



**STATE OF TENNESSEE  
COMPTROLLER OF THE TREASURY**

**TENNESSEE FISH AND WILDLIFE COMMISSION  
AND  
TENNESSEE WILDLIFE RESOURCES AGENCY**

**Performance Audit Report**

September 2017

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**Justin P. Wilson, Comptroller**



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September 5, 2017

The Honorable Randy McNally  
Speaker of the Senate  
The Honorable Beth Harwell  
Speaker of the House of Representatives  
The Honorable Mike Bell, Chair  
Senate Committee on Government Operations  
The Honorable Jeremy Faison, Chair  
House Committee on Government Operations  
and  
Members of the General Assembly  
State Capitol  
Nashville, Tennessee 37243  
and  
The Honorable Ed Carter, Executive Director  
Tennessee Wildlife Resources Agency  
440 Hogan Road  
Nashville, TN 37220

Ladies and Gentlemen:

Transmitted herewith is the sunset performance audit of the Tennessee Fish and Wildlife Commission and the Tennessee Wildlife Resources Agency. This audit was conducted pursuant to the requirements of the Tennessee Governmental Entity Review Law, Section 4-29-111, *Tennessee Code Annotated*.

This report is intended to aid the Joint Government Operations Committee in its review to determine whether the Tennessee Fish and Wildlife Commission and the Tennessee Wildlife Resources Agency should be continued, restructured, or terminated.

Sincerely,

A handwritten signature in cursive script that reads "Deborah V. Loveless".

Deborah V. Loveless, CPA  
Director

State of Tennessee

# Audit Highlights

Comptroller of the Treasury

Division of State Audit

Performance Audit

**Tennessee Fish and Wildlife Commission and Tennessee Wildlife Resources Agency**  
September 2017

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## AUDIT FINDING

**TWRA has not updated the state’s endangered species list in 16 years, although it is required to do so every 2 years**

According to Section 70-8-105, *Tennessee Code Annotated*, the Tennessee Fish and Wildlife Commission “shall conduct a review of the state list of endangered species within not more than two years from its effective date and every two years thereafter, making the appropriate additions or deletions.” This state list also contains species which are in need of management or threatened. Based on interviews we conducted, the Tennessee Wildlife Resources Agency (TWRA) last updated this list in 2000 with Proclamation 00-15. Failure to update the plan also violates the Cooperative Agreement between U.S. Fish and Wildlife Service and TWRA for Conservation of Endangered and Threatened Wildlife (page 7).

## OTHER ISSUES

The audit also discusses the following issues: Chronic Wasting Disease (CWD) and the CWD Response Plan (page 8); Citation Fines Received by the Agency (page 9); Contract Monitoring (page 11); Brandt Information Services for Licenses and Registration (page 11); Animal Disease Testing (page 12); Non-motorized Boats—Emerging Issue (page 13); and Fisheries Division Hatcheries (page 17).

**Performance Audit**  
**Tennessee Fish and Wildlife Commission and**  
**Tennessee Wildlife Resources Agency**

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# **Performance Audit Tennessee Fish and Wildlife Commission and Tennessee Wildlife Resources Agency**

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## **INTRODUCTION**

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### **PURPOSE AND AUTHORITY FOR THE AUDIT**

This performance audit of the Tennessee Fish and Wildlife Commission and the Tennessee Wildlife Resources Agency was conducted pursuant to the Tennessee Governmental Entity Review Law, Title 4, Chapter 29, *Tennessee Code Annotated*. Under Section 4-29-239, the Tennessee Fish and Wildlife Commission is scheduled to terminate June 30, 2018. The Comptroller of the Treasury is authorized under Section 4-29-111 to conduct a limited program review audit of the Tennessee Fish and Wildlife Commission and the Tennessee Wildlife Resources Agency and to report to the Joint Government Operations Committee of the General Assembly. This audit is intended to aid the committee in determining whether the Tennessee Fish and Wildlife Commission should be continued, restructured, or terminated.

### **ORGANIZATION AND STATUTORY RESPONSIBILITIES**

The Tennessee Fish and Wildlife Commission (the commission) was created on July 1, 2012, and replaced the Tennessee Wildlife Resources Commission, according to Section 70-1-201 and 70-1-208, *Tennessee Code Annotated*. The commission is, according to Section 70-1-201, an independent and separate administrative board that consists of 13 members. Nine members (three from each grand division of the state) appointed by the Governor each serve a six-year term; two members appointed by the Speaker of the House of Representatives and two members appointed by the Speaker of the Senate each serve a four-year term. The authorizing statute staggered the terms and also states that “the governor and the speakers shall strive to ensure that at least one (1) person serving on the commission is sixty (60) years of age or older, at least one (1) person serving on the commission is a member of a racial minority, and at least two (2) persons serving on the commission are female.” Pursuant to Section 70-1-203, “The governor, the commissioner of environment and conservation and the commissioner of agriculture . . . serve as ex officio, nonvoting members of the commission.” (See Appendix 2 for the list of commissioners.)

Section 70-1-206, *Tennessee Code Annotated*, directs the commission to 1) appoint the executive director of the Tennessee Wildlife Resources Agency (TWRA); 2) approve TWRA’s budget; 3) promulgate rules, regulations, and proclamations; 4) create policy to maintain sound programs of hunting, fishing, trapping, and other wildlife-related outdoor recreational activities; and 5) adjust fees for licenses and permits and establish new hunting, fishing, and trapping licenses and permits as deemed appropriate. Under Section 70-1-203(a), *Tennessee Code Annotated*, the commission “. . . shall hold six (6) regular meetings and may hold as many as

six(6) special meetings in any one (1) year at such times and places as the commission shall elect. . . .”

The map on page 3 illustrates the commission’s districts.

As described in Section 70-1-301 et seq., *Tennessee Code Annotated*, TWRA is responsible for all duties and functions relating to wildlife management, protection, propagation, and conservation, including hunting and fishing. TWRA is also responsible for acquiring wetlands and bottomland hardwood forests, and for enforcing the Boating Safety Act, codified as Section 69-9-201 et seq.

TWRA is organized into two primary areas—Staff Operations and Field Operations—each of which reports to an assistant director. In addition, the Legal Office, the landscape conservation cooperative coordinator, and the legislative liaison all report directly to the executive director. The map on page 4 illustrates the regional offices and districts. An organization chart of the agency is on page 5.

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## AUDIT SCOPE

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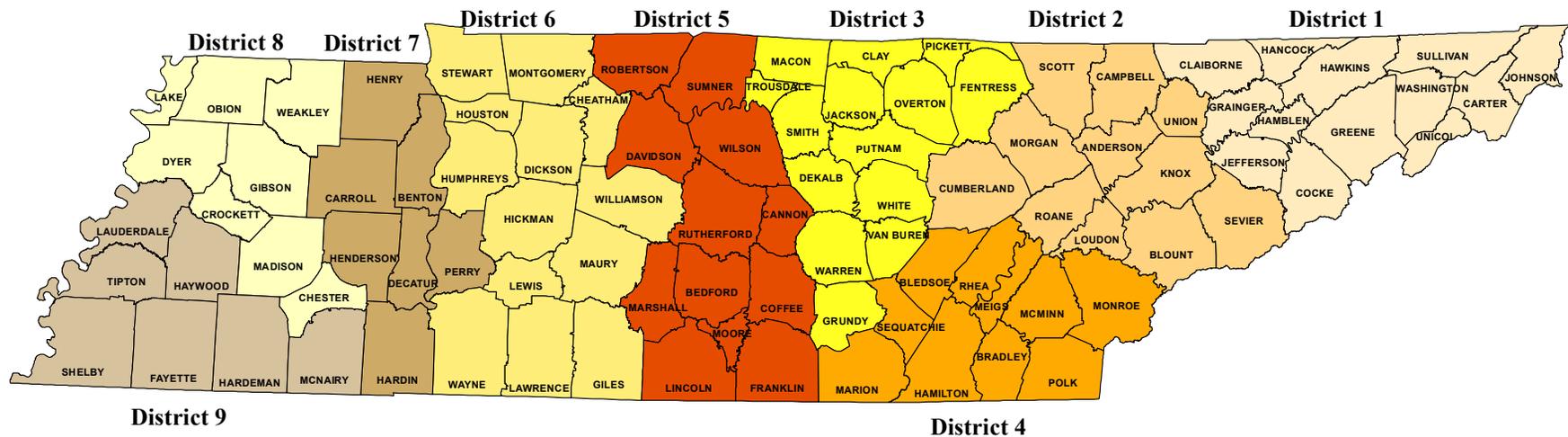
We audited the Tennessee Wildlife Resources Agency’s activities for the period of July 1, 2014, through April 30, 2017. Our audit scope included a review of internal controls and compliance with laws, regulations, and provisions of contracts or grant agreements that are significant within the context of the audit objectives. Management of the Tennessee Fish and Wildlife Commission and the Tennessee Wildlife Resources Agency is responsible for establishing and maintaining effective internal controls and for complying with applicable laws, regulations, and provisions of contracts and grant agreements.

For our sample design, we used nonstatistical audit sampling, which was the most appropriate and cost-effective method for concluding on our audit objectives. Based on our professional judgment, review of authoritative sampling guidance, and careful consideration of underlying statistical concepts, we believe that nonstatistical sampling provides sufficient, appropriate audit evidence to support the conclusions in our report. We present more detailed information about our methodologies in the individual report sections.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

# Tennessee Fish and Wildlife Commission

## 2017 Commission Districts



Generated by the TWRA GIS Lab, May 2017(tp)



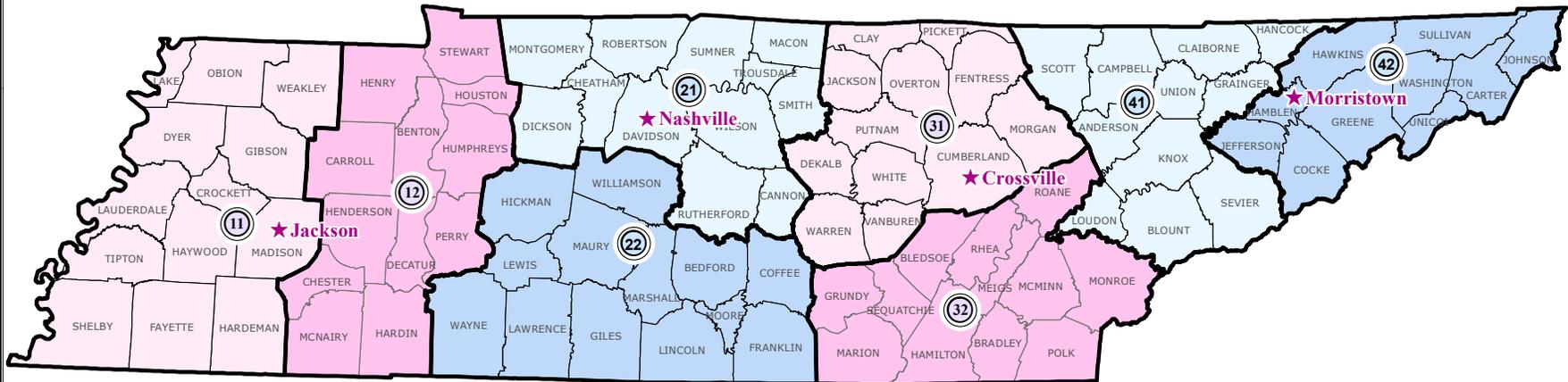
# Tennessee Wildlife Resources Agency Regional Offices and Districts

**Region I**  
Jackson, TN

**Region II**  
Nashville, TN

**Region III**  
Crossville, TN

**Region IV**  
Morristown, TN



**Region I**

**Region II**

**Region III**

**Region IV**

□ TWRA District 11

□ TWRA District 21

□ TWRA District 31

□ TWRA District 41

□ TWRA District 12

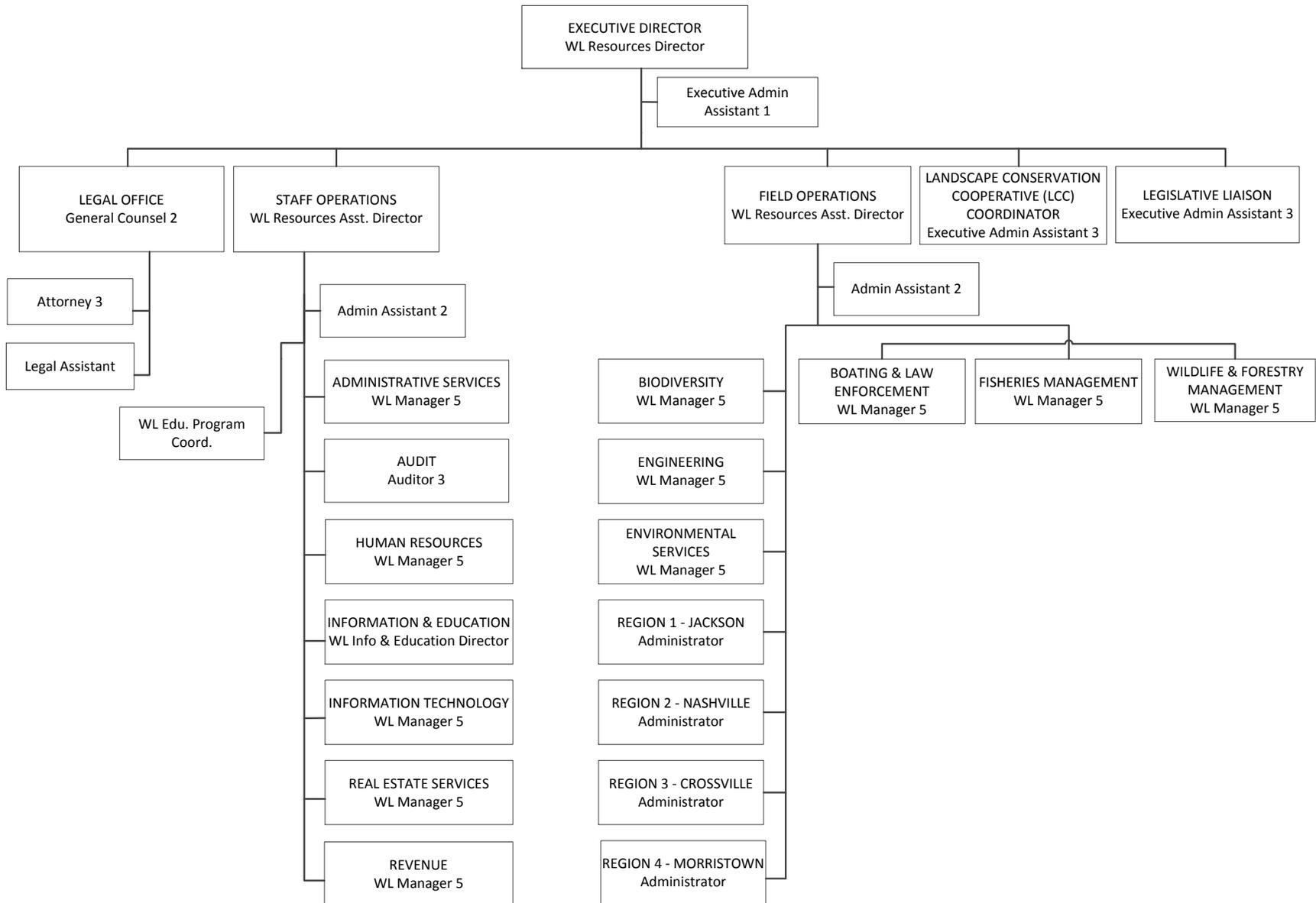
□ TWRA District 22

□ TWRA District 32

□ TWRA District 42



**Tennessee Wildlife Resources Agency  
As of June 2017**



Source: Tennessee Wildlife Resources Agency.  
Note: Abbreviation "WL" refers to "Wildlife."

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## **PRIOR AUDIT FINDINGS**

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Section 8-4-109, *Tennessee Code Annotated*, requires that each state department, agency, or institution report to the Comptroller of the Treasury actions taken to implement audit recommendations. The Tennessee Fish and Wildlife Commission and the Tennessee Wildlife Resources Agency filed a report with the Department of Audit on April 23, 2014, following the October 2013 audit report. We conducted a follow-up of all prior audit findings as part of the current audit.

## **RESOLVED AUDIT FINDINGS**

The current audit disclosed that the agency has corrected all prior audit findings, including those related to state payment cards, equipment, crop leases, conflicts of interest, and Remote Easy Access Licensing System computer access.

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## **OBJECTIVES, METHODOLOGIES, AND CONCLUSIONS**

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### **BIODIVERSITY—ENDANGERED SPECIES**

The Biodiversity Division of the Tennessee Wildlife Resources Agency (TWRA) manages certain nongame wildlife in order to ensure their perpetuation as members of the state's ecosystems, for scientific purposes, and for human enjoyment. Nongame wildlife includes species on the federal endangered species list, which are protected by law, as well as threatened and at-risk species. The goal of the Biodiversity Division is to protect, maintain, and enhance the numbers of these species, when possible. The division receives federal grants through Section VI of the Endangered Species Act of 1973 and state wildlife grants for habitat restoration.

The division works with the U.S. Fish and Wildlife Service (USFWS) to study species that are endangered, at risk, or in need of management. The division monitors TWRA's federal grants and submits final reports to the USFWS regional office in Cookeville. Additionally, the division collaborates with landowners to set aside land parcels for habitat preservation and restoration.

The USFWS, through the Endangered Species Act, establishes the lists of federally endangered and threatened species. When a species is listed as federally endangered, the state loses all authority to act and all regulatory action regarding the species is federally mandated. The Biodiversity Division creates the state's In Need of Management, Threatened, and Endangered Wildlife Listing Rule 1660-01-32 Information, commonly referred to as the

endangered species list. To update the list, Biodiversity staff consult with a team of biologists, university professors, private consultants, and retired government employees.

To meet our objectives and determine how species are identified as endangered, at-risk, or in need of management, we interviewed the chief of Biodiversity, the assistant chief of Biodiversity, related TWRA staff, Arkansas Biodiversity staff, and USFWS staff who work with the Biodiversity Division. We also reviewed the state endangered species list, criteria for grants awarded for studying endangered species, the federal oversight of the division, and the effect of endangered species on game species and hunting in Tennessee.

## Finding

### **TWRA has not updated the state's endangered species list in 16 years, although it is required to do so every 2 years**

According to Section 70-8-105, *Tennessee Code Annotated*, the Tennessee Fish and Wildlife Commission “shall conduct a review of the state list of endangered species within not more than two years from its effective date and every two years thereafter, making the appropriate additions or deletions.” Based on interviews we conducted, the Tennessee Wildlife Resources Agency (TWRA) last updated this list in 2000 with Proclamation 00-15. Failure to update the list also violates the Cooperative Agreement between USFWS and TWRA for Conservation of Endangered and Threatened Wildlife. The agreement requires in article 5, section A, that TWRA submit additions and deletions to the list of federal- and state-listed in-need-of-management, threatened, and endangered fish and wildlife that reside in the state to USFWS no later than June 30 of each year.

The chief of Biodiversity was initially unaware of this responsibility, but was informed of it in 2013 through involvement in another project for TWRA. Due to changes in personnel and other projects, the list was not updated until he presented changes at the February 2017 meeting of the Tennessee Fish and Wildlife Commission. However, because the commission was unclear on the changes and the process to update the list, the members requested that TWRA first streamline the rule regarding changes and then resubmit the changes at a later meeting.

Biodiversity staff is in the process of updating the rule, which involves submitting the rule to the Attorney General's office followed by a period of 50 days for public discussion. According to the chief of Biodiversity, the revised rule will have less content and will be easier to understand. It is important for TWRA to keep the list updated in a timely manner to prevent the possibility of legal action from wildlife groups desiring to protect endangered species.

If endangered animals are not listed as such, there is a risk that a species could become extinct, causing uncertain effects on the surrounding habitat and other wildlife. Another risk is noncompliance with the USFWS cooperative agreement, which could result in the grant not being renewed and a loss of research projects and habitat maintenance in Tennessee.

## **Recommendation**

TWRA should update the state In Need of Management, Threatened, and Endangered Wildlife Listing Rule 1660-01-32 Information, as mandated by statute, to provide protection for these species, and to remain in compliance with the cooperative agreement with USFWS.

## **Managements' Comment**

We concur. The Tennessee Fish and Wildlife Commission has discussed the need for updating the list and the rule has been filed to officially update the list at a Commission meeting this fall. The lapse in updating the current list was greatly influenced by the Federal mandate for each state to develop a State Wildlife Action Plan for non-game animals. The plan took two years to develop and had to be approved by the US Fish and Wildlife Service. Federal action was also occurring to increase direct federal funding for these animals. The legislation was only partially successful and a new effort undertaken based on the animals listed in the state plans. The state plan was rewritten, updated, and gained federal approval in January of this year. Further, a complete re-write of the federal rules for listing and protecting endangered and threatened species is currently making its way through Congress. However, we will go forward with listing the state species and will amend as necessary going forward.

It is important to note that TWRA has developed an aquatic imperiled species hatchery and has successfully reared a number of threatened and endangered species mussels and fish and has returned them to the wild. This hatchery is operated by the Biodiversity Division with the goal of reestablishing threatened wildlife and thereby avoiding the possibility of listing such animals as threatened or endangered.

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## **CHRONIC WASTING DISEASE (CWD) AND THE CWD RESPONSE PLAN**

Chronic Wasting Disease (CWD) is a transmissible, fatal disease affecting members of the Cervidae family. In the State of Tennessee, this includes indigenous white-tailed deer and elk. The disease involves prions, or altered proteins, which destroy the animal's brain and cause it to die. The origin of CWD is uncertain, but the first confirmed case was located in Colorado in the 1960s, and the disease is now in 24 states and Canada. Cases of CWD appear to increase with confined herds, transported animals, and the transportation of infected parts of harvested deer.

To meet our objectives and assess how Tennessee Wildlife Resources Agency (TWRA) has and will address CWD in the state, we interviewed the chief of Wildlife, the assistant chiefs of Wildlife and Habitat Management, the animal testing and disease coordinator, the deer management coordinator, regional administrators, university researchers, and deer management leaders in Arkansas and Virginia. We reviewed the CWD plans from Tennessee and from surrounding states, including carcass disposal methods.

Monitoring for the disease in Tennessee began in 2002, and by 2016 a total of 9,394 free-range, white-tailed deer and 80 free-range elk had been tested for CWD, with no positive results. Working at deer check-in stations, TWRA biologists collect samples of animal lymph nodes and send the samples to Colorado State University for testing. It is crucial for the state to remain vigilant to keep the disease out of Tennessee and continue sampling for early detection.

In 2016, TWRA prepared the Chronic Wasting Disease Response Plan under Rule 1660-01-15-.02. When writing the plan, TWRA spoke with disease coordinators and big game coordinators in states dealing with CWD and borrowed concepts from other states, especially Arkansas. The response plan is TWRA's answer to the disease if found in Tennessee. If that occurs, plan elements include increased testing, containment zones, and changes in wildlife regulations.

While the plan includes components for enacting regulatory actions, creating response teams, and notifying TWRA staff and appropriate parties, it lacks some detailed actions to take in the case of a positive CWD test result. As is, the plan functions as more of a guiding document than an implementation plan.

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## **CITATION FINES RECEIVED BY THE AGENCY**

The Tennessee Wildlife Resources Agency (TWRA) Boating and Law Enforcement Division's main responsibility is to enforce the state's wildlife and boating laws. The law enforcement personnel play a critical role in the protection and conservation of the state's natural resources. As such, the role of the law enforcement officers has expanded to include general enforcement and public safety presence on public lands and waterways. Officers can issue warnings and citations to offenders of violations of any wildlife laws and rules. Most wildlife and boating law violations are classified as misdemeanors and are punishable by a fine of \$10 minimum and \$50 maximum, except for boating under the influence, for which the accused can be arrested.

To meet our objectives and determine the fee structure of citations for boating, hunting, and fishing violations; the breakdown of court costs; and the amount of funds TWRA receives from issued citations, we interviewed the legal and law enforcement staff in surrounding states. We reviewed state laws and TWRA's rules, reviewed the funds TWRA received from the county courts, and interviewed staff at county court clerks' offices.

The Tennessee Advisory Commission on Intergovernmental Relations released a report in January 2017 titled *Tennessee's Court Fees and Taxes: Funding the Courts Fairly*, which stated that the court clerks collect fees, taxes, fines, and commissions to help pay for the court system. A fine is the monetary penalty for the violation of laws. The fees are added to fines to cover services rendered by the court or law enforcement personnel. Examples of fees commonly applied to the citations include court and data system costs.

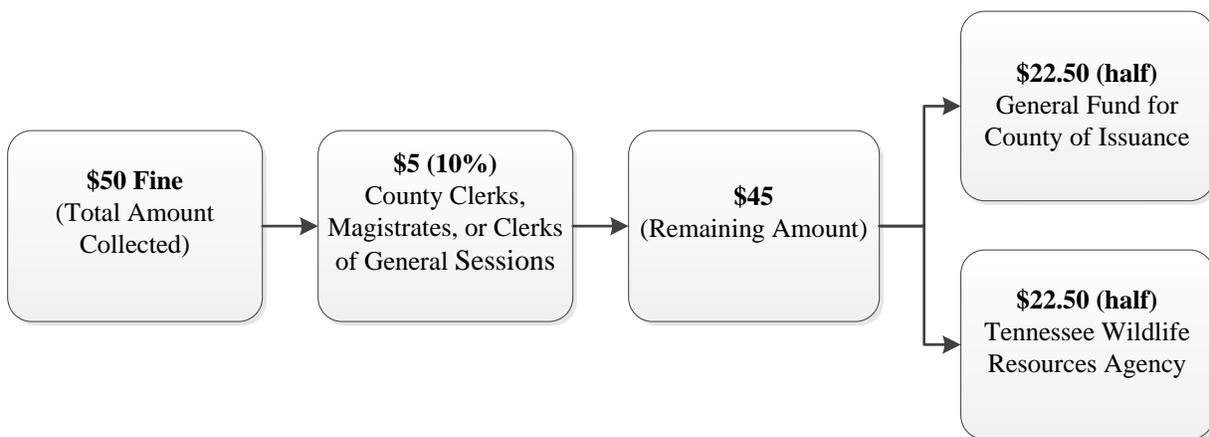
According to the law enforcement staff and county court clerks' offices, when a TWRA law enforcement officer issues a citation, the amount of the citation varies by judge and offense.

The fees added to the violation fines seemed more consistent across the state than the fines, which varied for the same violations in the same counties. While court costs vary by county, fine amounts are at the discretion of the individual county judges. For example, a TWRA officer may issue a \$10 citation for hunting or fishing without a license, but the judge in that county can change the amount to \$25. TWRA has no control over the courts or judges. After receiving a citation, the offender can post bond or appear in court to pay the citation. The judge can dismiss the citation if the offender can present evidence, such as a fishing license, floatation device, or boater registration. In speaking with law enforcement staff in surrounding states, we determined their processes for issuing citations and assigning fines and fees are all comparable to Tennessee.

We contacted the county clerks' offices in Davidson and Sumner Counties, and reviewed payments received from each county's court clerk's office to understand the process, the court costs, and the amount paid to TWRA. According to the Davidson county clerk's office, the total cost a person has to pay for a game and fish violation fine of \$50 is \$219.50, which includes \$169.50 in court fees. In Sumner County, the total cost for the same violation is \$282.50, which includes \$232.50 in court fees.

According to Section 70-6-106, *Tennessee Code Annotated*, of the total amount of fines and forfeitures collected for a TWRA-issued citation, 10% goes to the county clerks, magistrates, or clerks of the general sessions courts. Of the remaining 90%, half goes to the county in which the fine was collected and half goes to TWRA. By this statute, TWRA should receive 45% of the amount of fines collected by the county court clerks, not including court fees added to the fines.

To determine whether TWRA received 45% of the fines collected, we compared the amount of fines collected, as reported by 92 county courts, to the amount TWRA received from 82 of those counties in the 2015 and 2016 calendar years (10 counties reported no citations). We found inconsistencies in the reporting documents, the calculation of the amount due to TWRA, and the amount each county paid to TWRA, such that we could not determine whether TWRA received the proper amount of fines and forfeitures due, according to statute. The flowchart below illustrates the breakdown of amounts for a citation issued based on a \$50 fine.



We suggest TWRA work with the county court clerks, perhaps through the Tennessee County Clerks' Association, to instruct them on the proper calculation of the percentage of fines paid to TWRA and other entities. The agency may even provide a form to guide county court clerks through the allocation steps, to be filed with the payment to TWRA.

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## **CONTRACT MONITORING**

All state procuring agencies are responsible for contract management of their grants and term contracts. Contract management is the agency's ongoing process for administering and reviewing the performance of each contract for efficiency, cost effectiveness, accountability, and results. The agency establishes an annual contract management plan to address the general management of the contract and maintains the records of each contract to document procurement and management activities. The State's Central Procurement Office (CPO) reviews and approves the management plans, but each agency is responsible for implementing management practices to ensure contract compliance.

To accomplish the objective of determining contract compliance and to gain an understanding of the monitoring process, we interviewed Tennessee Wildlife Resources Agency (TWRA) program managers and legal staff and reviewed TWRA's monitoring plans, monitoring guides, monitoring reports, and risk assessments.

We assessed TWRA's 2016 Term Contract Management Plan to determine whether the agency is complying with CPO Rule 0690-03-07-.27, which outlines monitoring requirements. As of April 2017, TWRA had 107 active contracts totaling \$23.5 million. We found that while TWRA adequately monitored contracts and grants, received documentation to support payments to recipients, and received progress or final reports, the program directors did not always complete TWRA's monitoring log by documenting each activity performed or report received. TWRA should ensure the program directors fully document all activities performed to support the contract monitoring compliance logs.

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## **BRANDT INFORMATION SERVICES FOR LICENSES AND REGISTRATION**

Tennessee Wildlife Resources Agency (TWRA) uses a computer system called the Remote Easy Access Licensing (REAL) System to sell hunting and fishing licenses; register boats; take applications for and run quota hunt draws; collect harvest information; provide accounting features; and complete numerous other functions by using point-of-sale equipment in retail establishments across the state. The system allows TWRA to know its constituency and to sell licenses faster. It also allows TWRA to collect the license sale fees from each retail license agent by using the automated clearinghouse.

As reported in the 2013 performance audit report of TWRA, the system used by the prior vendor, whose contract has since expired, did not capture detailed information on the license sales transactions to include the transaction's agent seller, time, location, and TWRA approval.

The prior system also was not set up to provide an audit trail of the transactions. According to TWRA staff, the vendor made updates to the system to address certain issues.

In October 2016, TWRA contracted with a new vendor, Brandt Information Services, to develop, implement, and manage the automated hunting and fishing license sales system, REAL. Brandt is also responsible for migrating all of the existing data into the new system. This vendor has experience in Georgia, Florida, and Virginia and has a 10-year contract with TWRA that should help increase marketing to maintain the customer base and sales.

The contract with Brandt has provisions to continue audit trails of sales transactions and for Brandt to provide quarterly security reports. According to the IT director, both Brandt and the Department of Finance and Administration's Strategic Technology Solutions conduct data reliability tests of the REAL system.

For fiscal year 2016, TWRA received \$38.8 million in license and permit sales and \$5.5 million in boater registration fees. Because the contract with Brandt started in October 2016, there was not enough data to test to determine the efficiency of the new system. However, future audits of TWRA could assess the operation of the REAL system.

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## **ANIMAL DISEASE TESTING**

The Wildlife Division of the Tennessee Wildlife Resources Agency (TWRA) engages in animal testing for the welfare of wildlife, livestock, and people. If there are large numbers of animal mortalities, TWRA tests to determine cause(s) of death on behalf of public welfare. Most of the testing done on wildlife is reactive, except for some high-level testing. The responsibility for testing falls to field personnel, who determine testing details. Testing samples are sent to different labs based on the particular test required; the turnaround time on the test; whether forensics (for example, multiple tests) is required; contract requirements; and, in some cases, federal guidance.

For example, TWRA tests bats for white-nose syndrome, which has been under surveillance since 2009. The department reports it is a relatively low-risk disease for humans, but is high risk for bats. If found, is assumed to have infected the area. TWRA conducts a census of the state's bats and tests dead bats or bats it suspects of having the disease. In fiscal year 2016, TWRA found no new trace of white-nose syndrome.

TWRA attempts to test all harvested wild hogs for brucellosis and pseudo-rabies. In fiscal year 2016, of 374 wild hogs tested; 9 tested positive for brucellosis, 6 tested positive for pseudo-rabies, and 1 tested positive for both brucellosis and pseudo-rabies. A TWRA employee explained that disease testing also helps community partners understand the dangers of wild hogs.

The U.S. Department of Agriculture contracts with TWRA and other agencies nationwide to conduct ongoing testing for avian influenza and provides funding and oversight to states who participate. During fiscal year 2016, TWRA collected samples from 1,388 water fowl, none of which tested positive for highly pathogenic avian influenza. According to TWRA staff, the risk

of water fowl contaminating a chicken farm is statistically improbable because chicken facilities are bio-secured. Although there was an outbreak of avian influenza in Lincoln County in 2017, TWRA was not asked to intercede or aid in containment of the outbreak, and there were no links between that outbreak and water fowl.

TWRA also conducts tests of certain diseases, including epizootic hemorrhagic disease (EHD), when there are periodic outbreaks. EHD can drastically reduce a herd of deer. TWRA also tests for EHD when alerted to a sick deer that is staying near water.

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## **NON-MOTORIZED BOATS—EMERGING ISSUE**

The Tennessee Safe Boating Act of 1965 designates the Tennessee Wildlife Resources Agency (TWRA) as the sole state agency charged with managing the state's Recreational Boating Safety program. The act requires TWRA to promote boating safety; achieve uniformity of laws and regulations with respect to the numbering and operation of recreational vessels; and foster the development, use, and enjoyment of the waters of Tennessee. The boating program also includes the maintenance and construction of boating access areas, including ramps, parking areas, access roads, and docks for transient or non-trailerable boats. TWRA receives federal funds for the program, which does not include revenue from non-motorized boats such as canoes and kayaks. However, TWRA provides boating safety education for all users, including those using non-motorized boats, and covers maintenance for the streams and lakes where these boats are used.

State law requires individuals to register any type of boat or watercraft to operate the craft on public waters, except for non-motorized boats and for vessels registered in other states using Tennessee waters for 60 days or less. Additionally, Tennessee residents born after January 1, 1989, who wish to operate a boat must successfully complete the TWRA Boating Safety Exam and carry on board the Boating Safety Education Certificate issued by TWRA.

Funding for the boating program is primarily derived from boat registration fees. The program also receives income from a small percentage of the tax on fuel sold at marinas, federal assistance, fines, and interest earned on the boating reserve fund. TWRA reports it has a statewide boating coordinator, a statewide education coordinator, 3 investigators, 185 wildlife/boating officers, 10 full-time boating officers, and 45 part-time boating officers who routinely work with or patrol most of the state's lakes and rivers.

To accomplish our objectives and to gain an understanding of the impact of non-motorized boats, we interviewed boating and law enforcement staff, the legislative liaison, and Boating Division staff in surrounding states. We reviewed TWRA's boating procedures and handbook, boating incident reports, boating education guides, and state laws.

In the last five years, TWRA has noticed an increase in the popularity and activity of non-motorized boats in Tennessee; however, TWRA has not been formally capturing information on non-motorized boats to determine the associated risks or their impact. TWRA does not have enough information on non-motorized boats to know if this increase is a problem

or to make future decisions. While the law enforcement officers do capture data for all boating accidents, including non-motorized boats, and can add notations about non-motorized boats on the citations issued, TWRA does not have mechanisms in place to track or quantify the complaints received on non-motorized boats or have non-anecdotal data to indicate the actual increase of non-motorized boats. Therefore, we were unable to evaluate the presence of non-motorized boats based on TWRA's lack of capturing information.

Boating and law enforcement staff estimate approximately 75% of non-motorized boats are used for recreational activities and 25% are used for fishing. However, they add that it is difficult to capture data on non-motorized boats, outside of accident reports, because those vessels are not required to be registered and not all users have fishing licenses. According to the boating education staff, TWRA does not capture the type of vessel used, owned, or rented for the boat safety education classes. Additionally, TWRA states that there are not enough law enforcement officers to monitor all the rivers and lakes in the state at all times. According to TWRA staff, commercial rental canoe and kayak outfitters contribute to approximately 1,000 to 1,500 non-motorized boats on the water regularly.

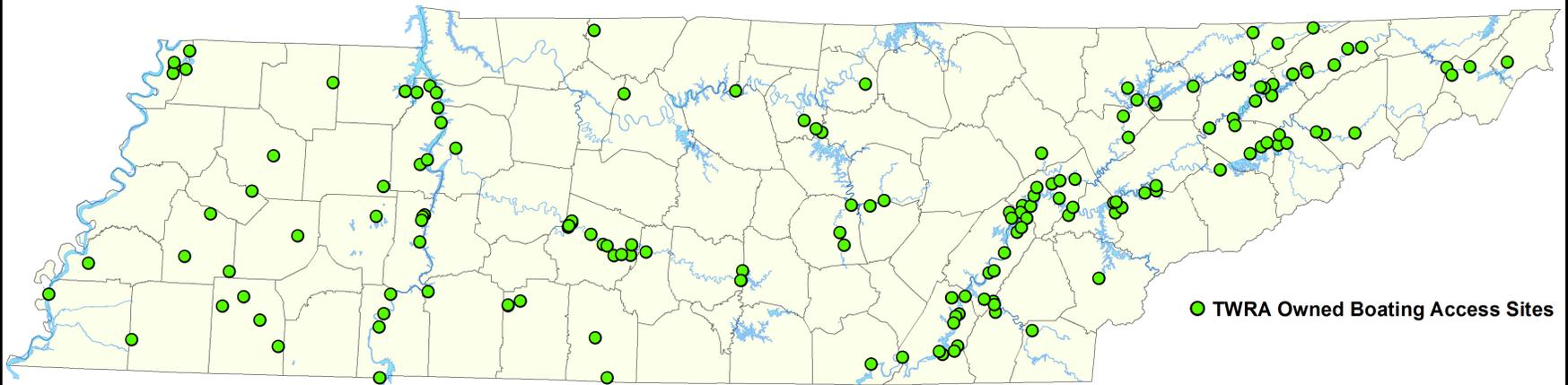
TWRA receives complaints on non-motorized boats, but they are not recorded through the agency's complaint system, because most calls are seeking immediate action. According to TWRA, the most common complaints received on non-motorized boats are the following:

- user conflicts with overcrowding and blocking access ways and boater ramps from larger boats and fishermen;
- conflicts with landowners on private land and trespassing;
- possession and use of drugs and alcohol;
- littering;
- lack of wearing personal floatation devices (lifejackets); and
- requests to build ramps specifically for kayaks and canoes.

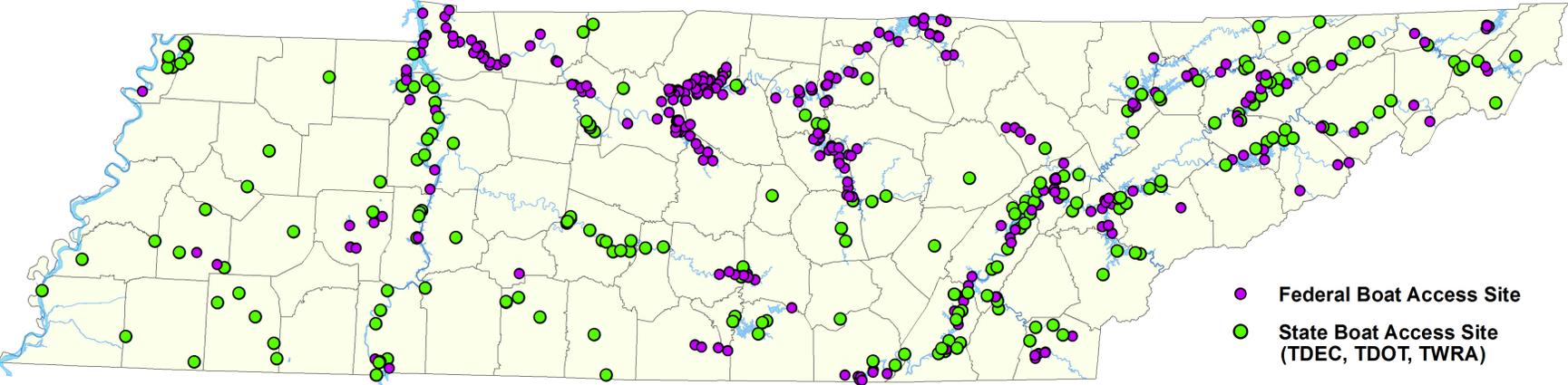
TWRA has been working with the Department of Tourism on projects to expand boat ramps per Tennessee Valley Authority approval. TWRA currently owns 250 boat ramps across the state. The maps of the boat ramps owned by state entities (Tennessee Wildlife Resources Agency, Tennessee Department of Environment and Conservation, and Tennessee Department of Transportation) and federally owned boat ramps are on pages 15 and 16.

In 2012, TWRA contracted with the University of Tennessee at Knoxville's Human Dimensions Research Labs to conduct a user survey on the adult boating population and boating activities in Tennessee. The survey captured information on the types of vessels used at that time (before the apparent increase in non-motorized boats). TWRA is in the process of installing a new Computer Aided Dispatch radio system, to be completed in fall 2017, which will enable law enforcement officers to capture more information on non-motorized boats and citations. It should be beneficial for TWRA to capture information on non-motorized boats to assess any impact and assist with future decision making.

# Tennessee Wildlife Resources Agency Boating Access Sites



# Federal and State Owned Boating Access Sites



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## **FISHERIES DIVISION HATCHERIES**

The Fisheries Division of the Tennessee Wildlife Resources Agency (TWRA) is responsible for writing the state's fishing guide, setting fishing quotas, operating the hatcheries to stock various waterways, and assessing the fishing quality of the state's lakes and streams.

The Fisheries Division operates a total of nine state-operated hatcheries, which include four cold-water hatcheries, five warm-water hatcheries, and two rearing stations. (See page 18 for a map of the hatcheries.) Rearing stations grow fish out but do not have the same infrastructure. The cold-water hatcheries exclusively produce trout, while the warm-water facilities produce sauger, walleye, crappie, hybrid bass, and striped bass, among others. Field biologists claim there is a 3 million fish deficit from what should be stocked, forcing the agency to be highly critical of what is produced.

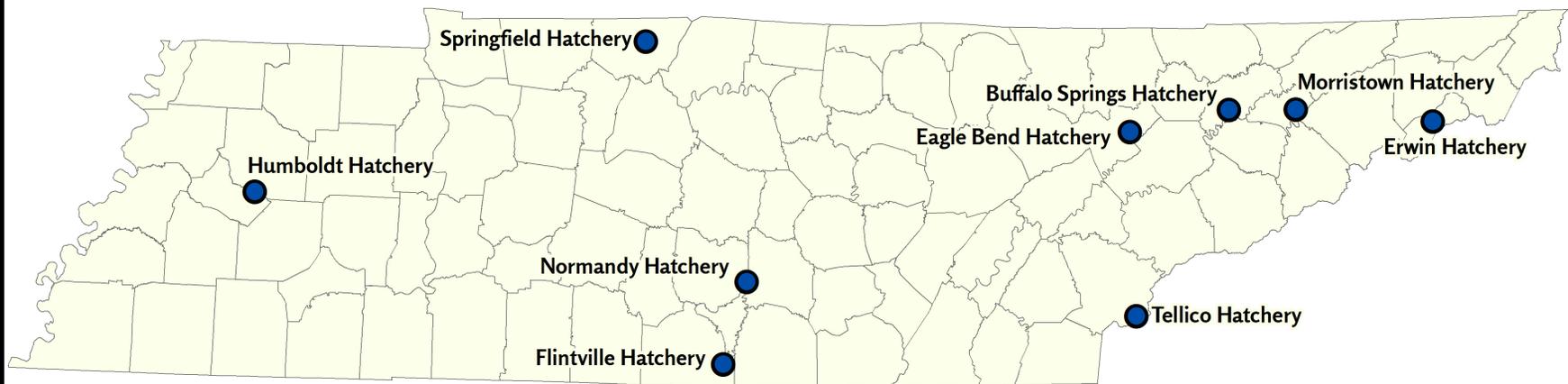
The Fisheries Division obtains fish for stocking through a variety of channels, such as largemouth bass fingerlings from Florida and trout eggs from the U.S. Fish and Wildlife Service. Most of the fish stocked are grown in the hatcheries.

Annually, the state stocks a total of 6.7 million fish. Fish are stocked according to a stocking strategy and consideration of factors such as performance of the area (catch rate); fairness; frequency of stocking; and guidance from the regional level, including biological data collected by field personnel. TWRA tries to place species where they will have a better chance of thriving. In 2017, staff created stocking plan worksheets to consider catch rates, numbers of specific fish harvested, vegetation present, and other factors. Biologists used the worksheets to determine the most effective stocking rates. Because this system is new, the auditors were not able to evaluate its effectiveness.

According to TWRA, all of the hatcheries are functioning at capacity, and each hatchery plans production based on hatchery space. TWRA determines each facility's success by whether it meets production numbers. Fisheries staff are working on several innovations to improve production, including placing pond liners on the bottom of ponds to eliminate vegetation and make it easier for the fish to find their food; however, these liners are being added over time. The Normandy Hatchery is adding eight new ponds that should be functional for the 2018 season. Pictures of the Normandy and Buffalo Springs Hatcheries can be found on pages 19-22.

The Fisheries Division is also responsible for non-native, invasive species Asian carp, which threaten ecosystems, consume native vegetation, and out-compete native fish. These fish are found in 13 states, most of which are in the Mississippi Basin. TWRA has not fully proved any options yet, but is educating fishermen and asking them not to use Asian carp as a bait fish.

# Tennessee Wildlife Resources Agency Fish Hatcheries





Buffalo Springs Cold-water Hatchery.



Buffalo Springs Hatchery Raceways.



Outside Buffalo Springs Hatchery is the displayed trout tank, a smaller example of a circular tank that produces quality trout with less cleaning necessary.



Outside Buffalo Springs Hatchery, this trout tank contains trout that are 6 to 7 years old.



An overview of the Normandy Hatchery expansion, where construction crews are building new ponds set to be operational in 2018.



Finished pond liner at Normandy Hatchery.



Inside the Normandy Hatchery, these nine water tanks contain 400,000 total walleye fingerlings in the process of development.

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## APPENDICES

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### APPENDIX 1 Financial Information

#### Budgeted Revenues by Source For the Fiscal Year Ended June 30, 2017

<i>Source</i>	<i>Amount</i>	<i>% of Total</i>
State	\$56,254,700	50%
Federal	\$34,644,600	31%
Other*	\$20,659,900	19%
<b>Total Revenue</b>	<b>\$111,559,200</b>	<b>100%</b>

\*The category "other" includes timber sales; earnings and income from treasury investments; donations from private organizations; and reimbursement for bear management.

Source: *The Budget 2016-2017*.

#### Budgeted Expenditures by Account For the Fiscal Year Ended June 30, 2017

<i>Account</i>	<i>Amount</i>	<i>% of Total</i>
Wildlife Resources Agency	\$90,658,200.00	81%
Boating Safety	\$13,980,000.00	13%
Wetlands Acquisition Fund	\$6,521,000.00	6%
Wetlands Compensation Fund	\$400,000.00	0%
<b>Total Expenses</b>	<b>\$111,559,200</b>	<b>100%</b>

Source: *The Budget 2016-2017*.

**APPENDIX 2**  
**2017 Tennessee Fish and Wildlife Commission Members**  
**as of August 2, 2017**

<b>Board Member</b>	<b>Position</b>	<b>District</b>
Jamie Woodson	Chairman	District 5
Jeff Cook, M.D.	Vice Chair	Statewide
Kurt Holbert	Secretary	District 7
Kent Woods	Member	District 2
Brian McLerran	Member	District 3
Angie Box	Member	District 8
Chad Baker	Member	District 1
Connie King	Member	District 6
William "Bill" Cox	Member	District 9
Tony Sanders	Member	District 4
Dennis Gardner	Member	Statewide
James Stroud	Member	Statewide
Bill Swan	Member	Statewide
Robert Martineau, Commissioner of Environment and Conservation	Ex-Officio	Statewide
Jai Templeton, Commissioner of Agriculture	Ex-Officio	Statewide
Governor Bill Haslam	Ex-Officio	Statewide

Source: Tennessee Wildlife Resources Agency.