,000.00 | | $ 50,000.00 |
| SWG-08 Impl | Catoosa Building | $ 135,000.00 | $ 135,000.00 | | $ 270,000.00 |
| SWG-08 Impl | Exotic Plant Removal, FORWMA | $ 23,422.00 | $ 23,422.00 | | $ 46,844.00 |
| SWG-08 Impl | Rankin Bottoms Avian Surveys | $ 10,500.00 | $ 10,500.00 | | $ 21,000.00 |
| SWG-08 Impl | Catoosa WMA Savanah | $ 60,000.00 | $ 60,000.00 | | $ 120,000.00 |
| SWG-08 Impl | Instream Flow | $ 63,000.00 | $ 63,000.00 | | $ 126,000.00 |
| SWG-08 Impl | NWSG Management | $ 25,000.00 | | $ 25,000.00 | $ 50,000.00 |
| SWG-08 Impl | River Cane restoration | $ 30,000.00 | | $ 30,000.00 | $ 60,000.00 |
| SWG-08 Impl | Green Salamander Surveys | $ 20,000.00 | | $ 20,000.00 | $ 40,000.00 |
| SWG-08 Impl | TN Cave Fish Surveys | $ 7,750.00 | | $ 7,750.00 | $ 15,500.00 |
| SWG-08 Impl | Yonalosse Genetics, Disease (ETSU) | $ 6,750.00 | | $ 6,750.00 | $ 13,500.00 |
| SWG-08 Impl | South Holston Wetlands (ETSU) | $ 4,050.00 | | $ 4,050.00 | $ 8,100.00 |
| SWG-08 Impl | Frog Virus 3 | $ 28,988.00 | | $ 28,988.00 | $ 57,976.00 |
| SWG-08 Impl | Hampton Creek Cove Restoration | $ 6,000.00 | | $ 6,000.00 | $ 12,000.00 |
| SWG-08 Impl | High Elevation Bald Vegetation Maint. | $ 40,000.00 | $ 40,000.00 | | $ 80,000.00 |
| SWG-08 Impl | Golden Wing Warbler in Cumberlands | $ 10,000.00 | $ 10,000.00 | | $ 20,000.00 |
| SWG-08 Impl | Grassland Birds - UT | $ 32,000.00 | $ 32,000.00 | | $ 64,000.00 |
| SWG-08 Impl | TAMP | $ 6,750.00 | | $ 6,750.00 | $ 13,500.00 |
| SWG-08 Impl | Bog Turtle | $ 3,000.00 | | $ 3,000.00 | $ 6,000.00 |
| SWG-08 Impl | Avian Program Coordination | $ 70,000.00 | $ 70,000.00 | | $ 140,000.00 |
| | | $ 971,430.00 | $ 805,808.67 | $ 138,288.00 | $ 1,915,526.67 |
| | | | | | |
| SWG-09 Impl. | Humboldt Hatchery- Alligator Gar | $ 12,000.00 | $ 12,000.00 | | $ 24,000.00 |
| SWG-09 Impl. | Avian Inventories | $ 93,000.00 | $ 93,000.00 | | $ 186,000.00 |
| SWG-09 Impl. | Species Surveys | $ 50,000.00 | $ 50,000.00 | | $ 100,000.00 |
| SWG-09 Impl. | Catoosa WMA Savannah | $ 65,000.00 | $ 65,000.00 | | $ 130,000.00 |

| Projects approved for funding using State Wildlife Grant/WCRP funds, by fiscal year: | | | | FY 2001 - FY 2010 | |
|---|---|---|---|---|---|
| Grant Name and Year | Project Name | Federal $ | State $ | Other $ | Total Budget |
| SWG-09 Impl. | Instream Flow | $ 65,000.00 | $ 65,000.00 | | $ 130,000.00 |
| SWG-09 Impl. | Gallatin Hatchery | $ 30,000.00 | $ 30,000.00 | | $ 60,000.00 |
| SWG-09 Impl. | Frog Virus 3 | $ 13,336.00 | | $ 13,336.00 | $ 26,672.00 |
| SWG-09 Impl. | Green Salamander Surveys | $ 5,000.00 | | $ 5,000.00 | $ 10,000.00 |
| SWG-09 Impl. | NWSG Management (UT Chair) | $ 25,000.00 | | $ 25,000.00 | $ 50,000.00 |
| SWG-09 Impl. | Joint Ventures | $ 40,000.00 | | $ 40,000.00 | $ 80,000.00 |
| SWG-09 Impl. | TAMP | $ 6,750.00 | | $ 6,750.00 | $ 13,500.00 |
| SWG-09 Impl. | Bog Turtle | $ 3,500.00 | | $ 3,500.00 | $ 7,000.00 |
| SWG-09 Impl. | Avian Program Coordination | $ 68,000.00 | $ 68,000.00 | | $ 136,000.00 |
| SWG-09 Impl. | SWG Coordination(add AS2 & data conversion) | $ 137,000.00 | $ 137,000.00 | | $ 274,000.00 |
| SWG-09 Impl. | Habitat Selection by Male Indiana Bats (TNC) | $ 10,000.00 | | $ 10,000.00 | $ 20,000.00 |
| SWG-09 Impl. | Golden-winged Warbler /Cumberland Mtns (UTK) | $ 15,000.00 | | $ 15,000.00 | $ 30,000.00 |
| SWG-09 Impl. | GCN Fish Reintroduction | $ 15,000.00 | | $ 15,000.00 | $ 30,000.00 |
| SWG-09 Impl. | Bird Conservation Planning | $ 40,000.00 | | $ 40,000.00 | $ 80,000.00 |
| SWG-09 Impl. | Freshwater Mussel Recovery (TNC) | $ 10,000.00 | | $ 10,000.00 | $ 20,000.00 |
| SWG-09 Impl. | Habitat Teams | $ 320,000.00 | | $ 320,000.00 | $ 640,000.00 |
| SWG-09 Impl. | Prescribed Burn Teams | $ 40,000.00 | | $ 40,000.00 | $ 80,000.00 |
| | | $ 1,063,586.00 | $ 520,000.00 | $ 543,586.00 | $ 2,127,172.00 |
| | | | | | |
| SWG-10 | Projects not yet obligated | $ 1,303,479.00 | $ 701,873.31 | | $ 2,005,352.31 |
| | | | | | |
| | Total SWG-01 thru SWG-10 | $14,224,603.00 | $6,995,731.64 | $1,281,998.00 | $22,502,332.64 |

# APPENDIX II:

## State Wildlife Grant Allocations Nationwide 2001 - 2010

**From Teaming With Wildlife**
**www.teaming.com**

| **Teaming With Wildlife: Total Funding to Date** | (note, some numbers are estimates) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| | **FY 01 WCRP** | **FY02 SWG** | **FY03 SWG** | **FY04 SWG** | **FY05 SWG** | **FY06 SWG** | **FY07 SWG** | **FY08 SWG** | **FY09 SWG** | **FY10 SWG** | **FY01-FY10** |
| **Total** | **$ 50,000,000** | **$ 85,000,000** | **$ 65,000,000** | **$ 70,000,000** | **$ 69,120,568** | **$ 67,492,201** | **$ 67,492,201** | **$ 73,830,000** | **$ 75,000,000** | **$ 90,000,000** | **$ 712,934,970** |
| Tribal Grants | $ - | $ 5,000,000 | $ 5,000,000 | $ 6,000,000 | $ 6,000,000 | $ 5,911,726 | $ 5,911,726 | $ 6,184,000 | $ 7,000,000 | $ 7,000,000 | **$ 54,007,452** |
| Competitive Grants | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ 4,922,000 | $ 5,000,000 | $ 5,000,000 | **$ 14,922,000** |
| administrative (3%) | $ 1,500,000 | $ 2,400,000 | $ 2,327,325 | $ 2,798,084 | $ 3,858,729 | $ 2,024,802 | $ 2,024,802 | $ 2,214,900 | $ 2,955,000 | $ 3,932,735 | **$ 26,036,378** |
| Total for States | $ 48,500,000 | $ 77,600,000 | $ 57,672,675 | $ 61,201,916 | $ 59,261,839 | $ 59,555,673 | $ 59,555,673 | $ 60,509,100 | $ 60,045,000 | $ 74,067,265 | **$ 617,969,140** |
| | | | | | | | | | | | |
| Alabama | $ 753,573 | $ 1,205,620 | $ 896,022 | $ 950,854 | $ 948,446 | $ 925,277 | $ 925,277 | $ 940,090 | $ 918,424 | $ 1,133,225 | $ 9,596,810 |
| Alaska | $ 2,425,000 | $ 3,880,000 | $ 2,883,633 | $ 3,060,095 | $ 3,052,347 | $ 2,977,783 | $ 2,977,783 | $ 3,025,455 | $ 3,002,250 | $ 3,703,363 | $ 30,987,710 |
| American Samoa | $ 121,250 | $ 194,000 | $ 144,181 | $ 153,004 | $ 152,617 | $ 148,889 | $ 148,889 | $ 151,272 | $ 150,112 | $ 185,168 | $ 1,549,382 |
| Arizona | $ 1,148,630 | $ 1,837,857 | $ 1,365,904 | $ 1,449,489 | $ 1,445,819 | $ 1,410,500 | $ 1,410,500 | $ 1,433,081 | $ 1,547,253 | $ 1,913,718 | $ 14,962,751 |
| Arkansas | $ 566,536 | $ 906,478 | $ 673,699 | $ 714,925 | $ 713,115 | $ 695,695 | $ 695,695 | $ 706,832 | $ 699,404 | $ 863,766 | $ 7,236,146 |
| California | $ 2,425,000 | $ 3,880,000 | $ 2,883,633 | $ 3,060,095 | $ 1,267,235 | $ 2,977,783 | $ 2,977,783 | $ 3,025,455 | $ 3,002,250 | $ 3,703,363 | $ 29,202,597 |
| Colorado | $ 1,006,751 | $ 1,610,849 | $ 1,197,190 | $ 1,270,452 | $ 1,267,235 | $ 1,236,278 | $ 1,236,278 | $ 1,256,070 | $ 1,286,886 | $ 1,593,268 | $ 12,961,258 |
| Connecticut | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |
| Delaware | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |
| District of Columbia | $ 242,500 | $ 388,000 | $ 288,364 | $ 306,009 | $ 305,235 | $ 297,779 | $ 297,779 | $ 302,546 | $ 300,225 | $ 370,336 | $ 3,098,773 |
| Florida | $ 2,054,361 | $ 3,286,863 | $ 2,442,812 | $ 2,592,298 | $ 2,585,734 | $ 2,522,569 | $ 2,522,569 | $ 2,562,953 | $ 2,690,370 | $ 3,323,873 | $ 26,584,401 |
| Georgia | $ 1,200,808 | $ 1,921,286 | $ 1,427,909 | $ 1,515,288 | $ 1,511,452 | $ 1,474,530 | $ 1,474,530 | $ 1,498,135 | $ 1,599,614 | $ 1,980,981 | $ 15,604,532 |
| Guam | $ 121,250 | $ 194,000 | $ 144,181 | $ 153,004 | $ 152,617 | $ 148,889 | $ 148,889 | $ 151,272 | $ 150,112 | $ 185,168 | $ 1,549,382 |
| Hawaii | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |
| Idaho | $ 571,398 | $ 914,288 | $ 679,503 | $ 721,085 | $ 719,259 | $ 701,688 | $ 701,688 | $ 712,922 | $ 724,408 | $ 894,717 | $ 7,340,955 |
| Illinois | $ 1,651,820 | $ 2,642,937 | $ 1,964,243 | $ 2,084,443 | $ 2,079,166 | $ 2,028,375 | $ 2,028,375 | $ 2,060,847 | $ 1,989,809 | $ 2,436,734 | $ 20,966,748 |
| Indiana | $ 852,921 | $ 1,364,694 | $ 1,014,246 | $ 1,076,313 | $ 1,073,587 | $ 1,047,361 | $ 1,047,361 | $ 1,064,129 | $ 1,036,533 | $ 1,276,300 | $ 10,853,446 |
| Iowa | $ 610,179 | $ 976,302 | $ 725,592 | $ 769,994 | $ 768,045 | $ 749,282 | $ 749,282 | $ 761,278 | $ 737,692 | $ 906,334 | $ 7,753,980 |
| Kansas | $ 717,720 | $ 1,148,393 | $ 853,491 | $ 905,720 | $ 903,427 | $ 881,357 | $ 881,357 | $ 895,467 | $ 877,818 | $ 1,081,228 | $ 9,145,978 |
| Kentucky | $ 651,008 | $ 1,041,637 | $ 774,150 | $ 821,523 | $ 819,443 | $ 799,425 | $ 799,425 | $ 812,223 | $ 796,933 | $ 983,646 | $ 8,299,414 |
| Louisiana | $ 735,422 | $ 1,176,699 | $ 874,528 | $ 928,044 | $ 925,694 | $ 903,081 | $ 903,081 | $ 917,538 | $ 861,324 | $ 1,068,489 | $ 9,293,900 |
| Maine | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |
| Maryland | $ 634,704 | $ 1,015,530 | $ 754,746 | $ 800,932 | $ 798,904 | $ 779,388 | $ 779,388 | $ 791,866 | $ 778,854 | $ 962,569 | $ 8,096,882 |
| Massachusetts | $ 738,898 | $ 1,182,253 | $ 878,656 | $ 932,424 | $ 930,064 | $ 907,344 | $ 907,344 | $ 921,870 | $ 874,209 | $ 1,083,505 | $ 9,356,566 |
| Michigan | $ 1,390,843 | $ 2,224,603 | $ 1,653,335 | $ 1,754,509 | $ 1,750,068 | $ 1,707,316 | $ 1,707,316 | $ 1,734,649 | $ 1,636,557 | $ 1,998,710 | $ 17,557,906 |
| Minnesota | $ 973,316 | $ 1,557,351 | $ 1,157,430 | $ 1,228,258 | $ 1,225,148 | $ 1,195,220 | $ 1,195,220 | $ 1,214,354 | $ 1,197,057 | $ 1,475,948 | $ 12,419,302 |
| Mississippi | $ 557,126 | $ 891,424 | $ 662,510 | $ 703,052 | $ 701,272 | $ 684,141 | $ 684,141 | $ 695,094 | $ 675,022 | $ 830,371 | $ 7,084,154 |
| Missouri | $ 971,961 | $ 1,555,166 | $ 1,155,807 | $ 1,226,536 | $ 1,223,430 | $ 1,193,544 | $ 1,193,544 | $ 1,212,651 | $ 1,190,996 | $ 1,472,105 | $ 12,395,739 |
| Montana | $ 854,590 | $ 1,367,459 | $ 1,016,302 | $ 1,078,493 | $ 1,075,763 | $ 1,049,484 | $ 1,049,484 | $ 1,066,285 | $ 1,057,910 | $ 1,304,695 | $ 10,920,466 |
| N. Mariana Islands | $ 121,250 | $ 194,000 | $ 144,181 | $ 153,004 | $ 152,617 | $ 148,889 | $ 148,889 | $ 151,272 | $ 150,112 | $ 185,168 | $ 1,549,382 |
| Nebraska | $ 585,236 | $ 936,407 | $ 695,942 | $ 738,529 | $ 736,659 | $ 718,664 | $ 718,664 | $ 730,169 | $ 717,678 | $ 884,672 | $ 7,462,620 |
| Nevada | $ 787,363 | $ 1,259,835 | $ 936,315 | $ 993,612 | $ 991,097 | $ 966,886 | $ 966,886 | $ 982,365 | $ 1,032,242 | $ 1,276,078 | $ 10,192,679 |
| New Hampshire | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |
| New Jersey | $ 963,013 | $ 1,541,017 | $ 1,145,291 | $ 1,215,376 | $ 1,212,299 | $ 1,182,684 | $ 1,182,684 | $ 1,201,618 | $ 1,147,589 | $ 1,406,591 | $ 12,198,161 |
| New Mexico | $ 824,391 | $ 1,319,074 | $ 980,342 | $ 1,040,333 | $ 1,037,699 | $ 1,012,349 | $ 1,012,349 | $ 1,028,556 | $ 1,024,550 | $ 1,264,783 | $ 10,544,426 |
| New York | $ 2,333,978 | $ 3,734,307 | $ 2,775,354 | $ 2,945,190 | $ 2,937,733 | $ 2,865,969 | $ 2,865,969 | $ 2,911,850 | $ 2,776,910 | $ 3,404,420 | $ 29,551,681 |
| North Carolina | $ 1,153,607 | $ 1,845,816 | $ 1,371,819 | $ 1,455,766 | $ 1,452,081 | $ 1,416,609 | $ 1,416,609 | $ 1,439,287 | $ 1,501,255 | $ 1,862,657 | $ 14,915,506 |
| North Dakota | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |
| Ohio | $ 1,457,720 | $ 2,332,369 | $ 1,733,427 | $ 1,839,503 | $ 1,834,845 | $ 1,790,023 | $ 1,790,023 | $ 1,818,679 | $ 1,715,277 | $ 2,107,588 | $ 18,419,454 |
| Oklahoma | $ 737,718 | $ 1,180,378 | $ 877,262 | $ 930,946 | $ 928,589 | $ 905,905 | $ 905,905 | $ 920,407 | $ 905,296 | $ 1,118,216 | $ 9,410,622 |
| Oregon | $ 874,020 | $ 1,398,480 | $ 1,039,357 | $ 1,102,960 | $ 1,100,167 | $ 1,073,292 | $ 1,073,292 | $ 1,090,474 | $ 1,096,713 | $ 1,352,710 | $ 11,201,465 |
| Pennsylvania | $ 1,579,961 | $ 2,527,950 | $ 1,878,784 | $ 1,993,755 | $ 1,988,707 | $ 1,940,126 | $ 1,940,126 | $ 1,971,186 | $ 1,862,294 | $ 2,302,922 | $ 19,985,812 |
| Puerto Rico | $ 242,500 | $ 388,000 | $ 288,364 | $ 306,009 | $ 305,235 | $ 297,779 | $ 297,779 | $ 302,546 | $ 300,225 | $ 370,336 | $ 3,098,773 |
| Rhode Island | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |
| South Carolina | $ 599,985 | $ 960,007 | $ 713,482 | $ 757,142 | $ 755,226 | $ 736,777 | $ 736,777 | $ 748,572 | $ 764,441 | $ 948,904 | $ 7,721,312 |
| South Dakota | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |
| Tennessee | $ 840,636 | $ 1,345,045 | $ 999,644 | $ 1,060,816 | $ 1,058,130 | $ 1,032,282 | $ 1,032,282 | $ 1,048,807 | $ 1,053,983 | $ 1,303,479 | $ 10,775,104 |
| Texas | $ 2,425,000 | $ 3,880,000 | $ 2,883,633 | $ 3,060,095 | $ 3,052,347 | $ 2,977,783 | $ 2,977,783 | $ 3,025,455 | $ 3,002,250 | $ 3,703,363 | $ 30,987,710 |
| Utah | $ 681,257 | $ 1,090,047 | $ 810,128 | $ 859,703 | $ 857,526 | $ 836,578 | $ 836,578 | $ 849,971 | $ 886,192 | $ 1,096,527 | $ 8,804,508 |
| Vermont | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |
| Virgin Islands | $ 121,250 | $ 194,000 | $ 144,181 | $ 153,004 | $ 152,617 | $ 148,889 | $ 148,889 | $ 151,272 | $ 150,112 | $ 185,168 | $ 1,549,382 |
| Virginia | $ 985,074 | $ 1,576,175 | $ 1,171,421 | $ 1,243,105 | $ 1,239,957 | $ 1,209,667 | $ 1,209,667 | $ 1,229,033 | $ 1,240,686 | $ 1,536,444 | $ 12,641,229 |
| Washington | $ 996,614 | $ 1,594,413 | $ 1,184,975 | $ 1,257,489 | $ 1,254,305 | $ 1,223,664 | $ 1,223,664 | $ 1,243,254 | $ 1,261,395 | $ 1,564,024 | $ 12,803,797 |
| West Virginia | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |
| Wisconsin | $ 876,862 | $ 1,402,995 | $ 1,042,712 | $ 1,106,520 | $ 1,103,719 | $ 1,076,757 | $ 1,076,757 | $ 1,093,994 | $ 1,068,828 | $ 1,314,232 | $ 11,163,376 |
| Wyoming | $ 485,000 | $ 776,000 | $ 576,727 | $ 612,020 | $ 610,469 | $ 595,556 | $ 595,556 | $ 605,091 | $ 600,450 | $ 740,673 | $ 6,197,542 |

# APPENDIX III:

## Tennessee Supporters of the Teaming With Wildlife Coalition

**From Teaming With Wildlife**
**www.teaming.com**

# Tennessee
# Teaming with wildlife Supporters *as of 3/19/08*

TEAMING WITH WILDLIFE
*a natural investment*

Adrienne Young & Little Sadie

Advocates for Oak Ridge Reservation

Alliance of Veterinarians for the Environment

American Eagle Foundation (National)

American Fisheries Society-Tennessee Chapter

American Fisheries Society-TN Technical University Student Chapter

Appalachian Trail Conservancy (National)

Arcadis

Bass Anglers Invitational Trail

Bays Mountain Longbeards

Blue Ridge Bassmasters

Caney Fork Headwaters Association

Central Tennessee Bass Club

Cherokee Rod & Gun Club

Conservation Community Heritage Trust

Conservation Fisheries, Inc.

Cordell Hull Birthplace State Park

Cumberland Countians for Peace & Justice

Cumberland Homestead Forever Association

Cumberland Region Tomorrow

Danion Soap Works

Discovery Center at Murfree Spring

Ducks Unlimited (National)

Ducks Unlimited-Tennessee Chapter

East Tennessee Wildlife Rehabilitation Council

Fayette County Rod & Gun Club

Fishers for Christ Bass Club

Foothills Land Conservancy

Friends of Radnor Lake

Friends of Tennessee NWR

Froghaven Farm

Greene County Fishing & Hunting Club

Hamilton County Bass Clubs

Harpeth River Watershed Association

Hendersonville Flyfishers

Historic Rugby

Holston Mountain Fox Hunters Association

Izaak Walton League-Tennessee Chapter

Jasper Regional History Museum

Knoxville Zoological Gardens

Little River Watershed Association

Mid South Flyfishers

Middle Tennessee Bass Anglers

Middle Tennessee Flyfishers

Mississippi River Natural and Recreational Corridor

MTSU Center for Environmental Education

MTSU Instructional Technology Support Center

National Parks Conservation Association -- Southeast Regional Office

Native Gardens

Network for Envir. & Economic Responsibility-United Church of Christ

NewHeritageResearch.org

North Chickamauga Creek Conservancy

Obed Watershed Conservation Association

Pheasants Forever/Quail Forever

Project CENTS

Rare Mollusk Committee

Scott's Gulf Wilderness Foundation

Southeast Watershed Forum

Southeast Watershed Forum (National)

Southern Alliance for Clean Energy-TN

Southern Appalachian Highlands Conservancy-TN

Southern Environmental Law Center-TN

Stones River Bass Anglers

Stones River Watershed Association

Swan Conservation Trust

TDEC-Natural Heritage

**A coalition of 110 groups working together to prevent wildlife from becoming endangered in Tennessee**

c/o Association of Fish and Wildlife Agencies
444 North Capitol St, NW, Suite 725, Washington DC 20001
P 202.624.7890 | F 202.624.7891 | teaming@fishwildlife.org

Tennessee Academy of Science

Tennessee Bass Federation

Tennessee Bat Working Group

Tennessee Citizens for Wilderness Planning

Tennessee Conservation Voters

Tennessee Environmental Council

Tennessee Exotic Pest Plant Council

Tennessee Herpetological Society

Tennessee League of Women Voters

Tennessee Ornithological Society

Tennessee Ornithological Society-Greeneville Chapter

Tennessee Ornithological Society-Knoxville Chapter

Tennessee Ornithological Society-Lee & Lois Herndon Chapter

Tennessee Ornithological Society-Memphis Chapter

Tennessee Ornithological Society-Nashville Chapter

Tennessee Parks & Greenways Foundation

Tennessee PEER

Tennessee State Parks

Tennessee Striped Bass Association

Tennessee Valley Sportsman's Club

Tennessee Wildlife Federation

Tennessee Wildlife Heritage Trust

Tennessee Wildlife Resources Agency

The Borderland Foundation

The Conservation Fund-Tennessee

The Land Trust for Tennessee

The Nature Conservancy-Tennessee Chapter

The Wildlife Society-Tennessee Chapter

The Wildlife Society-Univ. of Tennessee at Martin Chapter

Trout Unlimited-Appalachian Chapter

Trout Unlimited-Clinch River Chapter

Trout Unlimited-Cumberland Chapter

Trout Unlimited-Hiawassee Chapter

Trout Unlimited-Little River Chapter

Trout Unlimited-Overmountain Chapter

Trust for Public Land-Tennessee

United Church of Christ

United Mountain Defense

University of Tennessee at Chattanooga

Walden's Puddle Wildlife Rehabilitation Center

Warioto Chapter Audubon Society

Wild Bird Station

Wolf River Conservancy

World Wildlife Fund Southeastern Rivers & Streams Project