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# TRANSMISSION SYSTEM ROUTINE PERIODIC VEGETATION MANAGEMENT

# FISCAL YEARS 2025 AND 2026

## DRAFT ENVIRONMENTAL ASSESSMENT

**TENNESSEE VALLEY AUTHORITY**
**Chattanooga, Tennessee**

August 2024

To request further information, contact:
Anita E. Masters
NEPA Program
Tennessee Valley Authority
1101 Market St., BR2C
Chattanooga, Tennessee 37402
E-mail: aemasters@tva.gov

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# Table of Contents

# List of Appendices

# List of Tables



# List of Figures

# COVER SHEET

## Transmission System Routine Periodic Vegetation Management Fiscal Years 2025 and 2026 Draft Environmental Assessment

**Proposed Action:** The Tennessee Valley Authority (TVA) has prepared this Environmental Assessment (EA) to address potential environmental, social, and economic impacts associated with the proposed management of vegetation within its existing active transmission line rights-of-way (ROW) in Fiscal Years 2025 and 2026.

**Type of document:** Draft Environmental Assessment

**Lead agency:** Tennessee Valley Authority

**Contact:** Anita E. Masters
Tennessee Valley Authority
1101 Market Street, BRC 2C
Chattanooga, TN 37402

**Abstract:**

TVA needs to manage the vegetation within its active transmission line ROWs to assure the safe and reliable operation of its transmission facilities. Routine assessment methods to establish a basis for vegetation control measures were evaluated in a programmatic Environmental Impact Statement (PEIS) released in 2019. This EA tiers from the PEIS and addresses the planned Fiscal Year 2025 and 2026 vegetation management of individual transmission line segments and tiers from the PEIS providing a more site-specific review and analysis. TVA proposes to target previously cleared or maintained areas along some segments of ROWs in TVA's twelve managed ROW sectors across TVA's power service area. Typically, vegetation management activities consist of herbicide application (90%), mechanical control (6% - i.e., brush hogs, equipment mounted saws) and manual methods (4% - i.e., chainsaw, handsaw). Tree work would be limited to trees that would present an immediate hazard to the reliability of the transmission system.

The PEIS was prepared at the programmatic level to encompass ROW vegetation management across TVA's transmission system. A Record of Decision was issued in October 2019 indicating TVA's preferred vegetation management program would be to manage the full extent of the ROW to a meadow-like end-state. TVA will not fully implement this program at this time, as TVA's ROW vegetation management methods are subject to certain restrictions and limitations from an injunction issued by the district court for the Eastern District of Tennessee in Sherwood v. TVA, No. 3-12-CV-156. So long as the injunction is in place, TVA will continue to maintain the buffer zones on the edges of its ROW in a manner as described in its 1997 and 2008 Line Maintenance Manuals (TVA 1997; TVA 2008) and any tree work would be limited to trees that would present an immediate hazard to the reliability of the transmission system.

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# Acronyms, Abbreviations, and Glossary of Terms Used

| | |
|---|---|
| **acre** | A unit measure of land area equal to 43,560 square feet. |
| **access road** | A dirt, gravel, or paved road that is either temporary or permanent, and is used to access the right-of-way and transmission line structures for construction, maintenance, or decommissioning activities. |
| **ANSI** | American National Standard Institute |
| **BA** | Biological Assessment |
| **APE** | Area of potential effect |
| **BMP** | Best Management Practices |
| **border zone** | The border zone is the area located between the outside edge of the ROW and the wire zone. The width of this area varies based upon ROW width, voltage, structure type, and structure height. |
| **buffer zone** | A portion of the Border Zone on some transmission ROWs that has not been subjected to routine maintenance. |
| **compatible vegetation** | Compatible vegetation is that which will never grow sufficiently close to a conductor so as to violate the minimum clearance distances. |
| **conductors** | Cables that carry electrical current |
| **CWA** | Clean Water Act |
| **danger tree** | Tree located on or off the ROW that, under maximum sag and blowout conditions, could strike a transmission line structure or come within an unsafe distance of a transmission line if it were to fall toward the line. For most transmission lines, this distance is five feet, but for higher voltage lines, the distance is generally 10 feet. |
| **EA** | Environmental Assessment |
| **easement** | A legal agreement giving TVA the right to use property for a purpose such as a right-of-way for constructing, maintaining, and operating a transmission line. |
| **EIS** | Environmental Impact Statement |
| **endangered species** | A species in danger of extinction throughout all or a significant part of its range. |
| **EO** | Executive Order |
| **EPA** | U.S. Environmental Protection Agency |
| **ephemeral stream** | Watercourses or ditches that only have water flowing after a rain event; also called a wet-weather conveyance. |
| **ESA** | Endangered Species Act |
| **Feller buncher** | A piece of heavy equipment that grasps a tree while cutting it, which can then lift the tree and place it in a suitable location for disposal; this equipment is used to prevent trees from falling into sensitive areas, such as a wetland |

| | |
|---|---|
| **floor work** | Vegetation management activities typically consisting of mechanical control (e.g., brush hogging) and herbicide application which target previously cleared or maintained areas along the transmission rights-of-way to achieve an end-state vegetation community consisting of a mix of herbaceous and low-growing shrub species. |
| **FY25** | TVA's Fiscal Year 2025 runs from October 1, 2024 to September 30, 2025 |
| **FY26** | TVA's Fiscal Year 2026 runs from October 1, 2025 to September 30, 2026 |
| **groundwater** | Water located beneath the ground surface in the soil pore spaces or in the pores and crevices of rock formations. |
| **hazard** | Vegetation at risk to the reliability of the transmission system and/or safety of the public. An *immediate hazard* is any vegetation that upon inspection potentially presents a jeopardy or risk to the public safety or the transmission system reliability during the period from the date of inspection or evaluation until the next scheduled Preventative Maintenance tree maintenance activity. |
| **incompatible vegetation** | Incompatible vegetation is that which has the potential to grow sufficiently close to a conductor so as to violate the minimum clearance distances. |
| **HUC** | Hydrologic unit code |
| **inspections** | Periodic review of the condition of transmission system rights-of-way by means of aerial inspections, ground inspections, and as-needed, field inspections to determine maintenance needs, and any need to adjust the cycle of scheduled work due to emergent conditions. |
| **IPaC** | Information for Planning and Consultation. An information, planning and assessment database that can be used to help determine the potential impacts of a project to species regulated by the USFWS. |
| **IVM** | Integrated Vegetation Management |
| **kV** | Symbol for kilovolt (1kV equals 1,000 volts) |
| **LiDAR** | Light Detection and Ranging |
| **LPC** | Local Power Company |
| **NEPA** | National Environmental Policy Act |
| **NERC** | North American Electric Reliability Corporation |
| **NHPA** | National Historic Preservation Act |
| **NPDES** | National Pollutant Discharge Elimination |
| **NPS** | National Park Service |
| **NRHP** | National Register of Historic Places |
| **NPV** | Net Present Value |
| **NWI** | National Wetland Inventory |
| **O-SAR** | Office-Level Sensitive Area Review |
| **outage** | An interruption of the electric power supply to a user |
| **PA** | Programmatic Agreement |

| | |
|---|---|
| **PEIS** | Programmatic Environmental Impact Statement |
| **riparian** | Related to or located on the banks of a river or stream |
| **ROW** | Right-of-way, a corridor containing a transmission line |
| **runoff** | That portion of total precipitation that eventually enters a stream or river |
| **SHPO** | State Historic Preservation Officer |
| **SMZ** | Streamside Management Zones |
| **structure** | A pole or tower that supports a transmission line |
| **substation** | A facility connected to a transmission line used to reduce voltage so that electric power may be delivered to a local power distributor or user. |
| **TCP** | Traditional Cultural Properties |
| **threatened species** | A species likely to become endangered within the foreseeable future |
| **tree work** | Vegetation maintenance activities consisting of manual control (e.g., chainsaw) and mechanical control (e.g., equipment mounted saws and other devices) which focus on tree removal or tree trimming. |
| **TVA** | Tennessee Valley Authority |
| **TWRA** | Tennessee Wildlife Resources Agency |
| **US** | United States |
| **USACE** | U.S. Army Corps of Engineers |
| **USC** | United States Code |
| **USDA** | U.S. Department of Agriculture |
| **USFS** | U.S. Forest Service |
| **USFWS** | U.S. Fish and Wildlife Service |
| **wetland** | A marsh, swamp, or other area of land where the soil near the surface is saturated or covered with water, especially one that forms a habitat for wildlife |
| **wire zone** | The wire zone includes the area directly under the lines |

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# CHAPTER 1 – PURPOSE AND NEED FOR ACTION

The Tennessee Valley Authority (TVA), like similar utilities, develops long-range vegetation management plans for its transmission system according to industry-wide standards. This planning process includes considerations regarding how and when TVA would control the vegetation growing within its transmission line rights-of-way (ROW). TVA has prepared this Environmental Assessment (EA) for the Fiscal Year 2025 (FY25) and 2026 (FY26) planning cycles for the proposed management of vegetation within transmission system ROWs. This EA, which tiers from TVA's programmatic Transmission System Vegetation Management Environmental Impact Statement (PEIS) (TVA 2019), identifies individual transmission line ROW segments in which vegetation management activities are proposed.

## 1.1 Purpose and Need

The purpose of TVA's transmission system vegetation management program is to strategically manage TVA's existing transmission system ROW in a manner consistent with applicable laws, orders, standards, practices and guidance, while providing reliable electricity transmission to TVA's customers and protecting environmental resources to the extent possible. Failure to address vegetation clearance and management of brush, downed vegetation and small trees could result in wildfires, major power outages, and injury to life or property. The need for the proposed action includes:

- Enhanced public safety through controlled vegetation management of TVA's transmission lines.
- Effectively manage vegetation that interferes with the safe, efficient and reliable operation of transmission lines so TVA can continue to provide the public safe and reliable electric power in a cost-effective and environmentally sound manner.
- Compliance with North American Electric Reliability Corporation (NERC) standards to maintain transmission lines in a safe and reliable operating condition.

## 1.2 Introduction and Background

### 1.2.1 TVA's Transmission System

TVA's transmission system consists of a network of more than 16,700 miles of electric transmission lines all contained within approximately 239,830[1] acres of utility ROW. Most of TVA's transmission system is located on private lands. TVA typically acquires easements that include the right to manage vegetation to protect transmission lines and the transmission system.

Electricity is provided to its customers by the transmission of electricity typically ranging from 46,000 to 500,000 volts (46 to 500 kilovolts [kV]). High voltage allows electricity to be transmitted over long distances with maximum efficiency. The electricity is delivered to more than 60 directly served, large industrial customers, 7 military & federal installations and to 153 local power companies (LPC). These LPCs typically utilize voltages in the range of 4-kV to 69-kV to connect with end use customers (e.g., residential homes, hospitals, schools, and businesses).

[1] Approximate acreage as of August 2024.

### 1.2.2 The Need for Transmission System Reliability

The reliability of TVA's transmission system is extremely important because interruptions can cause widespread and extended outages. For example, one high-voltage transmission line can support a primary substation, but if an interruption occurs on this transmission line, all other substations that depend on the primary substation also will be interrupted. The other secondary substations distribute power to homes, businesses, hospitals, and safety devices, such as traffic lights. Therefore, the loss of one primary substation can affect thousands of people.

NERC began enforcing its Reliability Standard FAC-003 Transmission Vegetation Management Program on June 18, 2007. The industry-wide reliability standard states that transmission systems, like the TVA system, must maintain adequate transmission line clearances as required by the National Electric Safety Code to be able to survive NERC defined contingency events while continuing to serve customer needs with adequate voltage. Because failure to address the vegetation clearance, compliance and monitoring requirements of FAC-003 can result in wildfires, major power outages, and injury to life or property, NERC can apply regulatory penalties for noncompliance, including mitigation and fines.

As such, TVA's vegetation management cycle on ROWs associated with transmission lines is typically conducted on a three-year cycle. In addition, floor vegetation maintenance work incorporates a greater percentage of herbicide use to expedite adequate clearance.

Vegetation that is not managed properly contributes to unnecessary electrical transmission interruptions. On LPC distribution lines, safe working clearance distances can be more easily maintained due to the lower voltages and corresponding electrical arc potential. On higher voltage transmission lines, conductive objects, such as trees and vegetation, pose a greater threat to interrupting the power system. This is because the higher energy levels enable the electricity to arc over greater distances to the object and then to the ground.

### 1.2.3 TVA's Vegetation Management Program

TVA's transmission system serves ten million residents in a more than 82,000-square-mile area. For vegetation management purposes this area is divided into six regions consisting of a total of twelve sectors across TVA's Power Service Area (Figure 1-1). TVA develops a yearly plan using an Integrated Vegetation Management approach, to identify roughly one-third of the transmission system which needs vegetation management within each of the twelve sectors. This area, shown on Figure 1-1, comprises the study area for this EA as this area is inclusive of all areas where TVA maintains the transmission system ROWs. Analysis of impacts to individual ROW segments that undergo vegetation management practices in the EA adopts a sector area perspective.

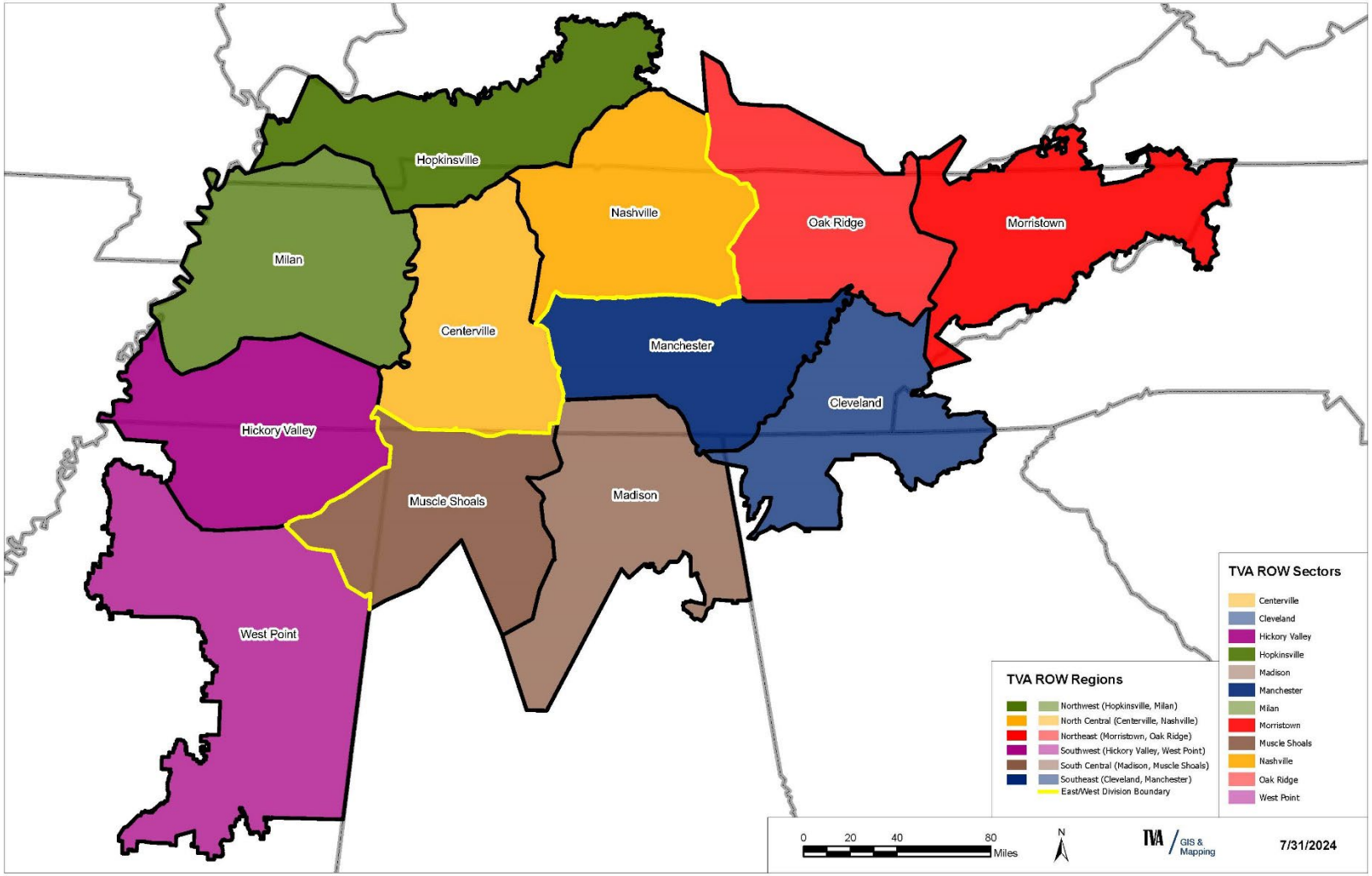



**Figure 1-1. TVA's Fiscal Year 2025 and 2026 Environmental Assessment Study Area and the Right-of-Way Vegetation Management**

TVA's vegetation management program along its ROWs consists of the following basic components:

- *Floor work* – Vegetation maintenance activities which target previously cleared or maintained areas along the transmission system ROWs. Typically, floor activities consist of mechanical control (e.g., brush hogging, which is also known as bush hogging, and will be referred to as brush hogging in this document) and herbicide application.

- *Tree work* – Vegetation maintenance activities which focus on tree removal or tree trimming. Typically, tree activities consist of manual control (e.g., chainsaw) and mechanical control (e.g., equipment mounted saws and other devices).

- *Inspections* – Periodic review of transmission system ROW condition to determine maintenance needs, and any need to adjust the cycle of scheduled work due to emergent conditions.

- *Planning and Support* – The Transmission ROW manager develops plans to maintain his or her respective ROWs in a cost-effective, efficient, and environmentally responsible manner to minimize vegetation-related interruptions.

- *Communication* – Notification of, communication to and education for the property owner.

- *Reliability and Compliance* – Vegetation management activities maximize reliability of the transmission system. Vegetation maintenance activities also must be compliant where applicable with the NERC Reliability Standard FAC-003. As summarized in Table 1-1, TVA's transmission system ROW can be classified into three broad categories based on the need for routine vegetation maintenance. TVA has vegetation management rights of the 239,830 acres of active transmission system ROW. TVA, however, only actively maintains approximately 46 percent or 111,514 acres[2] because about 51 percent of the transmission system ROW is used as cropland, golf courses, orchards or similar uses that integrate compatible vegetation, which is primarily maintained by the landowner.

**Table 1-1. Summary of Routine Vegetation Maintenance Rights and Extent within TVA Transmission Rights-of-Way**

| Rights and Extent of Vegetation Maintenance | Percent of ROW[1] |
|---|---|
| Lands Primarily Maintained by Others | 51.5% |
| Lands Subject to Limited Maintenance | 2.0% |
| Lands Actively Maintained by TVA | 46.5% |
| **Total** | **100%** |

[1] Active Transmission System Rights of Way

[2] Acreage in 2024.

Compatible vegetation is that which will never grow sufficiently close to a conductor so as to violate the minimum clearance distances. While the floor of the transmission system ROW is often maintained by others in these areas, TVA conducts routine inspection and vegetation management of ditch banks, fence rows, towers, and other features. Trees that are tall enough to either fall within a ROW or grow to an unsafe distance of transmission lines are managed on all lands within and adjacent to the TVA ROW. A relatively small amount of the TVA transmission system ROW (4,720 acres) does not require routine vegetation management by anyone. These areas include ROW that spans open water or deep valleys where vegetation growing at lower elevations cannot threaten the transmission line.

**What is "compatible" and "incompatible" vegetation?**

**Compatible Vegetation**: Vegetation will never grow sufficiently close to a conductor so as to violate the minimum clearance distances. Example: low-growing shrubs and herbaceous plants.

**Incompatible Vegetation:** Vegetation that has the potential to violate minimum clearance distances. Example: young woody trees.

TVA typically also manages danger trees on lands along and adjacent to the transmission system TVA ROW. A danger tree is a tree, located on and off the ROW that would strike a transmission line structure or come within an unsafe distance of a transmission line if it were to fall toward the line. For most transmission lines, this distance is five feet, but for higher voltage lines the distance is generally 10 feet. Danger trees that are or have the potential to be a risk to the safety and reliability of TVA's transmission line system must be removed. Any reference to danger tree removal includes all trees that fit this definition.

**What are "Danger" Trees?**

Danger trees are trees located on and off the ROW that are tall enough to fall within an unsafe distance of transmission lines. For most transmission lines, this distance is five feet, but for higher voltage lines, the distance is generally 10 feet.

TVA's vegetation management practices are subject to an injunction issued on July 31, 2017, by the U.S. District Court for the Eastern District of Tennessee, Sherwood v. TVA, No. 3-12-cv-156 (Appendix A). This injunction requires "TVA [to] maintain buffer zones on the edges of its ROW in a manner as described in its 1997 and 2008 Line Maintenance Manuals" until TVA prepares and publishes a thorough Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) analyzing TVA's ROW vegetation management program, and the court reviews the sufficiency of that EIS. In response to and consistent with the injunction, TVA stopped removing woody vegetation except for trees that are an immediate hazard to the reliability of the transmission system and/or safety of the public.

In response to the court order, TVA issued a final PEIS to programmatically address vegetation management within the TVA power system's transmission line ROW on August 30, 2019, and an associated Record of Decision on October 18, 2019 (84 FR 55995) identifying its preferred vegetation management alternative (TVA 2019). Additionally, TVA filed a motion to dissolve the injunction; the Court is currently reviewing the sufficiency of the PEIS in consideration of dissolving the injunction. TVA will continue to operate according to the injunction until it is lifted by a court of competent jurisdiction. This EA tiers from the final PEIS referenced above in eliminating repetitive discussion of issues already addressed in the PEIS by summarizing and incorporating by reference the discussion from the same. Issuance of this EA does not indicate an intent to violate the terms and conditions of the injunction but evaluates TVA's potential actions surrounding future potential ROW vegetation management practices and activities once the district court has completed their review of the sufficiency of the PEIS.

### 1.2.4 Vegetation Management Practices

The study area supports a variety of vegetation including trees, brush, and herbaceous plants. As described in TVA's PEIS (TVA 2019), ROW vegetation management is necessary to ensure that the source of safe and reliable electric power to TVA's end-users is not interrupted by trees or other vegetation growing under or near the transmission lines. To protect public safety and improve power reliability, TVA maintains different areas within the ROW (Figure 1-2):

- *Wire Zone* – Generally, the wire zone includes the area directly under the lines.
- *Border Zone* – The border zones are located between the outside edge of the ROW and the wire zone. The width of this area varies based upon ROW width, voltage, structure type, and structure height.

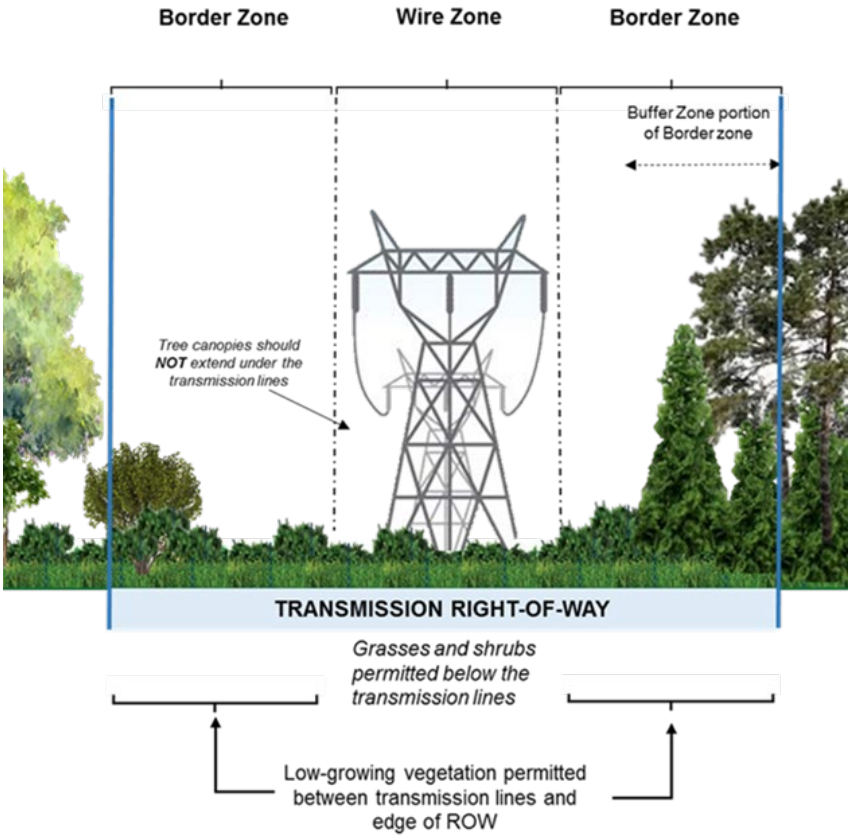



**Figure 1-2. Transmission Line Rights-of-Way Zones**

Within the Border Zone of some ROWs there is an area that has in the past been considered a Buffer Zone. The Buffer Zone is a portion of the Border Zone that has not been subjected to routine maintenance. To reduce the risk of trees or branches falling onto lines, or lines sagging or swaying into trees, incompatible vegetation in the wire and border zones should be removed. So long as the 2017 court injunction is in place, TVA shall continue to maintain the buffer zones on the edges of its ROW according to its 1997 and 2008 Line Maintenance Manuals (TVA 1997; TVA 2008). Consistent with the court order, only trees that present an immediate hazard to the reliability of the transmission system would be removed until the injunction is dissolved.

### 1.2.5 Emphasis on Integrated Vegetation Management

The Federal Energy Regulatory Commission and NERC both recognize the American National Standard Institute (ANSI) Tree, Shrub and Other Woody Plant Maintenance-Standard Practices for electric utility ROW as a best management practice (BMP) (ANSI 2012).

The concept of Integrated Vegetation Management (IVM) is the basis of this standard and is defined as:

> A system of managing plant communities in which compatible and incompatible vegetation is identified, action thresholds are considered, control methods are evaluated, and selected control(s) are implemented to achieve a specific objective. Choice of control methods is based on effectiveness, environmental impact, site characteristics, safety, security, and economics.

TVA's IVM process consists of six elements (Figure 1-3).

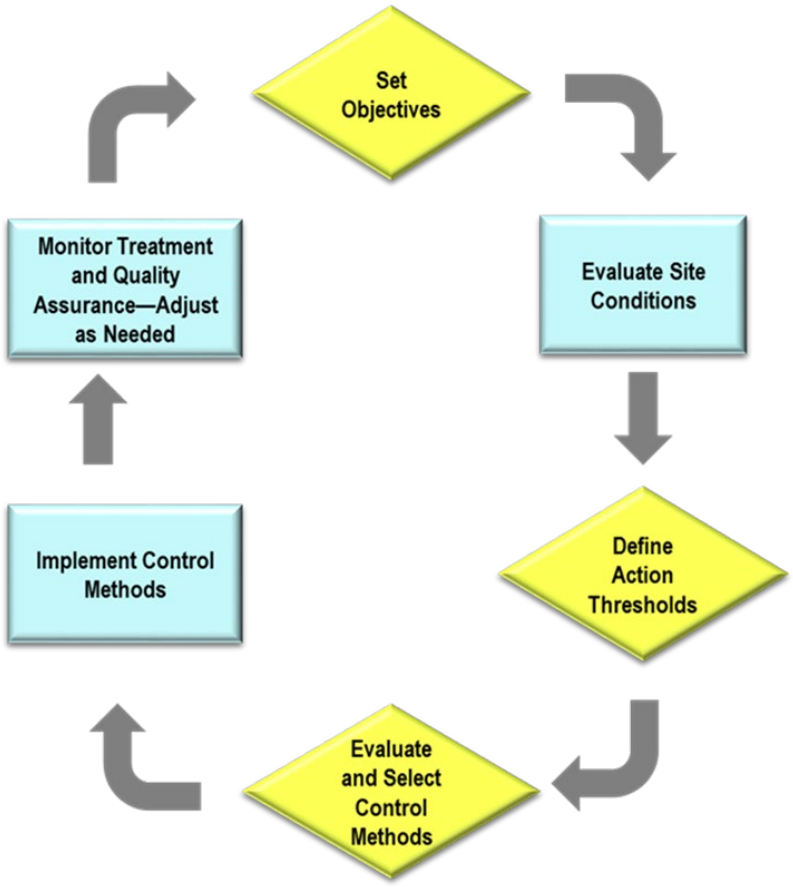



**Figure 1-3. TVA Integrated Vegetation Management Process**

The goal of IVM is to provide an integrated and balanced approach of vegetation management that considers the overall long-term effect on public health and safety, reliability of electric transmission, environmental stewardship, and cost. As vegetation growth is dynamic, the planning and implementation process is iterative and continuous; this allows flexibility to adjust plans as needed.

Setting objectives, defining action thresholds and selecting site-specific application of tools to control vegetation are all considered in the IVM process. TVA believes that the IVM process provides the greatest flexibility for decisions regarding the transmission system ROWs; thus, the Action Alternative it considers in this EA is based on the IVM concept. Tools are selected based upon a thorough consideration of the end-state and form of the plant communities that are subject to control and an integrated application of TVA's office-level sensitive area review (O-SAR) process. The O-SAR process, described below in Section 2.2.2, prescribes the need for site-specific field surveys and particular tool use based on the documented or potential presence of sensitive environmental resources.

### 1.2.6 Selection of Vegetation Control Methods

The process for selecting from various vegetation management methods is determined based on the location, the existing plant communities, and with the integration results of TVA's O-SAR process. The vegetation control methods or tools and their appropriate uses for various ROW conditions are identified and discussed in PEIS (TVA 2019).

Of the vegetation control methods available for ROW vegetation maintenance (e.g., manual, mechanical, and herbicide/growth regulators), the most suitable approach would be the one that best achieves the management objectives at each site within the ROW (see Table 1-2). The site-specific selection of control methods (individually or in combination) is based on a range of factors including an understanding of environmental resources and their sensitivities, knowledge of specific site characteristics, safety, economics, and current land use issues.

**Table 1-2. Methods Appropriate for Use on TVA Transmission Line Right-of-Ways**

| | Vegetation Control Method | | |
|---|---|---|---|
| | **Manual** | **Mechanical** | **Herbicide[1]** |
| **Agricultural Areas** | Usually not many trees requiring control. | Usually not many trees requiring control. | Appropriate for target vegetation control. Agricultural landowner often uses herbicide methods for localized treatments of weeds. |
| **Forested Areas** | Manual methods appropriate for tree removal. | Appropriate for dense stands of vegetation and for removal of buffers. | Appropriate for target vegetation control (including invasive weeds), and stump treatments of deciduous trees. |
| **Grassland and Shrub** | Usually not many trees requiring control. Would address invasive weeds in very limited cases. Root systems would not be controlled; seeds have the potential to spread. | Appropriate for clearing brush on access roads, or around towers. | Appropriate for general application and for invasive weed control. |

| | Vegetation Control Method | | |
|---|---|---|---|
| | **Manual** | **Mechanical** | **Herbicide[1]** |
| **Residential Areas** | Would address invasive weeds in very limited cases. Weed roots would not be controlled; seeds have the potential to spread. | Would address invasive weeds in very limited cases. Weed roots would not be controlled; seeds have the potential to spread. | Appropriate for controlling invasive weeds, selected application. |
| **Danger Trees Outside the ROW** | Manual methods are appropriate for selective removal of danger trees. | Appropriate; however, tends to be non-selective and used for smaller tree heights. | Growth regulator may be appropriate to stunt growth of potential danger trees. |

[1] All applications of herbicides would be consistent with all applicable state and federal laws, regulations and guidance, including but not limited to the U.S. Environmental Protection Agencies Federal Insecticide, Fungicide, and Rodenticide Act and Occupational Safety and Health Administration regulations.

Effective vegetation control along the ROW typically requires the use of a combination of methods depending on the target vegetation type. TVA uses herbicides predominantly during routine floor vegetation management and a mix of manual and mechanical methods to remove trees. Noxious or invasive plant species are controlled predominantly by a mix of methods dominated by mechanical techniques and herbicides. By comparison, tall-growing, incompatible trees and shrubs are typically controlled using a more balanced application of all techniques (manual, mechanical, and herbicide). TVA recognizes that each tool has inherent advantages and disadvantages (TVA 2019).

Setting objectives, defining action thresholds and selecting site-specific application of tools to control vegetation all require consideration as part of the IVM process. Use by TVA of all the methods identified within the PEIS (manual, mechanical, and herbicide/growth regulators) is appropriate and necessary to ensure flexibility of application, increased environmental sensitivity, and cost effectiveness for each site-specific application.

## 1.3 Decision to be Made

The primary decision before TVA is whether to ensure safe and reliable electric power to TVA's Power Service Area by strategically managing vegetation along its transmission line ROWs consistent with applicable laws, regulations, court orders, standards, practices and guidance, while protecting environmental resources to the extent possible. If the proposed vegetation management is to occur, other secondary decisions are involved. These include the type and timing of vegetation control methods. TVA's decision will consider factors such as environmental impacts, cost, and the availability of resources.

## 1.4 Related Environmental Reviews

In 2019, TVA released the PEIS, which is incorporated by reference (TVA 2019). This review more broadly represented a comprehensive analysis of management activities and potential environmental impacts associated with TVA's vegetation management program across all Sectors within the TVA Power Service Area. Various vegetation management methods and tools were considered as part of the analysis. TVA issued a Record of Decision on October 18, 2019, identifying its preferred vegetation management program alternative as a condition-based control strategy with a goal of maintaining the ROWs in a meadow-like end-state (84 FR 55995).

On January 26, 2022, TVA released the Transmission System Incompatible Vegetation Removal in FY23 draft EA for a 30-day public comment period (TVA 2022a). This draft EA proposed the initial removal of about 400 acres of trees and woody vegetation within the margins of its active transmission system ROW. This vegetation is considered incompatible with the safe and reliable operation of the transmission system. These ROW areas would subsequently be managed on a routine periodic basis as described in TVA's PEIS which evaluated and analyzed TVA's vegetation management program (TVA 2019). The proposed activities of this EA are subject to compliance with the *Sherwood* injunction and will only be implemented completely when the injunction is dissolved.

On October 19, 2023, TVA issued a final EA and FONSI for its proposal to perform routine vegetation management on about one-third of the transmission system ROWs in Fiscal Year 2024 (TVA 2023a). TVA issued final EAs and FONSIs for similar proposals on November 9, 2020 (addressing Fiscal Year 2021) and on October 1, 2021 (addressing Fiscal Years 2022 and 2023) (TVA 2020; TVA 2021). The management of vegetation is needed to ensure the transmission system can continue to provide reliable power and to prevent outages related to incompatible vegetation. Site-specific effects were considered within twelve managed Sectors in areas that had been previously and continuously maintained on a recurring cycle. The EAs tiered from the PEIS which evaluated and analyzed TVA's vegetation management program (TVA 2019).

## 1.5 Public Involvement

TVA has developed a public communication plan that includes a website (TVA.com) as the primary platform for public outreach. TVA has also used local news outlets and notices placed in the local newspapers to notify other interested members of the public of the proposed FY25 and FY26 vegetation management.

The project Web site is intended to serve as the primary hub for distributing information to the public. Visitors to the page can navigate from the project Web site to other web sites for additional information pertaining to TVA's transmission system and current vegetation management. The Web site directs the public to submit scoping comments via email, mail, or an online comment form accessed from the project Web site.

## 1.6 Prior Agency and Tribal Involvement

During the review of TVA's vegetation management program (TVA 2019), TVA contacted federal and state agencies, as well as federally recognized Indian tribes represented in the TVA Power Service Area (see Appendix B).

Pursuant to Section 7 of the Endangered Species Act (ESA), and in consultation with the U.S. Fish and Wildlife Service (USFWS), TVA prepared a programmatic Biological Assessment (BA) that evaluated impacts of a suite of TVA routine actions on federally listed bats present in the TVA power service area. This consultation was completed in April 2018 and updated in May 2023 in response to the uplisting of the northern long-eared bat from "threatened" to "endangered." Documentation of this consultation can be found on TVA's Environmental Review website (TVA 2024a). On June 6, 2024, TVA reinitiated consultation on the programmatic consultation to capture upcoming listing of the tricolored bat. On June 20, 2024, the USFWS accepted TVA's consultation as complete and has begun their review. The anticipated completion date and issuance of an updated Biological Opinion is by October 31, 2024. TVA also has consulted with the USFWS on routine vegetation management activities carried out on transmission system ROWs for all other threatened

and endangered species (except bats, bog turtle, monarch butterfly, and alligator snapping turtle). This consultation was completed in May 2019 (Appendix C).

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and in consultation with the Advisory Council on Historic Preservation; the state historic preservation officers (SHPOs) of Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee and Virginia; and all federally recognized Indian tribes with an interest in the region, TVA prepared a Programmatic Agreement (PA) for existing TVA operation and maintenance activities, including vegetation management. This consultation was completed in February 2020 (Appendix D).

Further, TVA coordinated with other federal land management agencies in conjunction with the PEIS. During the PEIS, the National Park Service (NPS) and the U.S. Forest Service (USFS) served as cooperating agencies contributing on vegetation management practices on TVA transmission system ROWs crossing federal lands in their jurisdiction. Regardless, these agencies would be notified, and consulted with, as appropriate, concerning any transmission line ROW segments proposed for vegetation management. Additionally, TVA entered into a General Agreement with the NPS which addresses vegetation management for ROW easements and permits on NPS lands (Appendix E).

Following the release of the Final PEIS, copies or notices of its availability with instructions on access was provided to agencies, federally recognized Indian tribes represented in the TVA Power Service Area, and individuals that had expressed interest in the project.

## 1.7 Scope and Issues to be Addressed

TVA prepared this EA to comply with NEPA and regulations promulgated by the Council on Environmental Quality and TVA to implement NEPA. This EA, which tiers from the review of TVA's vegetation management program (TVA 2019), identifies individual transmission line segments in each of the twelve managed ROW sectors in which vegetation management activities are proposed (Appendix F and G), and provides more site-specific review and analysis, as appropriate. For the purpose of this EA, all areas proposed for vegetation management within ROW segments have been previously cleared and continuously maintained, and tree work would be limited to immediate hazard trees until the *Sherwood* injunction is dissolved.

To facilitate "tiering" the PEIS established the process TVA considers when making decisions regarding vegetation management, identified potential environmental impacts associated with vegetation management tools, and established mitigation measures that would minimize environmental impacts (TVA 2019). This EA integrates the findings and conclusions of this analysis.

In the PEIS, TVA determined that the resources listed below could potentially be impacted by the alternatives considered (TVA 2019). These resources were identified based on internal scoping as well as comments received during previous public scoping periods for transmission line projects.

- Surface Water
- Aquatic Ecology
- Vegetation
- Wildlife
- Threatened and Endangered Species
- Wetlands
- Managed and Natural Areas, Parks and Recreation
- Archaeological and Historic Resources

Further, the PEIS concluded that the potential effects of floor-work and hazard/danger tree vegetation management on transmission system ROWs would be minor, short-term, temporary, negligible, and/or none related to air quality and global climate change, geology, groundwater, hydrogeology, floodplains, socioeconomics and environmental justice, transportation, visual resources, land use and prime farmland, solid and hazardous waste, and public health and safety. Thus, any further analysis of the effects to these resources was not deemed necessary.

TVA's action would satisfy the requirements of Executive Order (EO) 11988 (Floodplain Management), EO 11990 (Protection of Wetlands), EO 12372 (Intergovernmental Review), EO 12898 (Environmental Justice), EO 13112 as amended by 13751(Invasive Species), EO 13653 (Preparing the U. S. for the Impacts of Climate Change), and applicable laws including the Farmland Protection Policy Act, the NHPA of 1966, ESA of 1973, as amended, Clean Water Act (CWA), and Clean Air Act.

## 1.8 Necessary Permits or Licenses

No federal permits or licenses are required to implement the proposed management of vegetation on TVA transmission system ROWs.

# CHAPTER 2 - ALTERNATIVES

## 2.1 Alternatives Including the Proposed Action

As described in Chapter 1, the scope of the potential alternatives is informed by the purpose and need of the proposed action, namely, the need to manage and/or eliminate vegetation that interferes with the safe and reliable operation of the transmission system. A description of the proposed action is provided below in Section 2.1.2. Additional background information about its existing vegetation management practices, as well as the need to address future management along the transmission system ROW is also provided.

This chapter has five major sections:

1. A description of alternatives;
2. A explanation of the process of vegetation management;
3. A comparison of anticipated environmental effects by alternative;
4. Identification of mitigation measures; and
5. Identification of the preferred alternative.

### 2.1.1 Alternative A – No Action Alternative – Do Not Perform Routine Vegetation Management

Under the No Action Alternative, there would be no change to the current state of vegetation within the wire or border zone of TVA transmission system ROWs. Individual ROW segments that TVA has identified in which floor work vegetation management activities are needed would not take place.

Under this alternative, TVA may remove or trim any tree in the previously maintained areas of ROW, or in the non-maintained areas of ROW, or any danger tree outside the transmission line ROW, in accordance with its contract rights, that TVA deems to present an immediate hazard to its transmission line or structures. Tree work in remaining buffer areas would be limited as follows:

| | | |
|---|---|---|
| • 500-kV transmission line. | 200-foot-wide ROW. | Clear and maintain a 150-foot-wide center area and leave a 25-foot-wide non-maintained area on each side of the maintained area. |
| • 500-kV transmission line. | 175-foot-wide ROW. | Clear and maintain a 150-foot-wide center area and leave a 12.5-foot-wide non-maintained area on each side of the maintained area. |
| • 161-kV transmission line. | 150-foot-wide ROW. | Clear and maintain a 100-foot-wide center area and leave a 25-foot-wide non-maintained area on each side of the maintained area. |
| • 161-kV transmission line. | 100-foot-wide ROW. | Clear and maintain the entire 100-foot-wide ROW. |

| | | |
|---|---|---|
| • 161-kV transmission line. | 75-foot-wide ROW. | Clear and maintain the entire 75-foot-wide ROW. |
| • 69-kV transmission line. | 75-foot-wide ROW. | Clear and maintain the entire 75-foot-wide ROW. |

Floor work would continue to be evaluated on a nominal three-year cycle in previously cleared areas. As a result, the existing ROW would continue to contain vegetation incompatible with TVA's transmission system. The volume of non-compatible woody vegetation is also increasing within the previously cleared ROWs due mostly to the injunction previously described.

The No Action Alternative does not adequately address the potential for service outages from trees growing into the line, falling into the line, or creating a fire hazard to the transmission lines and structures, and thereby creates an increased risk to reliability. The No Action Alternative also does not adequately address the risk to public safety that can stem from wildfires caused by power lines. In addition, the No Action Alternative would lead to a marked increase in worker safety concerns, due to the increased risk of serious injuries and fatalities associated with the increased need to undertake manual removal of large danger trees.

In 2019, the net present value (NPV) of the cost to maintain the transmission system ROW for the next 20 years under the No Action Alternative was estimated to be approximately $205 million (TVA 2019). However, tree work costs are higher for this alternative and would increase over time due to the inefficiencies inherent in removal of only immediate hazard trees, as opposed to removal of all incompatible trees during routine vegetation maintenance. This increase would be a direct result of continued vegetation growth until the vegetation grows sufficiently to meet the definition of immediate hazard, which would necessitate addressing that imminent hazard in the next maintenance cycle. In addition, the increased costs include management of new trees that sprout and grow because of the less aggressive vegetation maintenance as required by the injunction.

Consequently, this alternative would not satisfy the project purpose and need and, therefore, is not considered a viable or reasonable alternative. It does, however, provide a benchmark for comparing the environmental impacts of implementation of the Action Alternative.

### 2.1.2 Alternative B – Action Alternative – Perform Routine Periodic Vegetation Management

Under the Action Alternative, TVA proposes as part of TVA's FY25 and FY26 planning cycle to implement its process of routine vegetation management within approximately one-third of its transmission system ROWs within each of the twelve managed sectors in the TVA power service area (Figure 1-1; Appendix F and G). TVA would use an IVM approach to promote the establishment of a plant community "end-state" dominated by low-growing herbaceous and shrub-scrub species that do not interfere with the safe and reliable operation of the transmission system. The goal of this vegetation management alternative would be to allow compatible vegetation to establish and propagate to reduce the presence of woody species. TVA would continue to use all assessment techniques, including Light Detection and Ranging (LiDAR) data.

TVA's policy and direction for managing vegetation along its transmission system ROW integrates an IVM strategy allowing TVA to apply a range of methods depending on the target vegetation type. The proposed Action Alternatives incorporates this IVM approach based on a carefully planned, multidimensional strategy developed in consultation with forestry and habitat experts. IVM aims to create conditions on the ROW that improve safety and prevent power outages by creating inherently more compatible and self-sustaining ecosystems while ensuring compliance with regulatory standards (Appendix H).

The proposed Action Alternative to manage vegetation is "context sensitive" within an overarching IVM approach in its selection of methods and in its incorporation of TVA's O-SAR process to avoid and minimize impacts (Figure 2-1). The scope of the potential alternative is constrained by the need for TVA to eliminate vegetation that interferes with the safe and reliable operation of the transmission system including both the conductor and structures. The establishment of a stable, low-growing plant community would reduce the intensity of vegetation control once the desired end-state in each location has been achieved.

Routine vegetation management includes the identification and removal of vegetation within the ROW incompatible with TVA's desired end-state condition. Within ROWs primarily maintained by TVA, vegetation for most of the transmission system has routinely undergone floor work (i.e., that which is focused on the maintained herbaceous community) which is planned on an established cycle and would be controlled using a mixture of methods. In general, vegetation within the ROW would be controlled using a mix of approximately 90 percent herbicide, 6 percent mechanical and 4 percent manual methods. However, the net effect of TVA's O-SAR process is to consider the site-specific sensitivity at a given location on the ROW in the development of a context-sensitive approach to tools for vegetation management that not only influence method selection for floor work but also for tree work (Figure 2-1).

All danger trees would be removed using a combination of mechanical or manual methods depending on the specific site conditions. However, under this alternative, TVA would continue to use a context sensitive approach for selection of different tools by area (floor vs. trees) and for respective environmental settings or vegetation maintenance as summarized in Figure 2-1.

These ecosystems foster beneficial, attractive, and low-maintenance habitat where incompatible vegetation is discouraged and other, more benign forms of vegetation can thrive. By combining selective use of herbicides with physical vegetation removal, IVM can more thoroughly eradicate incompatible vegetation and allow more "compatible" species to fill in, making it harder for tall-growing vegetation to reestablish.

As illustrated in Figure 2-2, TVA predominantly uses herbicides during routine floor vegetation maintenance and a mix of manual and mechanical methods to remove trees. Noxious or invasive plant species are predominantly controlled by a mix of methods dominated by mechanical techniques and herbicide application. By comparison, tall growing incompatible trees and shrubs typically are controlled using a more balanced application of all techniques (manual, mechanical, and herbicide).

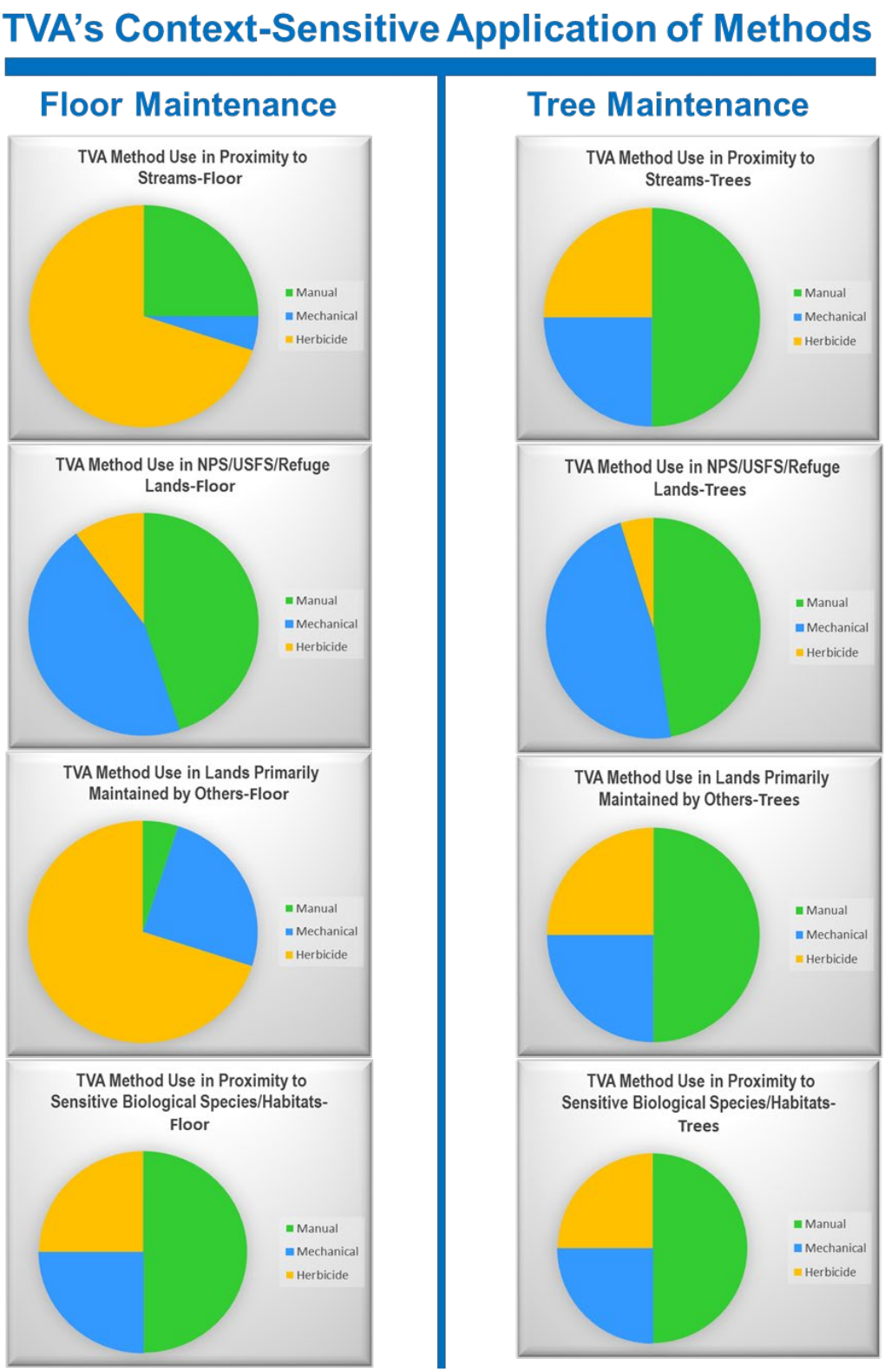



**Figure 2-1. TVA's Context Sensitive Application of Vegetation Control Methods**

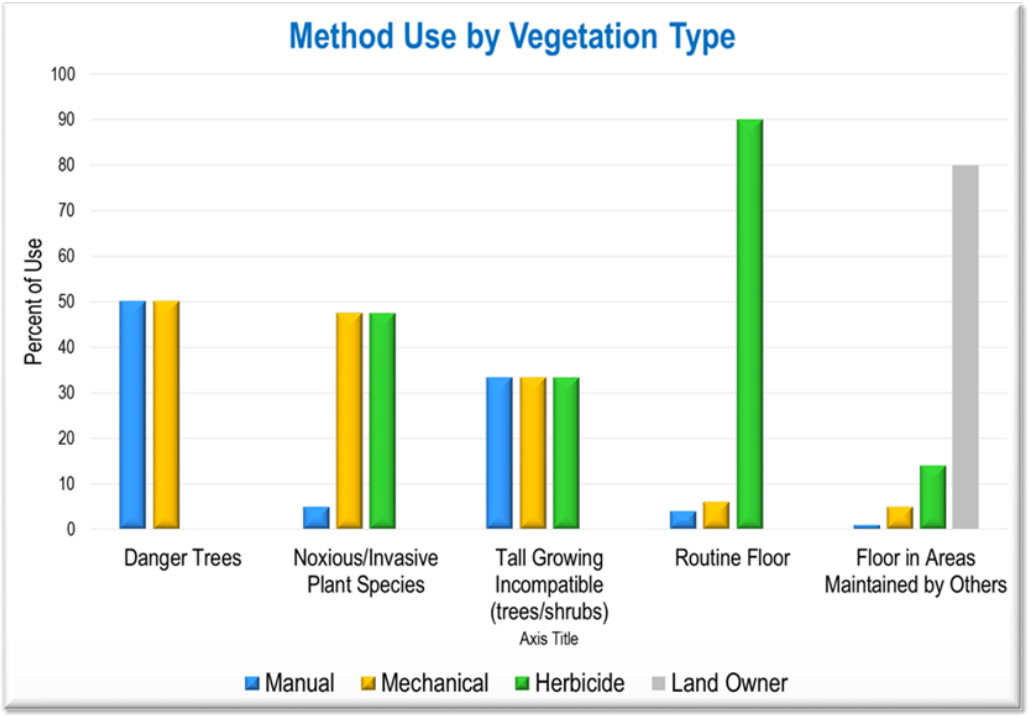



**Figure 2-2. Relative Frequency of Method Use by Target Vegetation Type**

Due to the injunction, TVA has stopped routinely removing woody vegetation except for trees that are an immediate hazard to the reliability of the transmission system and/or safety of the public. As a result, buffer zones within the existing ROW continue to increasingly contain vegetation incompatible with TVA's transmission system. The volume of non-compatible woody vegetation is also increasing within the previously cleared ROWs due in part to the injunction.

Under the Action Alternative, compatible trees and shrubs would be allowed in areas maintained actively by others (such as residential lands, orchards, forest plantations, agricultural lands, or other similar areas). Where terrain conditions provide for higher clearances (i.e., ravines, steep slopes etc.), vegetation may not conflict with the safe and reliable operation of the transmission lines, and thus would not need to be removed.

The proposed alternative includes routine assessment methods to establish a basis for vegetation control measures. The assessment process is accomplished by a variety of methods including aerial inspections, ground inspections, as-needed field inspections, and information from TVA personnel, property owners, and the public.

Another powerful assessment technique available to TVA is aerial three-dimensional imagery to map areas of the ROW. This imagery is procured using aerial photography, remote sensing methods, photogrammetry, and LiDAR data. Using these techniques, the height of vegetation growing within the ROW (wire and border) can be measured and assessed to determine its potential to be a current or near-term (i.e., 5 to 10 years depending on growth rate of individual species) threat to transmission lines or structures and thus, to reliability. TVA can use information obtained by these techniques to determine planning needs to conduct both routine and recurring vegetation maintenance and for identifying incompatible vegetation for removal.

TVA would pursue full implementation of this alternative only when and if a court of competent jurisdiction dissolves the *Sherwood* injunction. In 2019, the NPV of the cost to maintain the transmission system ROW for the next 20 years under this alternative was estimated to be approximately $180 million. Long-term, however, it would be less expensive to maintain the ROW under this alternative than the overall cost of the No Action Alternative.

## 2.2 Managing Vegetation within Transmission Line Right-of-Ways

### 2.2.1 Vegetation Management Framework

Each year TVA assesses vegetation conditions on and along its transmission system ROW to identify vegetation that potentially could interfere with the safe, efficient, and reliable operation of the existing transmission system, and public safety. TVA also must comply with the NERC Reliability Standard (FAC-003) where applicable. Maintaining adequate clearance between transmission line conductors and tall growing vegetation is essential to reliability, safety, and compliance with applicable regulatory standards. As noted in Chapter 1, TVA's transmission system vegetation management responsibilities as of October 2020 encompass approximately 239,500 acres of ROW.

The framework for TVA's vegetation management program within its transmission system consists of the following basic components:

- Inspections
- Planning and Support
- Floor work
- Tree work
- Communication
- Reliability and Compliance

Floor work on TVA's transmission system is routine and focused on periodic, repeated application of vegetation control measures. Floor work is used to maintain plant communities in an herbaceous or low-growing condition to prevent future incompatibility with transmission facilities, thereby promoting reliability and regulatory compliance. Vegetation management of lands primarily maintained by others includes cropland, golf courses, orchards, lawns, and other developed landscapes. Within these areas of the ROW, floor work primarily is performed by landowners maintaining landscapes in residential and developed lands and by routine agricultural practices (e.g., cultivated fields, hay fields, pastures, orchards, etc.). Even on property maintained by others, TVA retains rights for vegetation management within its transmission line easements. Landowners cannot engage in activities that violate the easement terms or create an unreasonable interference to TVA operations. TVA typically manages vegetation along fence rows, tower structures, ditch banks and other features, as resources allow. Floor work is conducted using a range of tools and methods as described in Chapter 1 and in TVA's review of its vegetation management program (TVA 2019). Floor activities typically consist of herbicide application with lesser amounts of mechanical and manual control methods.

Tree work throughout TVA's transmission system (including lands primarily managed by others) focuses on removal of incompatible trees to maintain the safety and integrity of the transmission system. Tree work typically included removal of trees that may become a risk to the reliability of the transmission system within the ROW easement and removal of danger trees outside of the ROW easement. However, as previously discussed, the Sherwood injunction requires "TVA [to] maintain buffer zones on the edges of its ROW in a manner as described in its 1997 and 2008 Line Maintenance Manuals" (TVA 1997; TVA 2008). TVA has thus stopped removing woody vegetation except for trees that are an immediate hazard to the reliability of the transmission system and/or safety of the public. Typically, trees are controlled through manual methods (e.g., chainsaw) and mechanical controls (e.g., equipment-mounted saws, mowers). Tree work throughout TVA's transmission system is directed by inspections and assessments that identify incompatible woody vegetation and guide control measures.

As part of the process, TVA develops a vegetation removal plan specific to each transmission line project area based on local terrain conditions, species composition, growth form, and vegetative density. TVA has developed a stepwise process incorporated under the proposed vegetation management Action Alternative to ensure that vegetation management proactively protects environmental resources, considers land use and land ownership, and enhances health and safety. This process applies to planned vegetation maintenance activities and is not applicable to addressing emergency needs.

Under this approach TVA ensures the following steps are implemented:

1. **Identify the area of vegetation maintenance and type of required activity to ensure safety and reliability.**
    a. *Floor work* – Identify the types of vegetation that require control (invasive weeds, tall-growing vegetation).
    b. *Tree Work* – Tree removal of incompatible vegetation that would represent a current or future risk to the transmission system.
2. **Identify surrounding land use (i.e., urban, forested, agriculture, pasture, etc.) and landowners.**
    a. Address ROW vegetation maintenance within special use lands associated with NPS, USFS, tribal lands, or other special use/conservation lands in accordance with any existing agreements or regulations.
    b. Follow TVA process for notifying property owners.
    c. Evaluate surrounding land uses to determine constraints on vegetation control. Incorporate appropriate BMPs as described in *A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Construction and Maintenance Activities Revision 4-2022* (TVA 2022b). The manual can be accessed *here*

3. **Identify sensitive or natural resources within an area of activity and implement any special requirements associated with performing work in those areas.**

    a. Review and interpret O-SAR data (see Section 2.2.2 below).

    b. Identify appropriate mitigation measures as outlined in TVA's guide for environmental and best management practices (TVA 2022b) for the following resources:

    - Streamside Management Zones (SMZ).
    - Wetlands.
    - Other sensitive resources which can include, but are not limited to, caves, federally and state-listed threatened, endangered or special status species (plants and animals), public water supplies, groundwater, critical or unique wildlife or habitat (e.g., trout streams, designated critical habitat, wading-bird nesting areas, heronries, sinkholes), and cultural resource features.

    **Environmental Constraint: Streamside Management Zones**

    **BMP Employed:** When removing vegetation within an SMZ, TVA uses buffers of a minimum 50 feet on each side of the bank. Buffer width is predetermined based on waterway, primary use, topography, physical barriers, and resource sensitivity. Removal of vegetation within an SMZ is limited to only tall-growing, incompatible species, preserving the low-growing vegetation to minimize disturbance. Stumps must be left in place and all debris from vegetation removal must be removed from within the SMZ.

    c. Evaluate work area for safety factors in relation to TVA personnel and the general public.

    d. Identify areas with steep or unstable slopes (usually greater than 30 percent). Certain types of mechanical equipment may not be feasible in these areas.

    e. Ensure TVA personnel and contractors are properly trained for specific techniques required for special requirements.

4. **Determine vegetation control methods.**

    a. Consider Steps 1 through 3.

    b. Consider safety.

    c. Consider cost.

    d. Incorporate appropriate BMPs and guidance as described in TVA's guide for environmental and BMPs (TVA 2022b or most current revision) and current TVA Vegetation Management Guidelines as described in Appendix H.

5. **Prepare appropriate environmental documentation.**

    a. Determine if the work is within the parameters of the PEIS (2019).

    b. If yes, determine if work is covered under an existing Categorical Exclusion or EA.

    c. If not, conduct further environmental review if anticipated impacts are substantially different from those evaluated in the PEIS.

    d. Monitor to determine whether follow-up treatments or mitigation measures are necessary.

6. **Determine appropriate debris management method and re-vegetation method if required.**
    a. Determine whether reseeding is necessary or appropriate under the circumstances.
    b. Determine appropriate debris management method considering Steps 1 through 3 above.
7. **Determine re-inspection requirements.**
    a. Determine steps needed to evaluate whether vegetation treatments and/or mitigation measures are working properly and to ensure that other resources are not being adversely affected.
    b. Monitor to determine whether follow-up treatments or mitigation measures are necessary.

### 2.2.2 TVA's Integrated Sensitive Area Review Process

The types of sensitive resources occurring in or near the ROW vary widely and can include threatened and endangered plant and animal species, caves, heron/osprey rookeries, natural areas, and wetlands. To protect sensitive resources on transmission system ROWs, TVA developed the O-SAR process as an integral component of all of its vegetation management practices. The O-SAR process is used to address routine vegetation maintenance activities and is discussed in greater detail in TVA's PEIS (2019).

The types of sensitive resources occurring in or near ROW vary widely and include threatened and endangered plant and animal species, caves, heron rookeries, eagle/osprey nests, natural areas, and wetlands. To protect sensitive resources on transmission line ROWs, TVA developed the O-SAR process as an integral component of its vegetation management practices. The O-SAR process is used to address routine ROW vegetation maintenance activities and is discussed in greater detail in the TVA's PEIS (2019).

As part of the O-SAR process, qualified biologists perform reviews of the entire transmission system every 3 years. These desktop reviews use computer-based mapping programs and a wide array of digital data, in lieu of field surveys, to ascertain where sensitive resources may occur on TVA transmission system ROWs. Field verified data is added to the O-SAR data, when it becomes available. Sensitive resources identified as part of the review process are grouped into five general categories (Table 2-1). The more common widely available data sets used in office-level reviews include aerial photography, U.S. Geological Survey topographic maps, National Wetland Inventory (NWI) data, U.S. Environmental Protection Agency (EPA) Level 4 ecoregion maps, and Natural Resource Conservation Service soils maps. TVA's approach is unique in that it uses specific data as part of the O-SAR review that includes both transmission line/structure locations coupled with TVA's extensive Regional Natural Heritage database. This is a "living" database that contains over 40,000 occurrence records for protected plants, animals, caves, heronries, eagle nests, and natural areas for the entire TVA study area.

**Table 2-1. Elements of TVA's Office-Level Sensitive Area Review Database**

| Sensitive Resource Categories | Data Descriptions |
|---|---|
| Plants | Locations (documented or potential) of federally or state-listed plant species or unique plant communities. |
| Aquatic Animals | Locations (documented or potential) of federally or state-listed aquatic animal species. |
| Terrestrial Animals | Locations (documented or potential) of federally or state-listed terrestrial animal species, bald eagle nests, caves, heron rookeries, osprey nests, Indiana/northern long-eared bat habitat, and other unique resources. |
| Natural Areas | Locations of federal, state, local, or non-profit lands managed for ecological and/or recreational purposes. A few examples include National Parks, Federally Designated Critical Habitat, Tennessee Designated Natural Areas, state Wildlife Management Areas, and land trust properties. |
| Wetlands | Includes NWI wetlands; potential wetlands identified by TVA using topographic features, water bodies, soils boundaries, and proximity to NWI; and field verified wetlands delineated during TVA field surveys of transmission system ROW. |

Sensitive resources identified within the O-SAR database are defined as polygons and assigned a "Class" level with specific guidance governing transmission system ROW vegetation management planning efforts. Sensitive area class definitions for vegetation management activities are provided in Appendix I. The guidance may be informational or prescriptive and result in limitations of particular control measures, requirements for notification to TVA biologists, or the need for site-specific field surveys to be performed by TVA biologists prior to work activities. This guidance constitutes an important aspect of the implementation of BMPs to minimize environmental impact. The guidance is particularly important to clearly define what vegetation maintenance activities are permissible within sensitive areas, taking into account the specific sensitive resources that occur or might occur on a given section of ROW. The guidance also seeks to give certainty and flexibility to TVA Transmission ROW personnel, who develop vegetation control activities over large areas under schedule and budget constraints. On lands managed by NPS and USFS, additional reviews by appropriate agency staff are required prior to the implementation of vegetation management practices. Among other things, the need for additional review will be determined by TVA's respective property rights and/or any effective agreements. For instance, NPS parcels on ROW may not have any chance of T&E plants or animals, but herbicide use is still not allowed because of specific guidance per the land manager.

### 2.2.3 Programmatic Agreements and Consultations

TVA's formulation of vegetation management alternatives also integrates the content of PAs and consultations developed and executed in coordination with other federal and state agencies. TVA uses these program-level, regulatory-based determinations to avoid or minimize adverse effects of TVA actions.

As described in Section 1.6, and in accordance with Section 7 of the ESA, TVA consulted with the USFWS to assess, on a programmatic basis, the impact of 10 overarching TVA routine actions on four federally listed bat species (gray bat, Indiana bat, northern long-eared bat, Virginia big-eared bat) and their habitats. As part of this effort, TVA prepared a

programmatic BA, which was submitted to USFWS on June 18, 2017. Within the BA, TVA analyzed the effects of 96 routine activities associated with the 10 routine actions. One of the routine actions was maintenance of existing electric transmission assets, which included vegetation management activities along transmission system ROWs.

TVA determined that 21 of the 96 activities will have no effect on Indiana bat or northern long-eared bat; 72 activities may affect but are not likely to adversely affect these two species; and three activities are likely to adversely affect these two species. Potential adverse effects to Indiana bat and northern long-eared bat could result from tree removal (two of three activities) or prescribed fire (one of three activities). Of these, tree removal is identified as an activity that can occur during vegetation maintenance activities. The use of prescribed fire is limited to portions of TVA Reservoir Lands and would not be used during vegetation management activities. TVA also determined that 21 activities covered under the programmatic BA will have no effect on gray bat or Virginia big-eared bat, and 75 activities may affect, but are not likely to adversely affect these two species.

As a component of the BA, TVA committed to implementing conservation measures to avoid and minimize impacts associated with routine actions, as well as to continue conducting conservation measures that may benefit or promote the recovery of the Indiana bat, northern long-eared bat, gray bat, and Virginia big-eared bat.

In response to TVA's programmatic BA on bats and routine actions, the USFWS prepared a programmatic Biological Opinion, concurring with TVA's "effects determinations" and proposed conservation measures. This programmatic consultation was completed in April 2018, and it will be carried out over a 20-year term. The consultation was updated in May 2023 in response to uplisting of northern long-eared bat from "threatened" to "endangered." Documentation of this consultation including the USFWS Biological Opinion can be found on TVA's Environmental Review website (TVA 2024a).

TVA also consulted with the USFWS to assess the impacts of routine activities associated with TVA's transmission system ROW vegetation management program on all species listed under the ESA (other than the four federally listed bat species addressed in the programmatic consultation, bog turtle, monarch butterfly, and alligator snapping turtle) with potential to occur in the study area. This consultation was completed and the USFWS issued a Biological Opinion in May 2019 concurring with TVA's effects determinations. The Biological Opinion is included in Appendix C. BMPs and conservation measures that were developed in conjunction with this consultation to avoid and minimize effects to sensitive species will be integrated into TVA's ROW vegetation management procedures.

TVA also consulted with the Advisory Council on Historic Preservation, the SHPO of Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia (respectively), and all federally recognized Indian tribes with an interest in the region for existing TVA operation and maintenance activities, including vegetation management. Pursuant to Section 106 of the NHPA this consultation was completed in February 2020 (see Appendix D).

## 2.3 Comparison of Alternatives

The environmental impacts of each of the ROW vegetation management alternatives under consideration are summarized in Table 2-2. These summaries are derived from the information and analyses vegetation maintenance methods provided in the Affected Environment and Environmental Consequences sections for each resource in Chapter 3 and/or in TVA's PEIS for resource issues that were determined to be minor, short-term, temporary, negligible, and/or none (TVA 2019).

**Table 2-2. Summary and Comparison of Alternatives by Resource Area**

| No Action Alternative<br>Do Not Perform Vegetation Management | Action Alternative<br>Perform Routine Periodic Vegetation Management |
|---|---|
| **Reliability** | |
| Increased risk of non-compliance with reliability standards. | Enhances compliance with reliability standards. |
| **Vegetation** | |
| No immediate change in baseline condition. However, continued growth of vegetation would change species composition from an herbaceous community to a more shrub/scrub community, and possibly over time changing to one with more wooded/forested species.<br><br>As per the 2017 injunction, only trees that present an immediate hazard to the reliability of the transmission system would be removed. In the short-term, there would be less need for tree removal. But in the long-term there would be an ever-increasing volume of trees that would grow to be identified as immediate hazards. | Impact to vegetation would be short-term as the areas have undergone routine, vegetation management to be maintained as a low-growing herbaceous community.<br><br>As per the 2017 injunction, only trees that present an immediate hazard to the reliability of the transmission system would be removed. In the short-term, there would be less need for tree removal. But in the long-term there would be an ever-increasing volume of trees that would grow to be identified as immediate hazards. |
| **Wildlife** | |
| No immediate change in baseline condition. However, continued growth of vegetation would change species composition over time.<br><br>As per the 2017 injunction, only trees that would present an immediate hazard to the reliability of the transmission system would be removed. In the short-term, there would be less need for tree removal. But in the long-term there would be an ever-increasing volume of trees that would be identified as immediate hazards. | Potential impacts would be negligible as the vegetation has already been routinely managed supporting an herbaceous community. Vegetation managed in a meadow-like state would be of greater value to wildlife.<br>As per the 2017 injunction, only trees that present an immediate hazard to the reliability of the transmission system would be removed. In the short-term, there would be less need for tree removal. But in the long-term there would be an ever-increasing volume of trees that would grow to be identified as immediate hazards. |
| **Aquatic Biology** | |
| No change in baseline condition. | Potential short-term and long-term impacts associated with sedimentation during ROW vegetation management. Impact to aquatic biota avoided or minimized by using TVA's OSAR process and adherence to avoidance and minimization measures and BMPs. |

| No Action Alternative<br>Do Not Perform Vegetation Management | Action Alternative<br>Perform Routine Periodic Vegetation Management |
|---|---|
| **Threatened and Endangered Species** | |
| No change in baseline condition. Impact to threatened and endangered species would be minimized by using TVA's O-SAR process and adherence to avoidance and minimization measures in the TVA's ESA consultations and applicable BMPs.<br><br>As per the 2017 injunction, only trees that would present an immediate hazard to the reliability of the transmission system would be removed. In the short-term, there would be less need for tree removal. But in the long-term there would be an ever-increasing volume of trees that would be identified as immediate hazards. | Potential short-term and long-term impacts to threatened and endangered species/habitats because of vegetation management. Impacts would be minimized by using TVA's O-SAR process and adherence to avoidance and minimization measures in TVA's ESA consultations and applicable BMPs.<br><br>As per the 2017 injunction, only trees that present an immediate hazard to the reliability of the transmission system would be removed. In the short-term, there would be less need for tree removal. But in the long-term there would be an ever-increasing volume of trees that would grow to be identified as immediate hazards. |
| **Surface Water**[1] | |
| No change in baseline condition. | Potential impacts associated with runoff and sedimentation during vegetation management. Impacts avoided or minimized through the use of TVA's O-SAR process and adherence to avoidance and minimization measures and BMPs. |
| **Wetlands** | |
| No change in baseline condition. | Potential indirect, minor impacts associated with sedimentation during floor vegetation management. Impact minimized by using TVA's O-SAR process and adherence to mitigation measures and BMPs. |
| **Natural and Managed Areas** | |
| No change in baseline condition. | No change in baseline condition. Impact minimized by using TVA's O-SAR process and adherence to mitigation measures and BMPs. |
| **Parks**[1] | |
| No change in baseline condition. | No change in baseline condition. |
| **Cultural Resources** | |
| No change in baseline condition. | Provides flexibility in the improvement and management of visual quality of historic properties. In limited cases where impacts exist during ROW vegetation management, those impacts would be minimized through adherence to BMPs and Section 106 or program alternative, such as the PA, where applicable. |
| **Floodplains**[1] | |
| No change in baseline condition. | Potential for minor floodplain impacts due to vegetation removal and debris. BMPs minimize debris in floodplains such that the impact of debris management on floodplains and flow alteration would be minor. |

| No Action Alternative<br>Do Not Perform Vegetation Management | Action Alternative<br>Perform Routine Periodic Vegetation Management |
|---|---|
| **Geology, Groundwater and Soils**[1] | |
| No change in baseline condition. | Increased, albeit limited, potential for soil disturbance and erosion in the long-term because of vegetation management of the ROW. Impacts would be avoided or minimized through adherence to avoidance and minimization measures and BMPs. |
| **Land Use and Prime Farmland**[1] | |
| No impact. | No impact to prime farmland. Minor potential impact to land use during vegetation management. Impacts would be avoided or minimized through adherence to avoidance and minimization measures and BMPs. |
| **Visual Resources**[1] | |
| No change in baseline condition.<br>As per the 2017 injunction, only trees that present an immediate hazard to the reliability of the transmission system would be removed. In the short-term, there would be less need for tree removal. But in the long-term there would be an ever-increasing volume of trees that would grow to be identified as immediate hazards. | Temporary, short-term impact during ROW vegetation management as the ROW would be managed to a meadow-like state. As per the 2017 injunction, only trees that present an immediate hazard to the reliability of the transmission system would be removed. In the short-term, there would be less need for tree removal. But in the long-term there would be an ever-increasing volume of trees that would grow to be identified as immediate hazards. |
| **Health and Safety**[1] | |
| Short- and long-term safety diminished for those who are working due to risks associated with manual processes required for individual tree removals. | Enhanced worker safety in the long-term by controlled vegetation management but safety enhancement is slightly less because some compatible trees would remain. |
| Public Health and Safety would be at increasing risk due to the increased numbers of violations of vegetation clearances in the transmission system and the decrease in system reliability. | Enhanced property owner safety and public health and safety due to TVA controlled vegetation management and reliability of the transmission system. |
| **Solid and Hazardous Waste**[1] | |
| No change in baseline condition in the short-term as initially there would be less need for tree removal. But in the long-term there would be an ever-increasing volume of trees that would be identified as immediate hazards.<br>As per the 2017 injunction, only trees that present an immediate hazard to the reliability of the transmission system would be removed. | Temporary, short-term impact during ROW vegetation management as the ROW would be managed to a meadow-like state.<br>As per the 2017 injunction, only trees that present an immediate hazard to the reliability of the transmission system would be removed. In the short-term, there would be less need for tree removal. But long-term, there would be an ever-increasing volume of trees that would grow to be identified as immediate hazards. |
| **Transportation**[1] | |
| No change in baseline condition. | Impacts to transportation during ROW vegetation management would be negligible. |
| **Air Quality and Climate Change**[1] | |
| No change in baseline condition. | Temporary, short-term increased impacts during ROW vegetation management. |

| No Action Alternative<br>Do Not Perform Vegetation Management | Action Alternative<br>Perform Routine Periodic Vegetation Management |
|---|---|
| **Noise**[1] | |
| No change in baseline condition. | Temporary, short-term increased impacts during ROW vegetation management. |
| **Socioeconomics & Environmental Justice**[1] | |
| No impact. | No impact. |
| **Cumulative Effects** | |
| No change in baseline condition. | Incremental benefits to habitat are negligible given the context of the study area. |

[1] TVA previously determined potential effects to this resource would be minor, short-term, temporary, negligible, and/or none as a result of routine vegetation management activities (TVA 2019).

## 2.4 TVA's Preferred Alternative

TVA's preferred alternative is Alternative B, the Action Alternative – Perform Routine Vegetation Management which would include removal of trees that are deemed hazardous. This alternative is considered to provide the best balance in enhancing system reliability and safety, minimization of environmental impacts, and striving for cost effectiveness. If chosen, this alternative would only be implemented if the injunction discussed previously is dissolved.

Vegetation management under this alternative would be accomplished with an IVM approach to promote the establishment of low-growing herbaceous plant communities compatible with the safe and reliable operation of the transmission system. TVA would also use an approach that is condition based for identification and removal of incompatible vegetation and danger trees that would use LiDAR and other assessment techniques.

Routine vegetation maintenance would include identification and removal of vegetation within the ROW that is incompatible with TVA's desired end-state condition. Within lands primarily managed by TVA, floor work would occur on previously cleared and routinely maintained ROW resulting in an end-state consisting of a mix of herbaceous and low-growing shrub species. This vegetation community is more compatible with the transmission system and is expected to provide improved habitat value that over time is expected to minimize intensity of maintaining the floor.

Under Alternative B there would be greater coordination and interaction with local landowners to identify compatible vegetation than with the No Action Alternative. Although TVA would need to remove trees identified as hazardous, TVA would work with local property owners, when requested, to evaluate the compatibility of vegetation within or near the ROW. Vegetation compatible with the safe and reliable operation of the transmission system may be allowed to remain within the ROW. Relative to the No Action Alternative, this alternative would enhance compliance with reliability standards.

Impacts associated with this alternative primarily include temporary short-term impacts during vegetation maintenance activities to most natural resources. Because vegetation removal activities would be conducted within previously established ROW, the overall effect on vegetation is considered to be moderate as the routine maintenance of vegetation would not destabilize the general plant communities within the study area. Long-term impacts of this management alternative are related to the repeated cyclic disturbance within the ROW.

The effects of Alternative B include both short-term and long-term impacts; however, sound planning and the incorporation of TVA's O-SAR process and other BMP measures would avoid and minimize long-term impacts. Alternative B provides benefits in terms of habitat quality and reduced vegetation management intensity based on the achievement of the desired end-state.

Impacts on factors related to the human environment (land use, socioeconomics, air, noise, cultural resources, solid/hazardous waste, public and worker safety, etc.) are generally considered to be localized and temporary. This alternative keeps incompatible vegetation away from transmission lines, reducing the likelihood of devastating, and possibly fatal, wildfires. Consequently, this alternative reduces the risk to homeowners' safety.

## 2.5 Summary of Mitigation Measures

Mitigation measures identified in Chapter 3 to avoid, minimize, or reduce adverse impacts to the environment are summarized below. Any additional project-specific mitigation measures, such as avoiding areas identified from desktop reviews as having a high probability of any sensitive resources, have been identified on a site-specific basis and are provided in Section 3.9. Integration of TVA's O-SAR process as described in Section 2.2.2.

TVA has prepared comprehensive standard BMPs that represent mitigation measures that are effective in avoiding, minimizing, rectifying, and compensating for effects of vegetation management activities. These BMPs are detailed in TVA's *A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Construction and Maintenance Activities, Revision 4* (TVA 2022b). Topics addressed in this manual include the following:

- Best Management Practices for Construction and Maintenance Activities including Vegetation Management.
- Sensitive Resources and Buffer Zones.
- Structural Controls, Standards and Specifications.
- Seeding/Stabilization Techniques.

Practices and procedures are provided that directly relate to the vegetation management activities including initial woody vegetation removal, good housekeeping, waste disposal, herbicide use, and stormwater discharge management.

# CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter provides a description of the potentially affected environmental resources in the study area and the general impacts of vegetation control. The descriptions below of the potentially affected environment are based on published and unpublished reports, the use of TVA's O-SAR process and on personal communications with resource experts. This information establishes the baseline conditions against which TVA decision makers and the public can compare the potential effects of implementing the alternatives under consideration.

The analysis of potential effects to endangered and threatened species and their habitats included records of occurrence within a three-mile radius for terrestrial animals, a five-mile radius for plants, and within 10-digit hydrologic unit code[3] (HUC) watershed for aquatic animals. The analysis of potential effects to aquatic resources included the local watershed but was focused on watercourses within or immediately adjacent to the proposed ROW and associated temporary access roads. The analysis of potential wetland presence was conducted at the ecoregion level (Level III, Omnerick 1987). Because wetland habitat and extent can vary across ecoregions, wetlands are discussed relative to typical wetland resources by ecoregion. The area of potential effect (APE) for architectural resources included all areas within a 0.5-mile radius from the proposed TL route, as well as any areas where the project would alter existing topography or vegetation in view of a historic resource. The APE with respect to archaeological resources included the entire ROW width for the transmission line segments and the associated temporary access roads.

## 3.1 Vegetation

### 3.1.1 Affected Environment

The twelve Sectors TVA uses to organize ROW vegetation management activities intersect nine distinct Level III ecoregions (Omernik 1987). The ecoregions support a diverse array of plant communities including deciduous, mixed evergreen-deciduous, and evergreen forest, as well as herbaceous vegetation (see Figure 3-1). Many types of specific plant communities occur throughout the TVA Power Service Area including bottomland hardwood, mixed mesophytic, upland oak-hickory, and swamp forests along with an array of herbaceous communities (TVA 2019).

Specific plant communities located on and adjacent to TVA transmission system ROW vary greatly across the TVA Power Service Area. Plant communities can range from highly disturbed, early successional habitats dominated by invasive species, to rich, diverse herbaceous communities that possess landscape level conservation importance. The relative quality of plant habitats found in any given ROW depends on a multitude of factors, including many that are unrelated to vegetation management decisions implemented by TVA. Factors outside of TVA control that influence plant communities include land use (previous and current), geology, landscape position, soil texture, depth to bedrock, aspect, and rainfall.

[3] The United States is divided and subdivided to into hydrologic units by the U. S. Geological Survey. There are six levels of classification. A 10-digit HUC is the fifth (watershed) level of classification.

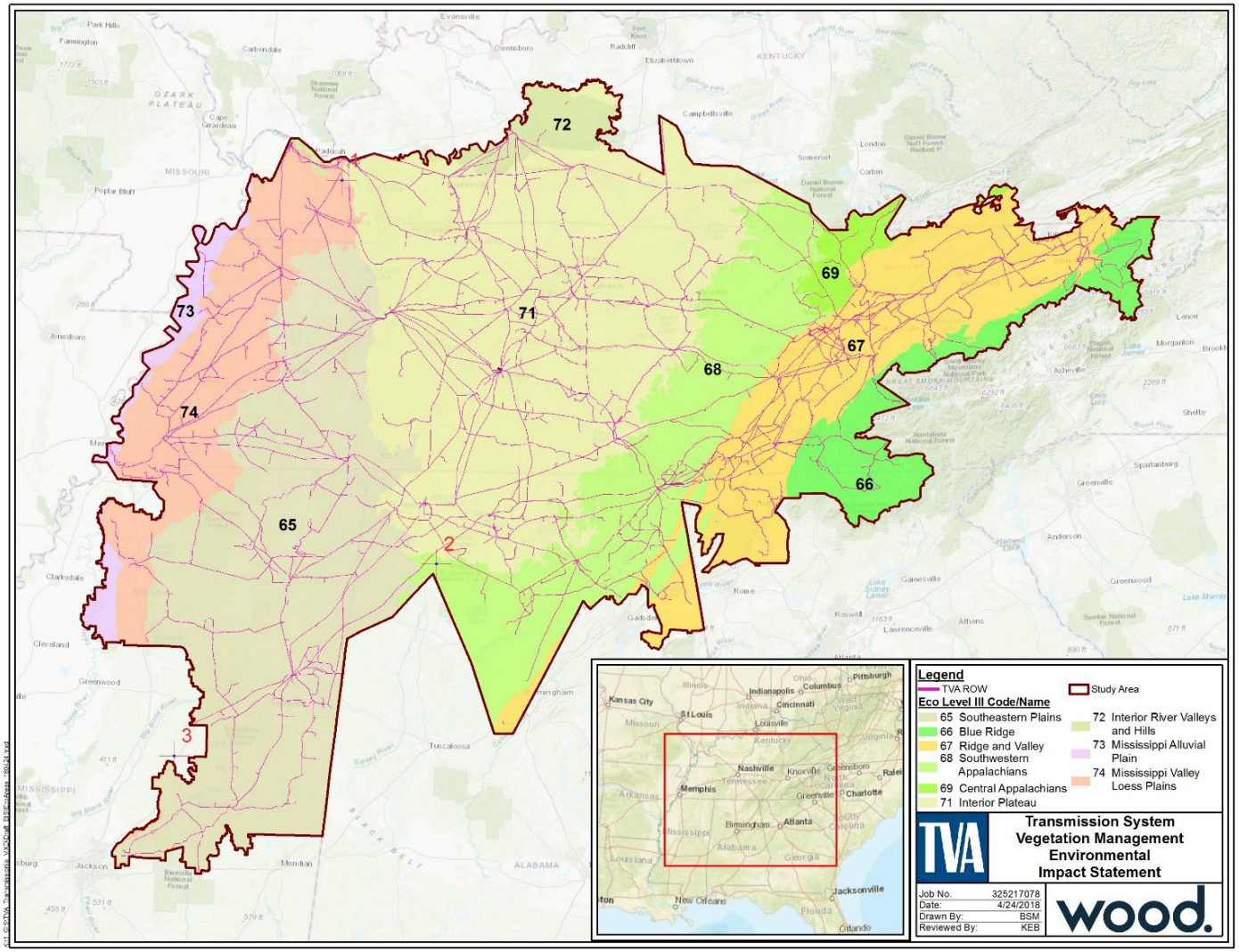



**Figure 3-1. Level III Ecoregions within the TVA Study Area**

Many plant communities within and adjacent to TVA ROW are heavily disturbed and dominated by weedy species found most often in pastures, lawns, and developed areas. However, there are also habitats that intersect the TVA transmission system that have regional conservation significance. Many of these communities are rare, restricted to very small geographic areas and/or are threatened by human activities. Examples include glades, prairies, barrens, marshes, bogs, fens, and seeps. A few generations ago, native grassland habitats were relatively abundant in portions of the southeastern U.S.; today they are rare (Noss 2013). Reasons for this decline in intact grasslands are many, but growth in agriculture, residential and commercial development, fire suppression, and colonization by invasive species are primary factors. As a result, a subset of maintained ROWs represent some of the only relatively intact grasslands remaining on the landscape. Approximately 20 globally rare herbaceous communities, as defined by NatureServe, have the potential to occur within TVA transmission system ROWs (TVA 2019). Within the TVA ROW Sectors where vegetation management would occur in FY25 and FY26, important grassland habitat is most likely to occur in the Inner Nashville Basin of central Tennessee, the Eastern Highland Rim of Tennessee and northern Alabama, the Cumberland Plateau and Plateau Escarpment in Alabama, Kentucky and Tennessee, Blackland Prairie in Mississippi, Southern Table Plateau on Lookout and Sand Mountain in Alabama and Georgia, the Crawford-Mammoth Cave Uplands and adjacent Western Pennyroyal Karst Plain in Kentucky, and small portions of the Ridge and Valley in Tennessee and Alabama.

Invasive plants are well-established and widespread throughout the TVA Power Service Area. While not well-established in most of the high-quality grassland habitat, these species are abundant across many TVA ROWs, including those slated for vegetation management activities in FY25 and FY26. EO 13112 Invasive Species (February 3, 1999) directed TVA and other federal agencies to prevent the introduction of invasive species (both plants and animals), control their populations, restore invaded ecosystems and take other related actions. EO 13751 issued on December 8, 2016, amends EO 13112 and directs actions by federal agencies to continue coordinated federal prevention and control efforts related to invasive species.

The relative proportion of invasive species on any given ROW is often determined by factors outside of TVA control. For example, the prior and current ROW land use can have a material effect on the potential for invasive species to gain a competitive advantage over native species. Land uses including high intensity grazing, agriculture, and residential or commercial development severely degrade natural communities. TVA vegetation management activities along ROW, as well as the ROW in general, serve as both vectors for invasive species and refugia for rare grassland communities and species.

### 3.1.2 Environmental Consequences for Vegetation

Localized herbicide application and mowing are the vegetation management tools that would be used most frequently in FY25 and FY26 to clear vegetation on the floor of the open ROW. Other Manual, Mechanical, and Herbicide Application Methods, along with Debris Management and Restoration activities, occur very infrequently or do not have the potential to affect vegetation on a meaningful scale (TVA 2019). Tree clearing along the ROW margins would result in a negligible overall change to plant habitats present on the landscape.

Localized applications of herbicide would result in some level of off-target impact. In situations where the woody stem count is high on a given ROW, even localized application of herbicides could produce substantial impacts to non-target species. However, these areas of high woody stem count would be unlikely to support high-quality herbaceous habitats, usually because of site-specific conditions unrelated to TVA vegetation management (i.e., owner land use, soil type, landscape position, etc.). In drier transmission system ROW areas with rocky or sandy soils, where woody stem count is inherently lower, localized herbicide application could foster herbaceous plant communities that are rare on the landscape. These important plant habitats may be globally rare or just relatively diverse herbaceous communities, with limited distribution remaining in the southeastern U.S.

Mowing would remove nearly all woody stems; however, the amount of re-growth can be rapid depending on conditions on the ground. For example, in drier areas with sandy or rocky soils, the rate of tree establishment and growth is relatively slow. In this case, mowing can help to maintain high quality native plant communities. However, in all but the driest habitats in the eastern U.S., tree invasion is rapid, and woody plants quickly replace herbaceous species. In addition, repeated mowing of ROWs encourages stump resprouting (sucker growth) and promotes dense stands of woody species. This is particularly problematic in wetlands or on sites with rich soils. Using mowing alone, or as the primary mechanism for vegetation removal on ROWs, would reduce species diversity and encourage the dominance of woody plants able to proliferate through root resprouting.

TVA uses the O-SAR process (see Section 2.2.2) to avoid impacts to important plant habitats within ROWs by limiting the use of the most damaging methods in areas likely to contain grasslands dominated by native plant species. Broadcast and aerial herbicide is restricted on about 17 percent (about 41,000 acres) of TVA transmission system ROW that are likely to contain important habitat. Manual, mechanical, and localized herbicide methods can be used in these areas. These methods likely serve to perpetuate important herbaceous habitats found in the ROW by eliminating trees that rapidly encroach into open areas without appropriate disturbance. Slightly less than 1 percent (about 2,000 acres) of TVA ROW is known to contain rare plant habitats. These areas are denoted in the O-SAR database, and when vegetation maintenance is scheduled to occur in such locations, TVA biologists and operations staff would work together to ensure the habitats are protected. Sometimes the proposed work would not affect the plant communities found within the ROW, but sometimes operations staff augments the timing or method of proposed work to protect sensitive resources. For proposed work planned during FY25 and FY26, the TVA botanist would coordinate individually with every ROW for all sites in each Sector that contain documented rare plant habitat. This would ensure that the most potentially damaging tools, like broadcast herbicide, would not be used in ROW supporting important grassland habitats and that the proposed FY25 and FY26 vegetation management activities would not have significant impacts on terrestrial plant ecology of the region.

## 3.2 Wildlife

### 3.2.1 Affected Environment

The proposed study area includes segments of ROW within each of the twelve managed ROW Sectors across the TVA Region. The Affected Environment for this EA has previously been described in the Transmission System Vegetation Management PEIS (TVA 2019). Wildlife habitat within and around the segments proposed for maintenance in FY25 and FY26 ranges in quality. Low-quality habitat includes maintained lawns near residential and industrial areas as well as disturbed forest fragments. Moderate-quality habitat consists of early successional and herbaceous communities within and along transmission system ROWs bordered by forest edges (edge habitats). Higher-quality habitat includes contiguous blocks of forest or herbaceous habitat, managed for a diversity of species. Important habitats found within and along transmission system ROWs include riparian corridors, bluffs, swamps, grasslands, rivers and associated stream tributaries, reservoirs, islands, larger un-fragmented forested landscapes, and karst (cave) habitats.

Transmission system ROW corridors are typically dominated by open herbaceous habitats. Undeveloped open lands are comprised of cultivated fields, hayland/pasture, shrub/scrub, and other non-forested cover types. Secondary growth or young trees that have grown up since that last maintenance cycle that are scattered in otherwise open herbaceous habitats within the ROW may occur in sections of ROW that are needing maintenance. Mature forested habitat may be present in ROWs under lines that span valleys or steep mountain sides. Riparian and wetland habitats within and near TVA transmission system ROW corridors are associated with stream valleys, depressional areas, reservoir systems and areas with localized groundwater discharge. Coupled with unique features such as vernal pools, oxbows, bluffs and islands, these areas provide a diverse array of nesting and foraging habitats for wildlife (TVA 2011a). Birds, mammals, reptiles, amphibians, and invertebrates that are commonly found in these areas have been described in the PEIS (TVA 2019).

O-SAR buffers are maintained around sensitive resources near TVA ROWs. The size of these buffers varies by resource. Review of the TVA Regional Natural Heritage database in July 2024 indicated that near ROWs proposed for maintenance in FY25 and FY26, there are a total of 102 caves within 200 feet and 41 bald eagle nests, 827 osprey nests, and 28 heronries within 660 feet of these ROWs (See Table 3-1).

**Table 3-1. Total Number of Terrestrial Animal Resources from (A) Within 50 feet of TVA ROW or (B) Where O-SAR Restrictions Overlap TVA ROW Vegetation Management Proposed in Fiscal Years 2025 and 2026[1]**

| Fiscal Year | Terrestrial Animal Federally and State-listed Species | | | |
|---|---|---|---|---|
| | Caves | Osprey | Heronries | Bald Eagle |
| 2025 | 42 | 395 | 9 | 21 |
| 2026 | 62 | 432 | 17 | 20 |

[1] Source: TVA Regional Natural Heritage Database, queried July 2024.

A few bald eagle nests occur on transmission line structures. These large nests are typically built on the highest crossbeam of the tower. However, the majority of nests known from within 660 feet of TVA transmission lines are in trees adjacent to the transmission system ROW. Eagle nest records in the TVA Regional Natural Heritage database include those recently used as well as those that haven't been used in a decade or more, as eagles nests are Federally protected whether occupied or not.

Most osprey nests documented in Table 3-1 are located on transmission towers within the ROWs. While osprey can and do build nests anywhere on the tower with a suitable platform, most are built on the highest crossbeam of the towers. Nests are typically about 70 to 100 feet off the ground from where vegetation management actions would occur.

Herons located on tower structures tend to build nests in the lower sections of the towers where beams intersect. Therefore, they are typically closer to the ground where routine floor vegetation management could occur. The remainder of heronries are in trees within 660 feet of the ROW proposed for maintenance.

Review of the USFWS's Information for Planning and Consultation (IPaC) database resulted in the identification of 45 migratory bird species of conservation concern that have the potential to occur in the TVA Power Service Area (USFWS 2024). Of these species, 12 breed outside the TVA region (Table 3-2). The remaining 33 species could be found in the project area during the proposed actions. Adults of all species are expected to be mobile and flush if disturbed, however nests, eggs, and young of species that breed in the area could potentially be impacted by ROW vegetation management. Species that nest in herbaceous and shrub habitat are at higher risk than species that nest in forested areas.

**Table 3-2. Migratory Birds of Conservation Concern with Potential to Occur within Rights of Way Proposed for Vegetation Management in Fiscal Years 2025 and/or 2026[1]**

| Species Common Name | Scientific Name | Breeding Period |
|---|---|---|
| American Golden Plover | *Pluvialis dominica* | Breeds outside TVA PSA |
| American Kestrel | *Falco sparverius paulus* | Apr 1 to Aug 31 |
| Bachman's Sparrow | *Peucaea aestivalis* | May 1 to Sep 30 |
| Bald Eagle | *Haliaeetus leucocephalus* | Sep 1 to Aug 31 |
| Black Skimmer | *Rynchops niger* | May 20 to Sep 15 |
| Black-billed Cuckoo | *Coccyzus erythropthalmus* | May 15 to Oct 15 |
| Black-capped Chickadee | *Poecile atricapillus practicus* | Apr 10 to Jul 31 |
| Bobolink | *Dolichonyx oryzivorus* | May 20 to Jul 31 |
| Brown-headed Nuthatch | *Sitta pusilla* | Mar 1 to July 15 |
| Canada Warbler | *Cardellina canadensis* | May 20 to Aug 10 |
| Cerulean Warbler | *Setophaga cerulea* | Apr 23 to Jul 20 |
| Chimney Swift | *Chaetura pelagica* | Mar 15 to Aug 25 |
| Chuck-will's-widow | *Antrostomus carolinensis* | May 10 to Jul 10 |
| Coastal (Wayne's) Black-throated Green Warbler | *Setophaga virens waynei* | May 1 to Aug 15 |
| Eastern Whip-poor-will | *Antrostomus vociferus* | May 1 to Aug 20 |
| Field Sparrow | *Spizella pusilla* | Mar 1 to Aug 15 |
| Golden Eagle | *Aquila chrysaetos* | Breeds outside TVA PSA |
| Golden-winged Warbler | *Vermivora chrysoptera* | May 1 to Jul 20 |
| Grasshopper Sparrow | *Ammodramus savannarum perpallidus* | June 1 to Aug 20 |
| Gull-billed Tern | *Gelochelidon nilotica* | May 1 to Jul 31 |

| Species Common Name | Scientific Name | Breeding Period |
|---|---|---|
| Henslow's Sparrow | *Centronyx henslowii* | May 1 to Aug 31 |
| Kentucky Warbler | *Geothlypis formosa* | Apr 20 to Aug 20 |
| King Rail | *Rallus elegans* | May 1 to Sep 5 |
| LeConte's Sparrow | *Ammospiza leconteii* | Breeds outside TVA PSA |
| Least Tern | *Sternula antillarum antillarum* | Apr 25 to Sep 5 |
| Lesser Yellowlegs | *Tringa flavipes* | Breeds outside TVA PSA |
| Little Blue Heron | *Egretta caerulea* | Mar 10 to Oct 15 |
| Marbled Godwit | *Limosa fedoa* | Breeds outside TVA PSA |
| Northern Saw-whet Owl | *Aegolius acadicus* | Mar 1 to Jul 31 |
| Painted Bunting | *Passerina ciris* | Apr 25 to Aug 15 |
| Pectoral Sandpiper | *Calidris melanotos* | Breeds outside TVA PSA |
| Prairie Warbler | *Setophaga discolor* | May 1 to Jul 31 |
| Prothonotary Warbler | *Protonotaria citrea* | Apr 1 to Jul 31 |
| Red-headed Woodpecker | *Melanerpes erythrocephalus* | May 10 to Sep 10 |
| Ruddy Turnstone | *Arenaria interpres morinella* | Breeds outside TVA PSA |
| Rusty Blackbird | *Euphagus carolinus* | Breeds outside TVA PSA |
| Semipalmated Sandpiper | *Calidris pusilla* | Breeds outside TVA PSA |
| Short-billed Dowitcher | *Limnodromus griseus* | Breeds outside TVA PSA |
| Swallow-tailed Kite | *Elanoides forficatus* | Mar 10 to June 30 |
| Whimbrel | *Numenius phaeopus hudsonicus* | Breeds outside TVA PSA |
| Willet | *Tringa semipalmata* | Apr 20 to Aug 5 |
| Wilson's Plover | *Charadrius wilsonia* | Apr 1 to Aug 20 |
| Wood Thrush | *Hylocichla mustelina* | May 10 to Aug 31 |
| Yellow Rail | *Coturnicops noveboracensis* | Breeds outside TVA PSA |

[1] Source: USFWS Information for Planning and Consultation, ipac.ecosphere.fws.gov. Queried July 2024

### 3.2.2 Environmental Consequences for Wildlife

Each method of vegetation control that may be used during FY25 and FY26 vegetation management activities has the potential to impact wildlife species and their habitats directly and indirectly. A more thorough impact analysis of each vegetative control method on wildlife can be found in the PEIS (TVA 2019). A summary is provided in Appendix J. Manual control methods typically have a greater potential for disturbance than herbicide applications. Mowing, chainsaws, and soil/ground disturbance due to machinery and heavy equipment could directly impact species in the path of the machinery should they be unable to flee from the vegetation or burrows in the ground being impacted. Increased levels of noise could also stress nearby individuals. Ground disturbance resulting in sedimentation or contamination could impact sensitive cave systems deep underground.

Herbicide application is less damaging to soils when applied in small quantities from backpack mounted sprayers. ROW maintenance activities focus herbicide application to woody species therefore leaving ground cover available for wildlife. This minimizes erosion, sedimentation, and potential damage to nesting and tunneling wildlife. However, there is concern over the potential toxicity of the herbicide on non-target organisms (wildlife) and subterranean cave systems. TVA does not typically apply herbicides at the maximum recommended concentration, and low-volume backpack spraying should never reach maximum application rates. All herbicides currently used by TVA have been determined to be practically non-toxic to slightly toxic to mammals, birds and terrestrial invertebrates (bees) with the exception of Tebuthiuron which was determined to be moderately toxic to mammals. When working near aquatic features, TVA uses EPA-registered herbicides

determined to be safe for use near aquatic environments. See TVA's PEIS for additional detailed impact analyses (TVA 2019).

TVA has several practices in place that minimize impacts to sensitive wildlife/terrestrial ecology. BMPs are used near all regulated aquatic features and include use of mats on wetlands and the use of EPA-registered herbicides determined to be safe for use near aquatic environments (TVA 2022b). TVA also uses TVA's O-SAR process to avoid impacts to important terrestrial animals and their habitats by limiting the use of certain practices all together or during sensitive times of year. Each ROW proposed for FY25 and FY26 vegetation management transect several O-SAR buffers zones which define a sensitive resource. These buffers identify potential modifications to TVA ROW vegetation management actions to minimize impacts to sensitive resources.

The following O-SAR buffers would be applied near sensitive wildlife resources associated with the FY25 and FY26 vegetation management actions:

- Cave - 200 feet - No herbicide use within 200 feet of cave due to potentially sensitive subterranean aquatic resources. Hand clearing or small machinery clearing only (i.e.: chainsaws, brush hog, mowers). Vehicles and equipment confined to existing access roads. Avoid entering cave.
- Osprey nest - 660 feet - Either 1) Assume presence. No broadcast spraying. Only use brush hogs or mowers for vegetation removal or selective herbicide spraying between March 1 and July 31 within 660 feet of nest site; OR 2) Request seasonal field survey to determine if nest is active.
- Heronry - 660 feet - Either 1) Assume presence. No broadcast spraying. Only use brush hogs or mowers for vegetation removal or selective herbicide spraying between February 1 and July 15 within 660 feet of nest site; OR 2) Request seasonal field survey to determine if nests are active.
- Bald Eagle nest - 660 feet - Either 1) Assume presence. No disturbance, spraying, or vegetation clearing would occur between December 1 and July 1 within 660 feet of nest site; OR 2) Request seasonal field survey to determine if nest is active.
- In rare instances in which restricted actions need to take place while osprey or heron nests are active, TVA would coordinate with U.S. Department of Agriculture Wildlife Services (USDA-WS) to ensure any actions comply with the conditions specified under USDA's "Take" permit.

Migratory bird species (other than osprey, herons, and bald eagles addressed above) also have the potential to be impacted by the proposed actions. While the USFWS IPaC system identified 45 species as having the potential to occur in the action area (Table 3-2), 12 of those species are only likely to be found in the action area during migration or winter. Migration stopovers are typically used on a short-term basis (one to several days) only in spring and fall. Due to the speed at which ROW vegetation management occurs there is a low likelihood that these migratory species would be in the action area at the time of maintenance. Many of these migratory species are shorebirds and would be found on mudflats along the edges of lakes and rivers where little vegetative maintenance would be needed and where TVA BMPs would be applied to minimize impacts to the aquatic resources.

Some species such as northern saw-whet owl and rusty blackbird have the potential to occur in the action area during migration and during winter (non-breeding) months. Individuals of these species would be able to flush if disturbed due to their presence in the action area during non-nesting months. The potential to impact owls roosting in tree cavities would be limited to scattered mature hazard trees along the edges of the ROW and forested habitat. Additional habitat would occur further in interior forested parcels. As identified in Section 3.2.1, thirty-three species could be in the action areas during the breeding season when they are more sensitive to disturbance.

Special precautions are taken around bald eagle nests using the O-SAR process as described in Section 2.2.2 and in previous documents (TVA 2019). No nesting golden eagles are known to occur in the action areas or immediately surrounding. Therefore, this species likely only has the potential to be affected should it be foraging in ROWs at the time of the proposed actions. Golden eagles are expected to flush when disturbed by noise indicating oncoming vegetation management actions. Bachman's sparrow, black-billed cuckoo, cerulean warbler, golden-winged warbler, and Henslow's sparrow are uncommon breeders in the proposed action area. Therefore, the potential to impact individuals of these species while they are immobile (i.e., eggs, nestlings) is lower than some of the other species. Several other breeding species nest in the interior of forests, cavities, or man-made structures. Examples include American kestrel, black-capped chickadee, brown-headed nuthatch, Canada warbler, cerulean warbler, chimney swift, eastern whip-poor-will, red-headed woodpecker, and wood thrush. The potential to impact nests of these species would be confined to the removal of hazard trees in specific locations along the ROW edges should actions occur during nesting months. Species that nest in expanses of ROW herbaceous growth (e.g. Henslow's sparrow and Kentucky warbler) would not be in the habitat managed by the proposed actions. Direct impacts to these species would most likely be limited to movement of machinery through an area. Species that nest around bodies of water (e.g. king rail, little blue heron, and prothonotary warbler) would be avoided using aquatic buffers. Species that nest on forest edges in shrubs or young trees scattered in fields such as black-billed cuckoo, blue-winged warbler, golden-winged warbler, painted bunting, and prairie warbler have the greatest potential to be impacted by the proposed actions. The woody plants on which these species nest would be the target of vegetation management. Should the proposed actions occur during nesting season, herbicide could be sprayed on immobile individuals (i.e., eggs, nestlings) or vegetation mechanically removed. Based on EPA guidelines, no adverse impacts should occur to birds directly sprayed with herbicide while nesting. In addition, proposed vegetative maintenance occurs throughout the year, so potential impacts would only occur if it coincided with the months when nesting occurs. In addition, these types of maintenance actions do not occur yearly but rather are on a three-year cycle. Proposed actions are not expected to significantly impact populations of migratory birds. As required under EO 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, TVA is currently developing a Memorandum of Understanding in coordination with the USFWS as well as an Avian Protection Plan.

The outcome of these vegetative control methods is a ROW that is dominated by herbaceous species. These types of wildlife habitats would otherwise disappear due to forest regeneration should they be left unmaintained. This type of herbaceous habitat often unavailable anywhere else across the landscape (See Section 3.1.1) and provides habitat for wildlife that is becoming imperiled such as pollinator species and some species of migratory birds. Similarly, areas of ROW with some young woody regrowth provide needed habitats for other species of migratory birds. These habitats are normally ephemeral due to forest regeneration, but ROW vegetation management actions provide the repeated

disturbance and sun exposure needed for some of these fast-growing woody species to regenerate. Therefore, while impacts could occur to those species using these ROW habitats should they be present during the actions, it is the maintenance actions themselves that allow for the habitat for these species of wildlife to persist in the long-term.

## 3.3 Aquatic Ecology

### 3.3.1 Affected Environment

TVA's Power Service Area encompass portions of several major watersheds that support high aquatic biotic diversity. Tennessee is reported to support approximately 319 fish species, including native and introduced species (Etnier and Starnes 1993) and 132 freshwater mussels (Parmalee and Bogan 1998). The Tennessee and Cumberland rivers have the highest number of endemic fish, mussel, and crayfish species in North America (Schilling and Williams 2002). Other major drainages in the TVA region share a diversity of aquatic life equal to or greater than the Tennessee River drainage (TVA 2015). There are approximately 42,000 miles of perennial streams and 46 TVA managed reservoirs in the study area (TVA 2011b). Most beneficial uses (as designated by the states) are supported in most water bodies in the study area including for fish and aquatic life support.

Fish species within the twelve Sectors are represented by approximately 30 families with the largest being the perch family (more than 90 species), followed by minnows (more than 80 species), catfish (more than 20 species), suckers (21 species), and sunfishes (more than 20 species). The most diverse watershed within the twelve Sectors is the Tennessee River watershed with an estimated 205 native species (Etnier and Starnes 1993).

TVA has been monitoring the health of the major reservoirs within the Tennessee River system since 1990 to evaluate ecological conditions. A multi-metric approach known as the Reservoir Fish Assemblage Index is used to evaluate ecological conditions for fish communities because of their importance in the aquatic food web and because fish life cycles are long enough to integrate conditions over time. Though altered from human activity, main stream reservoirs support healthy fish communities and generally rate good or fair based on attained Reservoir Fish Assemblage Index scores (McDonough and Hickman 1999). The number of species range from 50 to 90 species per reservoir (TVA 2004).

Stream habitats in the study area include very large rivers (e.g., Mississippi and lower Tennessee), large rivers (e.g., lower Cumberland and upper Tennessee), medium rivers (e.g., lower Duck and Clinch), small rivers (e.g., Little, Buffalo), and numerous perennial, intermittent, and ephemeral streams (Meyer et al. 2007). Each of these stream habitat types have a characteristic fish composition with diversity generally increasing downstream along a gradient of increasing stream size, habitat heterogeneity, and habitat availability (Schlosser 1987). Therefore, larger streams and rivers are the most diverse systems in the study area. However, smaller streams (e.g., headwater streams and tributaries) are the most likely to be encountered during TVA vegetation maintenance activities due to their abundance throughout the study area. Smaller streams are characterized by small-bodied species such as small minnows, madtom catfishes, darters, and sculpins (Schlosser 1987). Darter species contribute heavily to the overall fish diversity in headwater streams in the study area with 73 species found in smaller reaches (Meyer et al. 2007). Some fish species found in the study area only use headwater streams for spawning and nursery areas. For example, the federally threatened slackwater darter lives in pools of perennial streams, but it migrates upstream to spawn in "slack water" formed by shallow springs, seeps, or flooded fields that slowly run off into adjacent headwater streams (Etnier and Starnes 1993).

Benthic (bottom dwelling) macroinvertebrate populations typically found in TVA's reservoir system and non-reservoir aquatic environments are described in the PEIS (TVA 2019). Because benthic macroinvertebrates are relatively immobile, negative impacts to aquatic ecosystems can be detected earlier in these communities than in fish communities. Benthic invertebrates are a vital part of the food chain of aquatic ecosystems. Benthic invertebrate reservoir communities are strongly affected by seasonal thermal stratification, varying dissolved oxygen concentrations and large water level fluctuations in reservoirs. Poor benthic community ratings are typical of tributary reservoirs. Macroinvertebrate communities of reservoirs are generally low in diversity and comprised of tolerant taxa.

In contrast, benthic macroinvertebrate populations in non-reservoir aquatic environments are often comprised of assemblages that are representative of lotic habitats. Composition and quality of such communities are often correlated with such factors as stream size and placement within the watershed, surrounding land uses and proximity to point source and non-point source discharges. Within rural portions of TVA's ROW, smaller streams may be expected to be composed of benthic invertebrates that are less tolerant of low dissolved oxygen levels and representative of a wide range of sub-habitats. For example, higher gradient riffle environments may be expected to support greater abundances of organisms that are clingers or swimmers. Smaller headwater streams within ROW may be dominated by only a few species, though all classes of invertebrates may be found.

Freshwater mussels are excellent indicators of water quality and habitat stability. Mussels provide many other important ecosystem services including filtering large quantities of water. The overall native mussel community has decreased from 42 species to 21 species (four of which invaded post-dam construction) due to loss of flow-sensitive species (Sickel et al. 2007).

Mainstream tailwaters, like those off Kentucky Lake, are areas of highest mussel diversity in the regulated TVA system. Remaining riverine mussel species reach greater abundance and diversity in flowing mainstream reaches, but their status remains only fair due to overall low diversity, low abundances, and low reproductive success for some species (TVA 2004). Dennis (1984) provided a detailed account of the distribution of mussels by stream size throughout the Tennessee River watershed (see Table I-19 in Dennis 1984). The greatest number of mussels (about 70 percent of species) are found in medium to large streams. Only six species were common to all stream sizes and found throughout the study area including: threeridge, purple wartyback, deertoe, mucket, pocketbook, and kidneyshell.

### 3.3.2 Environmental Consequences for Aquatic Ecology

Transmission system vegetation management activities have little potential to affect the aquatic ecology of waterways within the study area, regardless of the methods applied. Potential effects include: ground disturbing activities such as the removal of vegetation that could result in minor and temporary erosion, sedimentation, and increased water temperatures; overspray or spills of non-aquatic rated herbicides into aquatic environments; and leaks of oil or fuel that could alter water quality. However, these impacts are expected to be rare and effects minimal because TVA employs a host of BMPs that are designed to minimize environmental impacts like soil disturbance/erosion, stream bank destabilization, instream deposition of woody debris, damage to instream habitats (vehicle/equipment traffic), and inadvertent discharge of herbicides or other petrochemical to aquatic environments (TVA 2022b).

TVA's routine integration of O-SAR database reviews, adherence to BMPs related to SMZs protocols and procedures, coupled with strict adherence to proper selection and use of herbicides in proximity to surface water minimizes potential impacts to aquatic ecosystems. Proper application of BMPs, including effective SMZs, would reduce direct and indirect effects to aquatic ecosystems in the ROW. SMZs promote a vegetated riparian area that stabilizes stream banks, moderates water temperature, filters nutrients and sediments, and strongly influences energy pathways by controlling light penetration and inputs of organic material (Gregory et al. 1991; Allan and Castillo 2007). When properly using forestry BMPs, streams in the Southeast have shown little change in aquatic macroinvertebrate community diversity following timber harvesting (Warrington et al. 2017). Where changes occurred, they reflected a temporary (less than 5 year) shift in food resources from that based on detritus to one based on primary productivity (algal growth). This makes sense for a section of stream with a temporary reduction in leaf inputs, but an increased solar exposure that promotes photosynthesis. Vegetation control methods that included properly used herbicide applications showed no significant differences in macroinvertebrate indices from reference streams (Warrington et al. 2017). Forestry BMPs that include SMZs would effectively mitigate consequences of TVA's vegetation management program, even in small headwater streams.

Herbicide application has the potential to impact water quality via inadvertent application to stream channels, excess surface runoff, spray drift, and leaching through the soil profile (Annett et al. 2014; Tatum et al. 2017), however, TVA employs standard operating procedures (e.g., label-directed use) and BMPs specifically designed to eliminate these risks. For example, overspray has the highest potential to acutely affect aquatic organisms (Rolando et al. 2017). Algae, microorganisms, macroinvertebrates, amphibians, and fish are affected by exposure to consistently elevated levels of herbicide (Warren et al. 2003; Warrington et al. 2017), but, in the environment, organism exposure would fluctuate due to varying physical and climatic conditions. Field measures for concentration and durations of exposure to herbicides are typically well below standard toxicity endpoints (Scarbrough et al. 2015; Rolando et al. 2017). For example, glyphosate-based herbicides have a low-runoff risk and rapidly dissipate when introduced to aquatic environments (Rolando et al. 2017). Acute and chronic toxicity of herbicides to aquatic organisms is dependent on herbicide type, concentration, exposure time, and varies by species; but, overall risks of aquatic ecosystem exposure to herbicides are low when used within legal label recommendations and applied by trained applicators.

Spot application is intended to use the least amount of herbicide possible to treat individual plants. Similarly, localized herbicide application consists of treating individual or small groupings of plants via basal, low-volume foliar, granular, and bare-ground treatments to minimize any overspray or excess runoff. Heavy rains could carry herbicides (e.g., granular pellets) offsite and into adjacent streams; however, rain would also serve to dilute any excess herbicide and limit any acute or chronic effects (Scarbrough et al. 2015).

Additionally, broadcast application methods using mechanized equipment also have the potential for ground-disturbing impacts (as described above). Inadvertent application to aquatic environments via overspray and drift are most likely with broadcast and aerial application methods. Drift is the airborne movement of herbicides through wind or evaporation to non-target areas. As described in the PEIS (TVA 2019), TVA uses BMPs (i.e., SMZs), prior planning, proper herbicide mixtures, and advanced technologies to reduce or eliminate drift during application. Therefore, herbicide toxicity to aquatic ecosystems is unlikely under TVA's standard procedures.

The O-SAR review process avoids impacts to sensitive aquatic resources within ROWs by limiting the use of methods used within SMZs or unique/ important aquatic habitats. These areas are denoted in the O-SAR database, and when vegetation management is scheduled to occur within these areas, TVA biologists and operations staff work together to ensure the species and/or habitats are protected. For proposed work planned during FY25 and FY26, the TVA biologist would coordinate individually with TVA Operations staff for all sites in each Sector for every ROW that contains O-SAR aquatic zones. This would ensure that the most potentially damaging tools, like broadcast herbicide, would not be used in these areas and the FY25 and FY26 floor work would not have significant impacts to aquatic ecology.

## 3.4 Threatened and Endangered Species

The TVA study area provides habitat for numerous species of plants and animals that have declining populations or are otherwise rare and considered to be endangered, threatened, or of special concern at the national and/or state level.

### 3.4.1 Regulatory Framework for Threatened and Endangered Species

The Endangered Species Act, 16 United States Code [USC] §§ 1531-1543 (ESA) was passed to conserve the ecosystems upon which threatened and endangered species depend, and to conserve and recover those species. An endangered species is defined by the ESA as any species in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as one likely to become endangered within the foreseeable future throughout all or a significant part of its range. Areas known as critical habitats, essential to the conservation of federally listed species, can also be designated under the ESA. The ESA establishes programs to conserve and recover federally listed species and makes their conservation a priority for federal agencies. Under Section 7 of the ESA, federal agencies are required to consider the potential effects of their proposed actions on federally listed species and critical habitats. If the proposed action has the potential to affect these resources, the federal agency is required to consult with the USFWS.

There are laws protecting listed species in all seven states in the study area. In a few states, protection is limited to species listed under the ESA, but in other states, legal protections are extended to additional species designated by the state as endangered, threatened, or other classifications such as “in need of management.”

Conservation measures and avoidance and minimization measures identified in the following sections, as well as routine use of BMPs and project planning and environmental review processes, in some cases apply to state-listed species and habitats as well as to federally listed species and habitats. TVA has consulted with USFWS per Section 7(a) (2) of the ESA concerning the potential impacts of routine vegetation maintenance activities to affect federally threatened and endangered species within the study area. This consultation was completed and the USFWS issued a Biological Opinion in May 2019 concurring with TVA’s effects determinations (Appendix C). TVA had previously consulted with USFWS on a suite of TVA routine actions on federally listed bats present in the TVA Power Service Area. This consultation was completed in April 2018 and updated in May 2023 in response to uplisting of northern long-eared bat from “threatened” to “endangered” (TVA 2024).

### 3.4.2 Threatened and Endangered Species in the TVA Study Area

According to the USFWS IPaC database (USFWS 2024) and the TVA Regional Natural Heritage database, 200 species listed under the ESA as endangered, threatened, proposed

for listing, or candidates for listing have been reported from within the TVA study area. In addition, about 1,273 individual plant and animal species have been formally listed as protected species by one or more of the states, or otherwise identified as a species of conservation concern. Additionally, critical habitats for 49 federally listed species are located within the study area (USFWS 2024).

Of the nine ecoregions within the TVA Power Service Area, the highest concentrations of terrestrial and aquatic species federally listed under the ESA occur in the Blue Ridge ecoregion (see Figure 3-1). Relatively few listed species occur in the Mississippi Alluvial Plain ecoregion. The taxonomic groups within the Power Service Area with the highest proportion of species listed under the ESA are fish and mollusks. Factors contributing to the high proportions of vulnerable species in these groups include the high number of endemic species within the study area and the alteration of their habitats that increased the risk to these species. River systems with the highest numbers of listed aquatic species include the Tennessee, Cumberland and Coosa rivers (TVA 2015).

Population status trends for federally listed species in the TVA study area are variable (i.e., increasing, stable, or decreasing). For example, populations of a few listed species have increased, primarily because of conservation efforts, to the point where they are no longer listed under the ESA (e.g., bald eagle, peregrine falcon, snail darter, and Tennessee coneflower). Other species have had their listing status downgraded from endangered to threatened (e.g., large-flowered skullcap and small whorled pogonia) due to increased population estimates and habitat protections. Among the federally listed species with populations that continue to decline are the American hart's tongue fern, northern long-eared bat and tricolored bat. The formerly common tricolored bat recently was federally listed as threatened under the ESA due to dramatic population declines caused by white-nose syndrome. This pathogen was first reported in the TVA study area in 2009, and signs of mortality were first observed in 2011 (Samoray 2011). Population trends of many of the other listed species in the TVA study area are poorly understood.

Many species listed under the ESA occur in the immediate vicinity of the TVA transmission system ROW and could potentially be affected by its vegetation management. A summary of federally and state-listed species occurrences within 50 feet of TVA ROW where FY25 and FY26 planned vegetation management is proposed is provided in Table 3-3. A report of these federally and state-listed species occurrences identified from the TVA Regional Natural Heritage database can found in Appendices K (FY25) and L (FY26).

**Table 3-3. Total Number of Federally Listed and State-Protected Species Occurrences Previously Reported from Within 50 feet of TVA ROW Where Vegetation Management is Proposed in Fiscal Years 2025 and 2026[1]**

| TVA Right-of-Way Vegetation Management Sectors | Federally and State-listed Species | | | | |
|---|---|---|---|---|---|
| | Plants | Terrestrial Animals | | | Aquatic Animals |
| | | Bat | Eagle | Other | |
| 2025 | 10 | 10 | 9 | 246 | 25 |
| 2026 | 26 | 26 | 8 | 248 | 20 |

[1] Source: TVA Regional Natural Heritage Database, queried July 2024. Tally includes all federally listed and species tracked by individual states.

The major habitats supporting federally listed species in the TVA study area include free-flowing rivers and streams, caves, limestone cedar glades, high elevation areas, shorelines, and bluff/rock outcrops. TVA has taken multiple actions to minimize the adverse effects of vegetation management on federally listed species (e.g., seasonal restrictions on select activities to avoid impacts to federally listed roosting bats and nesting turtles) (TVA 2011a) and has taken steps to conserve listed species occurring in other habitats (TVA 2015).

### 3.4.3 Affected Environment of Threatened and Endangered Species

#### *3.4.3.1 Plants*

A June 2024 review of the TVA Regional Natural Heritage database indicated that 16 occurrences of 7 federally listed plants and 354 occurrences of 154 state-listed plants are known to occur within 50 feet of ROWs proposed for vegetation management during FY25 and FY26. A complete list of species known to be present within and immediately adjacent to ROWs is found in Appendices K (FY25) and L (FY26). TVA records known locations of these species so vegetation management activities can be planned in a manner to avoid and/or minimize impacts in those areas. There are about 2,500 documented or potential sites for federally or state-listed plant species recorded in the O-SAR database within TVA ROW across the entire TVA Power Service Area. As described in Section 2.2.2, TVA uses this information to assign class rankings to sensitive areas that are used to guide management decisions regarding vegetation maintenance activities in the vicinity of recorded features. The location of all federally and state-listed plant species is recorded in the O-SAR database.

Within the TVA ROW sectors where FY25 and FY26 vegetation management would occur, federally and state-listed plant species are most likely to occur where ROW plots intersect regions that support intact grassland habitat as described in Section 3.1.1.

#### *3.4.3.2 Terrestrial Animals*

Review of the TVA Regional Natural Heritage database in July 2024 indicated there are records of four federally listed (gray bat, northern long-eared bat, Indiana bat, tricolored bat) and nineteen state-listed terrestrial animal species (described below), and one federally protected species (bald eagle) within 50 feet of the ROWs proposed for vegetation management in FY25 or FY26 (see Appendices K and L). Seven additional federally listed species have O-SAR polygons and associated restrictions that apply to ROW segments scheduled for maintenance in FY25 or FY26 (See Table 3-4). Review of the USFWS IPaC database system indicated ten additional federally listed species may be present in the TVA region (spruce-fir moss spider, monarch butterfly, painted snake coiled forest snail, alligator snapping turtle, eastern black rail, piping plover, rufa red knot, whooping crane, and Virginia big-eared bat) (USFWS 2024). Appendices K and L provide a complete list of species known to be present within and immediately adjacent to the TVA transmission system ROWs or that could potentially be affected in FY 25 or FY26, respectively.

**Table 3-4. Federally Listed Terrestrial Animal Species with O-SAR Restrictions Impacting TVA Right-of-Ways Where Vegetation Management is Proposed in FY 2025 and FY 2026[1]**

| Common Name | Scientific Name | Federal Status[2] | Sector[3] |
|---|---|---|---|
| **TERRESTRIAL ANIMALS** | | | |
| Mitchell's Satyr Butterfly | *Neonympha mitchellii mitchellii* | LE | HV, MS, WP |
| Black Warrior Waterdog | *Necturus alabamnesis* | LE | MD, MS |
| Bog Turtle | *Glyptemys muhlenbergii* | SAT | MT |
| Flattened Musk Turtle | *Sternotherus depressus* | LT | MS |
| Ringed Map turtle | *Graptemys oculifera* | LT | WP |
| Red Cockaded Woodpecker | *Picoides borealis* | LE | WP |
| Carolina Northern Flying Squirrel | *Glaucomys sabrinus coloratus* | LE | MT |
| Gray Bat | *Myotis grisescens* | LE | CV, MD |
| Indiana Bat | *Myotis sodalis* | LE | CL, CV, HK, HV, MC, MD, ML, MS, MT, NA, OR |
| Northern Long-eared Bat | *Myotis septentrionalis* | LE | CL, CV, HK, HV, MC, MD, ML, MS, MT, NA, OR |
| Tri-Colored Bat | *Perimyotis subflavus* | PE | HK, MC, MD, MT, OR |

[1] Source: TVA Regional Natural Heritage Database, queried July 2024.
[2] Status Codes: LE = Listed Endangered; LT = Listed Threatened; P = Proposed Endangered; SAT = Similarity of Appearance (Threatened).
[3] ROW Sector Abbreviations: CL = Cleveland, CV = Centerville, HK = Hopkinsville, HV = Hickory Valley, MC = Manchester, MD = Madison, ML = Milan, MS = Muscle Shoals, MT = Morristown, NA = Nashville, OR = Oak Ridge, WP = West Point

TVA records known locations of these species so vegetation management activities can be planned in a manner to avoid and/or minimize impacts in those areas. Each of the federally listed species that could be affected is addressed below in relation to the affected Sector locations. Additionally, descriptions of habitat requirements and potentially affected habitat of each federally and state-listed species can be found in Appendix M and in the PEIS (TVA 2019).

- Monarch butterfly - The USFWS has determined this species could occur within all counties in the project area. Suitable early successional habitat is present in the ROW plots for vegetation management.

- Mitchell's satyr butterfly – There are O-SAR polygons within areas to be maintained within the Hickory Valley, Muscle Shoals and West Point sectors.

- Spruce-fir moss spider - The USFWS has determined this species occurs in counties within the Morristown Sector where vegetation management is proposed.

- Painted snake coiled forest snail - USFWS determined this species occurs in counties where activities are proposed in the Madison and Manchester sectors.

- Black Warrior waterdog – This species is endemic to the Madison and Muscle Shoals sectors. No records are known within 50 feet of TVA ROW in these two sectors, but one O-SAR buffer intersects multiple ROW plots scheduled for vegetation management.

- Flattened musk turtle - This species, endemic to the Madison and Muscle Shoals sectors, has intersecting O-SAR buffers on ROW plots in the Muscle Shoals sector.

- Ringed map turtles - There are O-SAR buffers for this species that intersect ROW plots proposed for maintenance activities in the West Point Sector.

- Alligator snapping turtle - One record of this species is known from within 50 feet of proposed actions in the Nashville Sector. Additionally, the USFWS has determined this species may occur in the same counties as proposed vegetation maintenance in the Centerville, Hickory Valley, Madison, Milan, and Muscle Shoals sectors.

- Bog turtle – The USFWS has determined this species occurs in the same counties as proposed vegetation management in the Cleveland and Morristown sectors and O-SAR buffers in the Morristown sector intersect proposed ROW maintenance areas.

- Bald eagle – Nests from this species have been recorded within 50 feet of proposed actions in the Cleveland, Centerville, Hopkinsville, Hickory Valley, Manchester, Madison, Muscle Shoals, Morristown, Oak Ridge, and West Point sectors.

- Whooping crane - The USFWS determined this species may occur in all sectors except West Point. However, the small number of individuals that migrate through the TVA region on route between Wisconsin and Florida have been designated as an Experimental and Non-Essential population and is therefore not subject to Section 7 consultation under the ESA.

- Red-cockaded woodpecker - No records are known from within 50 feet of proposed ROW sectors. However, USFWS determined this species is present in the West Point Sector. The proposed actions intersect O-SAR buffers for this species.

- Carolina northern flying squirrel - USFWS has determined this species occurs within some counties in the Morristown Sector where vegetation management is proposed and an O-SAR buffer intersects TVA ROW proposed for maintenance.

- Tricolored bat - USFWS has determined that this species may occur within all TVA sectors. The Hopkinsville Sector has known occurrences previously reported from within 50 feet of TVA ROW where vegetation management is proposed in FY25. In FY26, known occurrences previously reported from within 50 feet of TVA ROW occur within the Madison, Manchester, Morristown, and Oak Ridge sectors.

- Virginia big-eared bat - No records are known within 50 feet of the proposed actions. However, the USFWS has determined that this species may occur in the Morristown and Oak Ridge sectors.

- Gray bat - O-SAR buffers exist around known gray bat roosts near proposed actions in the Centerville and Madison Sectors.

- Indiana bat - O-SAR buffers for Indiana bat are distributed across all sectors except West Point.

- Northern long-eared bat – O-SAR buffers for northern long-eared bat are distributed across all sectors except West Point.

#### *3.4.3.3 Aquatic Animals*

TVA's Regional Natural Heritage database indicated seven federally and state-listed aquatic species known to occur within 50 feet of the TVA ROW proposed for vegetation management in both in FY25 and in FY26 (Table 3-5 and Table 3-6). The watersheds of the Tennessee, Cumberland, and Coosa rivers support an unusually diverse group of aquatic animals, but human activities have resulted in adverse impacts to the streams and aquatic organisms therein (Etnier and Starnes 1993). Previous evidence suggests pristine stream habitats in the Tennessee River system had been inhabited by 91 freshwater mussel species (Parmalee and Bogan 1998). Mussels were beginning to be affected by human activities by the mid-1800s, and many freshwater mussels were already extirpated before the Tennessee River impoundments (dams) were constructed (TVA 2011a). The lack of early fish collections does not allow a similar comment about the impact of these activities to Tennessee River fish assemblages, but there likely were species of Tennessee River fish that became extinct before they were known to science (TVA 2011a). Diversity was higher in the study area in the past. However, exceptional species diversity is still observed in fish; mollusks, crayfish, aquatic insects, and various other invertebrate groups.

**Table 3-5. Federally and State-Listed Aquatic Animal Species Known to Occur Within 50 feet of Proposed Vegetation Management in Fiscal Year 2025[1]**

| Common Name | Scientific Name | Federal Status[2] | State | State Status[2] | State Rank[3] |
|---|---|---|---|---|---|
| **CRUSTACEANS** | | | | | |
| Boxclaw Crayfish | *Cambarus distans* | - | GA | - | S1 |
| **FISH** | | | | | |
| Blackside Dace | *Phoxinus cumberlandensis* | T | TN | T | S2 |
| Blue Sucker | *Cycleptus elongatus* | - | TN | T | S2 |
| Egg-mimic Darter | *Etheostoma pseudovulatum* | UR | TN | E | S1 |
| Snail Darter | *Percina tanasi* | DM | TN | T | S2S3 |
| Tangerine Darter | *Percina aurantiaca* | - | TN | D | S3 |
| Tuscumbia Darter | *Etheostoma tuscumbia* | UR | AL | SP | S2 |
| **MUSSELS** | | | | | |
| Coosa Creekshell | *Villosa vanuxemensis umbrans* | UR | GA | - | - |

| Common Name | Scientific Name | Federal Status[2] | State | State Status[2] | State Rank[3] |
|---|---|---|---|---|---|
| Cumberland Elktoe | *Alasmidonta atropurpurea* | E | TN | E | S1S2 |
| Fanshell | *Cyprogenia stegaria* | E, XN | TN | E | S1S1 |
| Fine-lined Pocketbook | *Lampsilis altilis* | T | GA | T | S2 |
| Pink Heelsplitter | *Potamilus alatus* | - | MS | - | S2 |
| Round Pigtoe | *Pleurobema sintoxia* | - | AL | SP | S1 |
| Southern Clubshell | *Pleurobema decisum* | E | GA | E | S1 |
| Southern Pigtoe | *Pleurobema georgianum* | E | GA | E | S1 |
| **SNAILS** | | | | | |
| Anthony's River Snail | *Athearnia anthonyi* | E, XN | AL | SP | S1 |
| Ornate Rocksnail | *Lithasia geniculata* | - | TN | - | S2 |
| Rugose Rocksnail | *Lithasia jayana* | - | TN | - | SX |
| Skirted Hornsnail | *Pleurocera pyrenella* | - | AL | - | S2 |

[1] Source: TVA Regional Natural Heritage database, queried on 06/24/2024
[2] Status Codes: D = Deemed in Need of Management; DM = Delisted but still Monitored; E = Listed Endangered; SP = State Protected; T = Listed Threatened; UR = Under Review for Federal Listing; XN = Experimental Non-Essential Population
[3] State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; SX = Considered Extirpated; S#S# = Range Rank.

**Table 3-6. Federally and State-Listed Aquatic Animal Species Known to Occur Within 50 feet of Proposed Vegetation Management in Fiscal Year 2026[1]**

| Common Name | Scientific Name | Federal Status[2] | State | State Status[2] | State Rank[3] |
|---|---|---|---|---|---|
| **CRUSTACEANS** | | | | | |
| Hiwassee Crayfish | *Cambarus hiwasseensis* | - | NC | WL | S3S4 |
| Nashville Crayfish | *Orconectes shoupi* | E, PDL | TN | E | S1S2 |
| **FISH** | | | | | |
| Alabama Shiner | *Cyprinella callistia* | - | MS | - | S3 |
| Arrow Darter | *Etheostoma sagitta* | - | KY | S | S3 |
| Flame Chub | *Hemitremia flammea* | - | AL | - | S3 |
| Highfin Carpsucker | *Carpiodes velifer* | - | TN | D | S2S3 |
| Piebald Madtom | *Noturus gladiator* | UR | TN | D | S3 |
| Tennessee Dace | *Chrosomus tennesseensis* | - | TN | D | S3 |
| **MUSSELS** | | | | | |
| Alabama Creekmussel | *Strophitus connasaugaensis* | - | GA | E | S1 |
| Fine-lined Pocketbook | *Lampsilis altilis* | T | GA | T | S2 |
| Georgia Pigtoe | *Pleurobema hanleyianum* | E | GA | E | S1 |

| Common Name | Scientific Name | Federal Status[2] | State | State Status[2] | State Rank[3] |
|---|---|---|---|---|---|
| Rayed Kidneyshell | *Ptychobranchus greenii* | E | GA | E | S1 |
| Smooth Rabbitsfoot | *Quadrula cylindrica cylindrica* | T | AL | - | - |
| Southern Clubshell | *Pleurobema decisum* | E | GA | E | S1 |
| Southern Pigtoe | *Pleurobema georgianum* | E | GA | E | S1 |
| **SNAILS** | | | | | |
| Muddy Rocksnail | *Lithasia salebrosa* | - | TN | - | S2 |

[1] Source: TVA Regional Natural Heritage database, queried on 06/24/2024
[2] Status Codes: D = Deemed in Need of Management; E = Listed Endangered; PDL = Petitioned for Delisting; T = Listed Threatened; UR = Under Review for Federal Listing; WL = Watch List
[3] State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure; S#S# = Range Rank.

### 3.4.4 Environmental Consequences for Threatened and Endangered Species

#### *3.4.4.1 Plants*

Localized herbicide application and mowing are the vegetation management tools that would be used most frequently in FY25 and FY26 to clear vegetation on the floor of the open ROW. Other Manual, Mechanical, and Herbicide Application Methods, along with Debris Management and Restoration activities, occur very infrequently or do not have the potential to affect vegetation on a meaningful scale (TVA 2019).

Localized applications of herbicide do result in some level of off-target damage. In situations where the woody stem count is high on a given ROW, even localized application of herbicides can produce substantial damage to non-target species. However, these areas of high woody stem count are unlikely to support rare plants, usually because of site conditions unrelated to TVA vegetation management (i.e. owner land use, soil type, landscape position, etc.). In drier ROW areas with rocky or sandy soils, where woody stem count is inherently lower, localized herbicide application can foster quality herbaceous plant communities as well as federally and state-listed plant species. From an ecological perspective, the disturbance associated with localized application of herbicide on ROW with rare plant species has taken the place of fire and large animal grazing, which would have been the primary mechanisms maintaining grasslands before European settlement of the region. Nearly all these open areas would rapidly transition to forest and most rare plants and communities occurring there would disappear from the landscape without tree removal and localized herbicide use in the ROW.

Mowing removes nearly all woody stems when utilized, but the amount of re-growth can be rapid depending on conditions on the ground, resulting in a proliferation of woody species that form a rapidly growing, low canopy that suppresses rare herbaceous species. Using mowing alone, or as the primary mechanism for vegetation removal on ROW, often reduces species diversity and encourages the dominance of woody plants able to proliferate through root sprouting. Mowing in drier ROW, because of the slower overall tree growth rate can be more effective. Mowing is sometimes used in sensitive areas containing federally or state-listed species if herbicide cannot be applied without harming the population.

Slightly less than 1 percent (about 2,000 acres) of TVA ROW are known to contain populations of rare plant species (TVA 2019). These areas are denoted as Class 2 sites in the O-SAR database. When vegetation management is scheduled to occur in these locations, TVA biologists and Transmission ROW operations staff would work together to ensure the species are protected. Sometimes the proposed work would not affect species of concern. Other times the timing or method of proposed work is changed to protect sensitive resources. The PEIS outlined several examples of how O-SAR is used to avoid negative impacts to rare plants. Methods likely to be used include:

- Timing – Shifting the time frame of vegetation management, including mowing and herbicide application, to avoid impacting a federally or state-listed plant species.

- Flagging – TVA botanists perform field surveys to delineate specific areas where the federally and state-listed species occur on ROW. Instructions on how work should be conducted in these spans would be provided to the herbicide contractor along with maps showing the location of the field flagged sites. Typically, foliar herbicide would not be applied within flagged areas and any woody vegetation within the relatively small areas would be removed with machetes.

- Conservation Spray – This technique differs from standard foliar application of herbicide because of extensive communication between TVA staff and herbicide applicators on the sensitive nature of the site. Direct TVA oversight would occur during application for extra caution and reduced damage to non-target vegetation. While this technique has not been assessed in all situations encountered on ROW, thorough documentation indicated these very targeted, low-volume foliar application of herbicide to woody plants does not appear to negatively impact the federally threatened white fringeless orchid populations on TVA ROW (USFWS 2015).

- Natural Area Cooperation – TVA works with local land managers to coordinate vegetation management within sensitive areas on TVA ROW within natural areas (i.e. National Parks). With this model, professional land management agencies can perform ROW vegetation management within TVA ROW while preventing impacts to the sensitive resources, often federally and state-listed plant species. Agreements with land management agencies are made on a case-by-case basis.

Federally listed species known to occur in and/or adjacent to ROW plots proposed for FY25 and FY26 work include Price's potato bean, Pyne's ground plum, leafy prairie-clover, fleshy-fruit gladecress, Spring Creek bladderpod, white fringeless orchid, and large flowered skullcap. During preparation of the PEIS (TVA 2019), TVA concluded, and the USFWS concurred, that the ROW Vegetation Management program is likely to adversely affect these seven plant species. However, while the program may affect individual plants from time to time, TVA does not anticipate that vegetation management activities would extirpate any populations from the ROW. In fact, conditions found in the ROW where these species occur are favorable for the plants; no suitable off ROW habitat occurs adjacent to white fringeless orchid and fleshy-fruit bladderpod that would intersect planned FY25 and FY26 vegetation management work. The open ROW is necessary for the survival of the species at these sites. Proposed FY25 and FY26 vegetation management would result in insignificant short-term impacts to individual federally and state-listed plants as well as long-term beneficial impacts to populations of those same species.

#### *3.4.4.2 Terrestrial Animals*

The proposed actions could impact all federally and state-listed terrestrial animal species recorded within 50 feet of the Action Alternative study area; however, the severity of those impacts range greatly. Other federally listed species with potential to be impacted have been identified by USFWS's IPaC and TVA's O-SAR system and will also be addressed.

TVA's use of the O-SAR process to identify sensitive areas for federally listed species and modify actions to minimize the potential for impacts (seasonal restrictions, restricted activities), as well as the implementation of standard BMPs, resulted in a may affect, but not likely to adversely affect determination for all federally listed terrestrial animal species (excluding bats, bog turtle, monarch butterfly, and alligator snapping turtle). See the PEIS for additional details (TVA 2019). TVA consulted with the USFWS to assess the impacts of routine activities associated with TVA's transmission system ROW vegetation management program on all species listed under the ESA (other than the bat species addressed in the programmatic consultation) with potential to occur in the study area. This consultation was completed and the USFWS issued a Biological Opinion in May 2019 concurring with TVA's effects determinations (Appendix C).

Spruce fir moss spider populations occur at the highest elevations in the southern Appalachians do not intersect with TVA ROWs. This species would not be impacted by vegetation maintenance.

Habitat for monarch butterflies is abundant in TVA ROWs. The proposed project may impact individual butterflies or caterpillars but would not impact populations of monarch or Mitchell's satyr. Vegetation management is ultimately beneficial to these species because it maintains early successional habitat that is essential to their life cycle. Monarchs were not included in the 2019 consultation (Appendix C) but are currently listed under the ESA as a candidate species and are not subject to Section 7 consultation. Proposed actions are not likely to jeopardize populations of this species.

Mitchell's satyr is protected by TVA BMPs including the use of mats and other techniques used to minimize disturbance to soils and groundwater hydrology within delineated wetlands and buffers. The use of BMPs within and around wetlands in the proposed path of the ROW would allow for maintenance of habitat for Mitchell's satyr in the project area. Consultation with the USFWS determined that the proposed actions may affect but were not likely to adversely affect Mitchell's satyr butterfly (see Appendix C).

Painted snake coiled forest snail are known to exist in the Crow Creek Valley and populations are not close to TVA ROWs, thus no impacts to this species are expected.

Vegetation management would not have significant impacts on populations of acuminate snaketail. In addition to standard BMPs, habitat for this species is protected with the following restrictions: clearing must be performed with hand tools only; chemical usage and activities that can increase siltation in streams or destabilize banks must be avoided.

Duck River cave beetle and *Nesticus barri* cave obligate spider would be protected from impacts to known caves within 200 feet of TVA ROW. Within this buffer, hand clearing or brush hogging would be used, whereas herbicide use, vehicle operation, and cave entrance is prohibited. Given these precautions, neither of these species would be significantly impacted by ROW vegetation management activities.

Streamside salamander habitat is protected by O-SAR buffers within the Nashville and Manchester sectors ROW that are proposed for vegetation management in FY25/FY26. With the following commitments, impacts to individuals may occur, but impacts to populations are unlikely: herbicides - conservation spray only within 90-foot-wide SMZ; mowing would be avoided within the 90-foot-wide SMZ from November to July, or until streams are dry.

Green salamanders, because of their preference for shaded rock outcrops (as opposed to open ROW) and their habitat in rock crevices are unlikely to be impacted by vegetation management activities.

Black Mountain salamander, eastern hellbender and Black Warrior waterdog are exclusively or primarily aquatic species that could be impacted by the proposed actions. However, as described in Section 3.3.2, BMPs would be used along all bodies of water. Any impacts to water quality, including sedimentation, would be minimized with the use of the BMPs. Additionally, only herbicides approved for use near water would be used near these features. As a result, impacts to these species are likely to be negligible. Consultation with the USFWS determined that the proposed actions may affect but were not likely to adversely affect the federally endangered Black Warrior waterdog (see Appendix C).

Northern crawfish frog habitat (often agricultural cropland) would not be targeted for vegetation management due to the lack of woody species. Therefore, the potential for impacts would be limited to the movement of machinery within the ROW to access other areas in need of vegetation management. Northern crawfish frog are not expected to be significantly impacted by the proposed actions.

Southeastern five-lined skink use habitat within the ROW and individuals or nests may be impacted by mowing or crushed by equipment. Loss of these individuals is not expected to cause significant impacts to populations.

The bog turtle is listed as threatened in the northern part of its range but is listed due to similarity of appearance in the southern part of the range, which includes Georgia, North Carolina, South Carolina, Tennessee, and Virginia. It is this southern part of the range that intersects the TVA study area. Species listed due to similarity of appearance are not subject to Section 7 consultation. Southern populations of bog turtle would not be significantly impacted by the proposed actions.

Consultation with the USFWS determined that the proposed actions may affect but were not likely to adversely affect flattened musk turtle and ringed map turtle (see Appendix C). Each of these species has an O-SAR buffer that intersects the proposed vegetation management in FY25/FY26. Additionally, vehicular traffic and laydown areas are seasonally prohibited in potential flattened musk turtle nesting areas from May through September. BMPs must be observed in SMZs to minimize sedimentation and herbicide inputs to streams. With BMPs, impacts to map turtle populations are expected to be negligible.

Alligator snapping turtles are unlikely to be impacted by vegetation maintenance activities. BMPs would be used to avoid impacts to water quality and all activities would occur on land.

Bachman's sparrow could be impacted by proposed vegetation management particularly during nesting season. This species nests on the ground at the base of a small shrub, clump of grass or seedling. While young shrubs and short seedlings would not be the target of vegetation management, larger shrubs and taller seedlings certainly could be. Machinery used in these areas could directly impact nests. However, without vegetation management in these areas the forest would regenerate and become unsuitable for this species. So, while direct negative impacts could occur to this species should maintenance occur during nesting season (when eggs and nestlings are unable to flee), it is precisely the vegetation management proposed that keeps the areas open and available for the species. In addition, such maintenance activities could occur year-round and is only likely to occur every three years. Therefore, actions are not expected to impact populations of Bachman's sparrow.

Fish crows and cerulean warblers nest in mature trees which are not the focus of this action. Individuals would not be impacted unless an active nest was present in a mature tree deemed a risk to the transmission system. In this rare case, failure of isolated nests is not expected to impact the populations of either species.

While breeding has been historically documented through interior portions of the southeastern U.S., eastern black rail is currently thought to breed along the Atlantic, Gulf, and southern California coasts of the U.S., and at scattered interior locations around the Great Lakes and in the drainage area of the Mississippi River and its tributaries. Migrating birds and wintering birds select habitats with the same characteristics as breeding habitats and may pass through the region, but the species would not be impacted by the proposed actions.

Piping plover and rufa red knot breed outside the TVA region and their primary habitat in the region is shorelines and mudflats which would not be included in vegetation management. These species would not be directly impacted by the proposed actions.

Whooping cranes winter in the TVA region, but adults could easily relocate if disturbed by maintenance activities and significant impacts to this species are not expected.

Golden-winged warbler and blue-winged warbler use similar habitat and may nest on or near the ground in the ROW. Both of these species are vulnerable to mowing and equipment operation in the ROW. Nests and immobile young may be lost if vegetation is mowed during nesting season. Without periodic vegetation management, ROWs would become unsuitable for these species due to forest succession. It is unknown whether the benefit of habitat management outweighs the risk of potential impacts to nesting success.

Red-cockaded woodpecker populations are well documented and colonies are marked by buffers in the O-SAR system. Vegetation management activities in FY25 and FY26 would intersect occupied areas (Table 3-4) and this project could impact nests. Clearing of mature hazard trees near known colonies of this species requires prior field survey for woodpeckers and nest cavities.

Carolina northern flying squirrel habitat is delineated in the O-SAR database. Proposed vegetation management activities in FY25/FY26 intersect occupied areas (Table 3-4) and surveys are required if mature trees are to be removed in these areas. With these measures in place, activities are not likely to adversely affect this species.

Meadow jumping mouse individuals are likely to be impacted if they are present in a span of ROW that requires mowing. Without periodic maintenance, ROWs would become unsuitable for these species due to forest succession. Small mammals are frequently prey for other species and loss of individuals would not significantly impact the overall population.

Eastern small-footed bat summer roosts and nursery sites would be sheltered from the impacts of vegetation management. BMPs would be used to prevent impacts to aquatic foraging habitats. Proposed actions are unlikely to impact eastern small-footed bats.

Little brown bat foraging habitat would be protected by BMPs to preserve water quality. This species may be impacted by clearing of trees along the ROW edges if they are roosting in them at the time. Loss of a maternity colony could impact the population of this rare bat.

Pursuant to Section 7(a) (2) of the ESA, TVA entered into consultation with the USFWS in 2014 to programmatically assess the impact of 96 routine TVA actions on the four federally listed bat species known to occur in the TVA study area: Indiana bat, northern long-eared bat, gray bat and Virginia big-eared bat. TVA determined that none of the activities associated with vegetation management have the potential to adversely affect gray bat or Virginia big-eared bat. Vegetation management activities (primarily tree removal) were determined to be likely to adversely affect Indiana bat, northern long-eared bat, and tricolored bat. The USFWS issued a Biological Opinions in April 2018 and May 2023, concurring with TVA's effects determinations and issued an Incidental Take Statement that authorizes TVA's ROW vegetation management practices over a 20-year term. The consultation was updated in May 2023 in response to uplisting of northern long-eared bat from "threatened" to "endangered." Documentation of this consultation including the USFWS Biological Opinions can be found on TVA's Environmental Review website (see TVA 2024a). On June 6, 2024, TVA reinitiated consultation on the programmatic consultation to capture upcoming listing of the tricolored bat. On June 20, 2024, the USFWS accepted TVA's consultation as complete and has begun their review. The anticipated completion date and issuance of an updated Biological Opinion is by October 31, 2024.

#### *3.4.4.3 Aquatic Animals*

On an annual basis, TVA identifies appropriate vegetation control methods, conservation activities, BMPs, and avoidance and minimization measures to guide activities based on the known or likely occurrence of sensitive species or special habitats within TVA ROWs. While some methods of vegetation control could have significant impacts on individuals or populations of federally or state-listed threatened or endangered species (e.g., aerial herbicide application on a known population of federally endangered mussels or spawning habitat of fish), TVA's O-SAR screening process identifies these potential impacts and the appropriate vegetation control methods and restrictions (hand clearing, mechanical clearing or spot application of herbicide, seasonal avoidance) in this instance. Species- and/or group-specific (e.g., SMZs) restrictions and guidance have been developed for all federally listed and most state-listed species in the study area. Therefore, no impacts are anticipated to aquatic animal species from the proposed FY25 and FY26 vegetation management work.

## 3.5 Surface Water

### 3.5.1 Affected Environment

The quality of the region's water is critical to protection of human health and aquatic life. Water resources provide habitat for aquatic life, recreation, domestic and industrial water supplies and other benefits. Major watersheds in the TVA study area (Figure 3-2) include most of the Tennessee River, the Cumberland River basins, portions of the lower Mississippi, Green, Pearl, Tombigbee, and Alabama/Coosa River basins, and a small portion of the lower Ohio River basin.

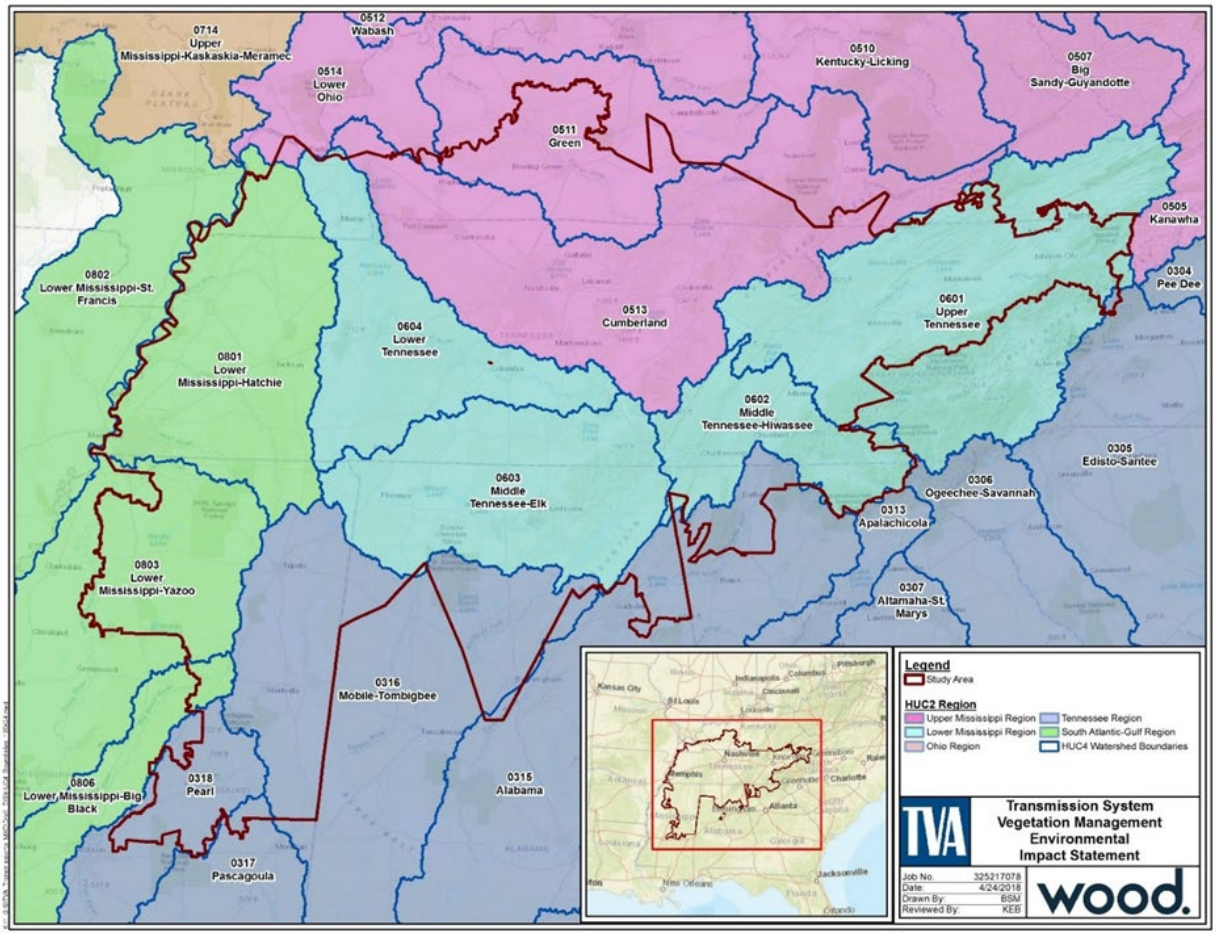



**Figure 3-2. Major Watersheds of the TVA Study Area**

As indicated in Section 3.3, stream habitats in the study area include very large rivers (e.g., Mississippi and lower Tennessee), large rivers (e.g., lower Cumberland and upper Tennessee), medium rivers (e.g., lower Duck and Clinch), small rivers (e.g., Little, Buffalo), and numerous perennial, intermittent, and ephemeral streams. As such, the typical stream makeup of riffles, runs, and pools would be expected to be encountered with width and depth dependent on the size of the water body crossed by the ROW. The Tennessee River basin makes up a large centralized portion of the TVA study area (see Figure 3-2). The Tennessee River begins where the Holston and French Broad Rivers join in Knoxville, Tennessee, 652 river miles from where it empties into the Ohio River near Paducah, Kentucky. The Cumberland River is formed by the junction of the Poor and Clover Forks in

Harlan County, Kentucky, about 693 miles above its confluence with the Ohio River near Smithland, Kentucky. The drainage area of the Cumberland is 17,598 square miles. The lower Mississippi River in the reach that borders west Tennessee is one of the largest rivers in the world. Its drainage basin is 1,247,000 square miles and includes nearly all of the United States between the Rocky Mountains and the Appalachian Mountains. The Green River Basin is located in south central Kentucky and north central Tennessee. The drainage area is 9,273 square miles, of which 377 are in Tennessee.

Fresh water abounds in much of the TVA study area and generally supports most beneficial uses, including fish and aquatic life, public and industrial water supply, waste assimilation, agriculture, and water-contact recreation, such as swimming. Water quality in the TVA region is generally good.

The federal Water Pollution Control Act, commonly known as the CWA, is the primary law that affects water quality. It establishes standards for the quality of surface waters and prohibits the discharge of pollutants from point sources unless a National Pollutant Discharge Elimination (NPDES) permit is obtained. Section 404 of the CWA further prohibits the discharge of dredge and fill material to waters of the United States, which include most wetlands, unless authorized by a permit issued by the U.S. Army Corps of Engineers (USACE).

Several other environmental laws contain provisions aimed at protecting surface water, including the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act and the Federal Insecticide, Fungicide, and Rodenticide Act, among others.

The seven states in the TVA Power Service Area have enacted laws regulating water quality and implementing the CWA. As part of this, the states classify water bodies according to their uses or designations and establish water quality criteria specific to these uses. Each state has issued an anti-degradation statement containing specific conditions for regulated actions and designed to maintain and protect current uses and water quality conditions.

### 3.5.2 Environmental Consequences for Surface Water

The potential for impacts to surface water resources centers on the evaluation of alterations to surface water quality. The clearing of vegetative cover within the study area has the potential to cause minor and temporary effects on surface water quality, regardless of the methods used for clearing (TVA 2019). These alterations could be caused by small increases in sediment laden storm water runoff, small increases in stream temperatures and decreases of dissolved oxygen from the loss of tree cover; the alteration of nutrient levels; small increases of pollutants, such as solid wastes from litter and chemical pollutants from leaking vehicles and heavy equipment; and the minor increase of concentrated storm water flows from reduced vegetation cover. The evaluation of the surface water resources including designated uses and whether they are high quality or impaired (listed on the State 303(d) list) is considered to determine the appropriate control measures. Compliance with all applicable federal, state and local environmental laws and regulations would be followed including State Regulatory Storm Water Construction Permits, USACE 404/401 permitting, and Water Quality Certifications. A State-specific Storm Water BMP Plan, if required, would be drafted and would identify specific BMPs to address vegetation maintenance-related activities that would be adopted to minimize storm water impacts per state guidelines. Appropriate BMPs (TVA 2022b) would be followed, and all proposed project

activities would be conducted in a manner to ensure that waste materials are contained, and the introduction of pollutants to the receiving waters would be minimized.

In addition to the removal of vegetative cover, the use of herbicides for the control of vegetation has the potential to affect the water quality of streams. Therefore, any pesticide/herbicide use as part of vegetation maintenance activities would have to comply with the NPDES General Permit for Application of Pesticides, which also requires a pesticide discharge management plan if certain thresholds are met. In areas requiring chemical treatment, only EPA-registered and TVA approved herbicides would be used in accordance with label directions designed in part to restrict applications near receiving waters and to prevent unacceptable aquatic and water quality impacts. Proper implementation and application of these products would be expected to have no significant impacts to surface waters. No cumulative impacts are anticipated.

## 3.6 Wetlands

### 3.6.1 Affected Environment

Wetlands are those areas inundated or saturated by surface or groundwater such that vegetation adapted to saturated soil conditions are prevalent. Due to their landscape position, vegetation structure, and influence on downstream hydrology, wetlands provide a suite of benefits valued by society. These include toxin absorption and sediment retention for improved water quality, storm water impediment and attenuation for flood control, shoreline buffering for erosion protection, and provision of fish and wildlife habitat for commercial, recreational, and conservation purposes. Examples of wetland habitats would be bottomland forests, swamps, wet meadows, isolated depressions, and shoreline fringe along watercourses or impoundments.

Wetlands in the TVA power service area consist palustrine systems, such as non-tidal or freshwater complexes, dominated by trees, shrubs, and persistent emergent vegetation, and lacustrine wetlands associated with lakes such as aquatic bed wetlands (Cowardin 1979). These wetlands include bottomland hardwood forests (forested wetlands), scrub-shrub wetlands, beaver ponds (aquatic-bed or emergent wetlands), wet meadows and marshes (emergent wetlands), and highland bogs (forested, scrub-shrub, or emergent wetlands that have organic soil). The NWI maps over two million acres of wetland across the TVA region, with 6,751 acres occurring on TVA transmission system ROWs (TVA 2019).

On TVA transmission system ROWs where conductor clearance is necessary, management aims to maintain low-stature wetland vegetation. Therefore, wetland communities on TVA ROWs consist predominantly of emergent (erect, rooted, or floating) wetland plants. These typically include water lilies, cattails, grasses, rushes, bulrushes, sedges, smartweeds, reeds, and other hydrophytic (wet site) species. Emergent wetlands often occur along streams in poorly drained depressions and along the edges of water bodies, and experience varying water depths (EPA 2017a). Perennial plants typically dominate and remain present for most of the growing season, which can lead to a similar appearance of these wetlands year after year in areas with relatively stable climatic conditions (Federal Geographic Data Committee 2013).

Scrub-shrub wetlands contain woody plants less than 20 feet tall. These wetland communities may comprise woody vegetation with a limited growth potential, such as buttonbush or tag alder. Wetlands containing these or similar shrub species represent a relatively stable community and can be typical of shallow embayments or frequently inundated riparian areas. However, scrub-shrub wetlands can represent successional communities comprised of tree saplings (EPA 2017a). These communities develop when saplings invade emergent wetland habitat. However, TVA's ROW vegetation management program aims to deter threatening woody vegetation growth. Therefore, the presence of successional scrub-shrub wetland communities would be lacking on TVA ROWs.

Forested wetlands may persist on TVA ROWs in spanned valleys (deep ravines) or where the maintenance footprint does not extend to the full extent of the ROW. These forested wetland communities are commonly an extenuation of the adjacent maintained emergent wetland habitat within the ROW. They are typically characterized by an overstory of trees with species including red maple, oaks, willows, and cypress; an understory of younger wetland trees or shrubs; and an herbaceous layer comprised of shade tolerant species.

The vegetation maintenance cycles for FY25 and FY26 comprises a total of 159,525 acres of ROW, divided into 12 sectors. To evaluate wetland presence within these ROW sectors, TVA utilizes NWI (USFWS 1977-2017) coupled with an O-SAR review using higher resolution and more current aerial imagery, hydrology data, and soils information to map additional potential wetlands. In addition, the O-SAR dataset references all ground-truthed wetland delineations that have taken place within a ROW. Accordingly, a total of 19,075 acres of potential wetland area have been identified within the ROW sectors proposed for cyclical vegetation management activities. This wetland area represents 12 percent of the total ROW footprint proposed for vegetation management (Table 3-7).

**Table 3-7. Wetland Data within TVA Transmission System Rights-of-Ways Proposed for Vegetation Management in FY25 and FY26**

| ROW Sector | Ecoregion Location* | Total ROW Sector Acres | NWI Acres | O-SAR Acres | Ground Truthed Acres | Total Mapped Wetland Acres | Percent of ROW Sector Mapped Wetland |
|---|---|---|---|---|---|---|---|
| **Centerville** | IP | 13,274 | 112 | 635 | 34 | 781 | 6% |
| **Cleveland** | BR, R&V, SW App | 11,198 | 61 | 677 | 255 | 993 | 9% |
| **Hickory Valley** | MSV LP, SE Plains | 12,623 | 584 | 1071 | 753 | 2408 | 19% |
| **Hopkinsville** | IP, IRV&H, MSV LP | 13,708 | 206 | 949 | 128 | 1283 | 9% |
| **Madison** | IP, R&V SW App | 14,209 | 298 | 1311 | 258 | 1867 | 13% |
| **Manchester** | IP, R&V, SW App | 15,989 | 134 | 879 | 207 | 1220 | 8% |

| ROW Sector | Ecoregion Location* | Total ROW Sector Acres | NWI Acres | O-SAR Acres | Ground Truthed Acres | Total Mapped Wetland Acres | Percent of ROW Sector Mapped Wetland |
|---|---|---|---|---|---|---|---|
| **Milan** | IP,MS AP, MSV LP, SE Plains | 13,668 | 934 | 1207 | 607 | 2748 | 20% |
| **Morristown** | BR,R&V | 12,932 | 43 | 472 | 40 | 555 | 4% |
| **Muscle Shoals** | IP, SE Plains, SW App | 11,370 | 829 | 816 | 306 | 1951 | 17% |
| **Nashville** | IP | 16,027 | 88 | 925 | 47 | 1060 | 7% |
| **Oak Ridge** | IP, R&V, SW App | 12,485 | 55 | 769 | 131 | 955 | 8% |
| **West Point** | SE Plains | 12,042 | 1012 | 1184 | 1058 | 3254 | 27% |
| | **TOTAL** | **159,525** | **4,356** | **10,895** | **3,824** | **19,075** | **12%** |

*Ecoregion Level III (EPA 2017b): BR=Blue Ridge; IP=Interior Plateau; IRV&H=Interior River Valley and Hills; R&V=Ridge and Valley; MS AP=Mississippi Alluvial Plan; MSV LP=Mississippi Valley Loess Plains; SE Plains= Southeast Plains; SW App=Southwestern Appalachians.

The Cleveland and Morristown sectors are located predominantly in east Tennessee, with portions in northeast Georgia, and some ROW area extending into western North Carolina. These sectors total 993 acres and 555 acres of mapped wetland area on the ROW, which represents 9 percent and 4 percent of these sectors' ROW footprint, respectively. East Tennessee, northeast Georgia, and western North Carolina comprise portions of the Southwestern Appalachians, Blue Ridge, and Ridge and Valley ecoregions. The steep topography of the Blue Ridge Mountains is not conducive to wetland development due to the high rate of runoff; therefore, wetlands are relatively smaller in size and generally form along drainages or wherever runoff can otherwise pool for sufficient development of wetland habitat (Weakley and Schafale 1994). The Ridge and Valley region is characterized by gentler topography, with wetland habitat most common in floodplains of stream and river systems in the valley flats; although seepage fens containing rare species are known from this ecoregion as well. Wetlands in the Southwestern Appalachians are located in valley floors where undulating low mountain terrain allows for water retention. Due to the topography of the area crossed by these ROW sectors, wetlands in narrow valley bottoms can be spanned by conductors with structures located on upland rises between drainages. Wetlands in wider valley flats may contain structures to accommodate a longer ROW crossing.

The Oak Ridge, Madison, and Manchester sectors extend from east Tennessee into central Tennessee, south central Kentucky, and north central Alabama. These sectors contain 955 acres, 1,867 acres, and 1,220 acres of mapped wetland area on the ROW, which represents 8 percent, 13 percent and 8 percent of these sectors' ROW footprint, respectively. Central Tennessee, south central Kentucky, and north central Alabama comprise portions of the Southwestern Appalachians, as described above, and the Interior Plateau. The Interior Plateau ecoregion contains the entirely of the Centerville and Nashville ecoregions, as well. These sectors contain 781 acres and 1060 acres of mapped wetland, which represents 6 percent and 7 percent of these sectors' ROW footprint,

respectively. The Interior Plateau is characterized by karst geology underlying lower elevation hills and plains. ROW sectors crossing this ecoregion would encounter wetland habitat formed in sinkhole depressions, limestone seeps, and along river valleys. A portion of the Hopkinsville sector is located across southwest Kentucky and north central Tennessee in the Interior Plateau ecoregion, where similar wetland habitat and occurrence regime would be anticipated. This sector extends into the Mississippi Valley Loess Plains, described below. Hopkinsville sector ROW contains 1,283 mapped potential wetland acres, comprising 9 percent of the ROW area.

The Muscle Shoals Sector is located between northwest Alabama and northeast Mississippi, crossing the Interior Plateau and Southern Appalachians ecoregions, as described above, and extending across the Southeastern Plains. This sector contains 1,951 mapped wetlands acres, comprising 17 percent of this sector's total ROW area. All of the West Point Sector and portions of the Milan and Hickory Valley sectors are located in the Southeastern Plains across Mississippi, west Tennessee, and western Kentucky. Both Milan and Hickory Valley sectors extend into the Mississippi Valley Loess Plains, and Hickory Valley extends further west into the Mississippi Alluvial Plain ecoregion. Mapped potential wetland features comprise 27 percent of West Point Sector, totaling 3,254 acres; 19 percent of Hickory Valley Sector, totaling 2,408 acres; and 20 percent of the Milan Sector, totaling 2,748 acres. The higher percentage of wetland across these sectors is anticipated due to the flatter lands and lower gradient drainage basins typical of these ecoregions. Wetlands encountered in these ROWs would be extensive across wide floodplain wetland complexes typical of these regions.

The mapped wetland location data generated for ROW vegetation management purposes is a guide to use for planning vegetation management activities in wetlands. The data sets capture identifiable potential for wetland occurrence within the ROW sectors proposed for maintenance. However, not all areas identified as wetlands may be in need of maintenance. Wetlands on ROWs may be maintained at low stature through existing land use (farming, pasture) or may be inundated sufficiently to deter sapling establishment. Therefore, the true extent of affected wetlands would be determined on a case-by-case basis by ROW foresters who are informed by these datasets on the locations for potential wetland presence.

### 3.6.2 Environmental Consequences for Wetlands

Activities in wetlands are regulated by state and federal agencies to ensure no more than minimal impacts to the aquatic environment and no net loss of wetland resources. Under CWA §404, activities resulting in the discharge of dredge or fill material in jurisdictional wetlands, and any secondary wetland impacts, such as forested wetland clearing, must be authorized by the USACE through a Nationwide, Regional, or Individual Permit. CWA §401 mandates state water quality certification for projects requiring USACE approval and permitting. Lastly, EO 11990 requires federal agencies such as TVA to minimize wetland destruction, loss, or degradation, and preserve and enhance natural and beneficial wetland values, while carrying out agency responsibilities. Compliance with USACE permitting is required for regulated activities within jurisdictional waters of the U.S., which could include mitigation based on their review of TVA's proposed impacts.

Wetland identification for the purpose of TVA's transmission system ROW vegetation management program is conducted utilizing NWI data and supplemented with an O-SAR review that incorporates higher quality imagery and overlays indicative of wetland presence. The use of office-level materials for wetland identification runs the inherent risk of inaccuracies (Tiner 1997); therefore, limitations of this data must be considered. For example, there may be wetlands present for which no mapped evidence or other data currently exists and are, therefore, undetectable via office-level review. The presence or absence of these wetland resources can only be verified through field surveys to accurately determine the extent and condition. Wetland delineations are not performed for the purpose of planning ROW vegetation maintenance activities; however, some ground surveyed wetland boundaries may be referenced in the O-SAR dataset. Because most of the wetland areas have only been identified through desktop resources, potential impacts due to vegetation maintenance activities may occur at wetlands not previously identified. Therefore, to ensure compliance with wetland regulations, wetland O-SAR data is only applicable to vegetation management activities occurring within the routinely cleared (three-year cycle) ROW corridor and associated access road work resulting in less than 0.1 acre of disturbance.

Impacts over 0.1 acre commonly require agency notification and potential mitigation to ensure no more than minimal impacts to the aquatic environment, in accordance with state and federal wetland regulations. Thus, an environmental review separate from O-SAR is conducted for vegetation management outside of the routinely cleared (three-year cycle) ROW corridor and associated access road work where greater than 0.1 acre of impact is proposed. In addition, as a general practice, vegetation maintenance crews remain alert to wetland "indicators" such as standing water, soil saturation, etc., and work accordingly to protect and identify previously unmapped wetland resources.

Most often, however, vegetation management activities may be conducted with minimal wetland disturbance and without regulated wetland impacts. The proposed methods for vegetation management on the affected ROW sectors include mechanical mowing, hand clearing, herbicide application, and hazard tree removal. The NWI and O-SAR dataset provide a means of implementing avoidance strategies or BMPs when conducting these activities to ensure temporary or nominal impacts in areas identified as potential wetlands.

Mechanical mowing using brush hogs or large mowers may accommodate floor work to maintain a meadow-like habitat. However, access to wetlands with inundated or saturated soils with mechanical equipment is limited due to the unstable substrate. Therefore, mowing in wetlands may only be conducted under dry conditions, such as the dry season during which time soil saturation would be reduced. Under these conditions, mowers and brush hogs may be used to clear briars and/or small saplings within wetlands with minimal impacts. Additionally, it is anticipated that the existing wetland function would not change.

Hand clearing using handheld shears, clippers, brush saws, axes, and chainsaws to sever above ground vegetation of shrubs or saplings would maintain existing wetland function by promoting long-term emergent meadow-like wetland habitat. Manual clearing with hand tools can be used where inundated and saturated wetland soils constrain access precluding the use of other vegetation management strategies. Resprouting of manually cut or pulled woody wetland plants can ultimately lead to increased stem density, especially for invasive species that tend to resprout more aggressively. Seasonal timing of manual clearing and herbicide application to cut stems can help to reduce resprouting (Kays and Canham 1991; Wegner 1953). Therefore, the manual removal method is most effective when conducted during the appropriate season and/or in combination with herbicide.

Herbicide application in wetlands within the ROW sectors would be applied to target woody wetland vegetation of smaller stature to prevent tree growth on the open ROW floor. Therefore, there would not be a reduction or change in the wetland function or value. In combination with mechanical clearing, manual clearing, and reseeding practices, herbicide application can extend the necessary routine vegetation maintenance cycles due to its effectiveness for woody vegetation control. There is potential for this method to affect wetlands not identified during the O-SAR process or apparent to ROW management crews. Spot spray herbicide, localized herbicide, broadcast herbicide, and aerial herbicide application methods may be selected depending on the management needs. Consideration of site-specific characteristics ensures potential herbicide runoff, leaching, or drift is contained when applied in or near a wetland (TVA 2019).

Hazard tree removal in wetlands may be conducted with handheld cutters, as described above, or accomplished with a feller buncher. A feller buncher is a machine that grasps the tree trunk while shearing it near the ground surface, then removing it to a suitable location outside the wetland. Both methods leave the root ball intact and result in minimal soil disturbance if access is conducted using wetland BMPs (TVA 2022b). Because hazard tree removal would only occur along ROW edges, and typically result in the removal of one or few trees in one location, no significant wetland impacts would be anticipated

The following BMPs (TVA 2022b) would be implemented within locations where mapped NWI and O-SAR wetlands are present and vegetation management activities are proposed:

- Work in wetland areas would occur on a dry season schedule (September to mid-November) when practicable.
- Soil ruts would not exceed 12 inches; if necessary, low ground pressure equipment would be used, such as rubberized tracks, wide tires, or lightweight equipment (ATVs) in mapped wetlands to adequately minimize soil rutting/compaction/disturbance.
- Woody wetland vegetation should be cut less than 12 inches from ground level.
- Woody debris would be removed outside identified wetland areas.
- Stumps would be left intact; no grubbing.
- Only aquatic approved herbicides would be permissible.
- Water flow into or out of mapped wetlands would not be restricted during work activities.
- Erosion control techniques would be implemented within 50 feet of identified wetland areas where soil disturbance is proposed.
- Existing contours within wetlands would be restored to preconstruction specifications.
- Disturbed and exposed wetland soils would be seeded upon completion of work (or within 14 days, whichever comes first).

The wetland review process provides locations for potential and known wetland locations across TVA's ROWs proposed for vegetation management. This represents a total of 19,075 acres, or 12 percent of the total ROW footprint proposed for vegetation management in FY25 and FY26. ROW crews would consult the wetland dataset and

ensure wetland best management practices are followed at mapped wetland locations. The use of the wetland data, however, is restricted to specific actions or thresholds. If the proposed vegetation management activity exceeds the impact acreage threshold or involves otherwise regulated activities, a wetland delineation would be conducted to ensure appropriate wetland compliance is achieved. Therefore, with the wetland datasets used as a tool in vegetation management planning, use of those dataset subscribed to, and wetland delineations conducted for compliance purposes otherwise, the proposed ROW sector vegetation management activities are anticipated to have no significant wetland impacts.

## 3.7 Managed and Natural Areas, Parks and Recreation

### 3.7.1 Affected Environment

Numerous areas across the TVA region are recognized and, in many cases, managed for their recreational, biological, historic and scenic resources. These areas are owned by 1) federal and state agencies 2) local governments 3) non-governmental organizations such as the Nature Conservancy 4) regional land trusts and private corporations and 5) private individuals.

Parks, managed areas and ecologically significant sites are typically managed for one or more of the following objectives:

- Recreation - managed for outdoor recreation or open space. Examples include national, state and local parks and recreation areas, reservoirs (TVA and other), picnic and camping areas; trails and greenways, and TVA small wild areas.

- Species/Habitat Protection - places with endangered or threatened plants or animals, unique natural habitats, or habitats for valued fish or wildlife populations. Examples include national and state wildlife refuges, mussel sanctuaries, TVA habitat protection areas and nature preserves.

- Resource Production/Harvest - lands managed for production of forest products, hunting and fishing. Examples include national and state forests, state game lands and wildlife management areas and national and state fish hatcheries.

- Scientific/Educational Resources - lands protected for scientific research and education. Examples include biosphere reserves, research natural areas, environmental education areas, TVA ecological study areas and federal research parks.

- Historic Resources - lands with significant historic resources. Examples include national battlefields and military parks, state historic sites and state archeological areas.

- Scenic Resources - areas with exceptional scenic qualities or views. Examples include national and state scenic trails, scenic areas, wild and scenic rivers, Nationwide Rivers Inventory streams and wilderness areas.

- Agricultural Resources - lands with significant local agricultural production and open space value, often in areas where suburban development is increasing. Examples include working family farms protected by conservation easements

The TVA Regional Natural Heritage database indicated the twelve ROW vegetation management Sectors include numerous parks, managed areas and ecologically significant sites. In general, natural areas are more concentrated in the eastern portion of the TVA region. The July 2024 database analysis found a total of 569 natural areas in FY25 and 599 natural areas in FY26 would either be crossed by TVA transmission system ROWs or located within 0.1 mile of the ROWs proposed for the vegetation management activities (Table 3-8).

**Table 3-8. The Number of Natural Areas Located within each Sector Planned for Vegetation Management Activities in Fiscal Years 2025 and 2026**

| Sector | Number of Natural Areas | |
|---|---|---|
| | FY25 | FY26 |
| Cleveland | 69 | 59 |
| Centerville | 31 | 42 |
| Hickory Valley | 28 | 23 |
| Hopkinsville | 39 | 49 |
| Madison | 58 | 52 |
| Manchester | 77 | 89 |
| Milan | 26 | 24 |
| Morristown | 61 | 60 |
| Muscle Shoals | 37 | 36 |
| Nashville | 59 | 68 |
| Oak Ridge | 67 | 65 |
| West Point | 17 | 32 |
| **TOTAL** | **569** | **599** |

Appendix N includes a complete list of natural areas by Sector for FY25. Appendix O includes a complete list of natural areas by Sector for FY26. Areas crossed by TVA transmission system ROW include NPS units, USFS areas, National Wildlife Refuges, and numerous state wildlife management areas, state parks, state forests, local parks, and conservation easements.

### 3.7.2 Environmental Consequences for Natural Areas

TVA maintains natural areas data in the TVA Regional Natural Heritage database. This data includes the type, location, management entity, and contact information for each site, and may include pertinent rare species and habitat information. TVA's O-SAR process uses this information, in conjunction with the transmission system ROW clearing spatial data, to develop site-specific guidance for each natural area that is to be used during scheduled ROW maintenance each year.

Mitigation measures to minimize impacts to managed and natural areas, parks, and recreation include:

- Follow procedures outlined in TVA's *A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Construction and Maintenance Activities Revision 4-2022* (TVA 2022b).

- Contact the appropriate land manager before implementing vegetation maintenance activities to coordinate timing of the ROW maintenance such to minimize impacts to visitors, park operations, scheduled hunting, etc.

- Seek opportunities to partner with natural area managers to plan and conduct vegetation management that would meet multiple natural resource management objectives.

- Where available, utilize existing site-specific vegetation management plans for ROWs that cross managed lands.

Prior to implementing the planned FY25 and FY26 ROW vegetation management activities, ROW crews review the natural areas O-SAR dataset and ensure standard BMPs are followed within all natural areas. Where indicated, the crew would consult with natural areas land managers, and coordinate activities as warranted. Utilizing the mitigation measures listed above, no significant impacts to natural areas are associated with the FY25 and FY26 vegetation management activities.

## 3.8 Archaeological and Historic Resources

### 3.8.1 Affected Environment

#### *3.8.1.1 Regulatory Framework*

Federal agencies, including TVA, are required by the NHPA (16 USC 470) and by NEPA to consider the possible effects of their undertakings on historic properties. Additional cultural resource laws that protect historic resources include the Archaeological and Historic Preservation Act (16 USC 469-469c), Archaeological Resources Protection Act (16 USC 470aa-470mm) and the Native American Graves Protection and Repatriation Act 925 USC 3001-3013).

TVA executed a PA with the Advisory Council on Historic Preservation, seven SHPOs and all federally recognized Indian tribes with an interest in the region. The PA establishes a program alternative for compliance with Section 106 of the NHPA that would allow compliance to be achieved more efficiently through consultation at the programmatic level. The PA set forth procedures and criteria for an alternative process for all existing TVA operation and maintenance activities that are similar and repetitive in nature. The majority of the activities associated with ROW vegetation management are covered within this PA.

#### *3.8.1.2 Archaeological Resources*

3.8.1.2.1 Background

The history of human activity throughout the study area spans thousands of years. The earliest groups to leave a definitive material record of their presence were early Paleoindians who entered the region during the Late Pleistocene glacial epoch at least 12,000 years ago. Their descendants and the descendants of other Native American groups who migrated to the area occupied the region for the next 11 millennia. This long prehistoric era lasted until the arrival of Europeans explorers in the sixteenth and seventeenth centuries. Cultural change is a slow and continual process. Archaeological researchers divide the prehistoric human history of the study area into six distinct cultural periods; Paleoindian (10,000-8000 B.C.), Archaic (8000-1000 B.C.), Gulf Formational/Early Woodland (1000-100 B.C.), Middle-Late Woodland (100 B.C.-A.D. 900), Mississippian (A.D. 900-1540), and Contact/Protohistoric period (A.D. 1540-1672) (Anderson and Sullivan 2013; Hudson 2002). The modern historic era includes activities taking place from the eighteenth, nineteenth, and early twentieth centuries.

The Paleoindian period is characterized by small nomadic groups who exploited a variety of resources across the landscape including the hunting of now extinct mega-fauna. Artifacts attributed to this period often include large fluted stone projectiles of the Clovis tradition. The Archaic period spans approximately seven millennia in which many cultural changes occurred. The early part of the Archaic period was much like that of the Paleoindian; mobile groups exploiting an increasing number of new environmental niches as the climate began to warm at the end of the ice age. Then the archaeological record became more diverse. Lithic projectile point forms recovered include those of the Eva, Morrow Mountain, White Springs, and Benton clusters (Justice 1987). Groundstone tools became more complex with the development of grooved axes, bannerstones and netsinkers during the Middle Archaic period. The first evidence of the spear thrower also appeared in the form of atlatl weights (Sassaman 1996). Deep storage pits, post molds (structures), and burials as well as evidence of the collection of arboreal nut crops and other cultigens, such as hickory nuts and wild plant remains such as goosefoot, maygrass, and knotweed are present at later Archaic sites (Gremillion 1996).

A main attribute that separates the Gulf Formational/Early Woodland period from the Archaic is the introduction of ceramics or pottery. The first pottery appeared in the western portion of the Middle Tennessee Valley between 1,000 and 800 B.C. largely in the form of undecorated fiber- and sand-tempered wares. Smaller lanceolate shaped, notched, and stemmed projectile of the Adena Stemmed, Gary Contracting Stemmed, Motley, and Wade types have been recovered from Early and Middle Woodland period sites (Justice 1987). Later Woodland period sites include undecorated and decorated chert-, quartz-, and more prominently grog- and limestone-tempered pottery (Faulkner 2002). More complex varieties of structural and storage features indicating increased emphasis on horticulture of native plants and sedentary lifeways also are evident at later Woodland sites. Small triangular Hamilton and small notched projectile types occur and mark the introduction of bow and arrow technology, a key cultural marker throughout the Tennessee Valley.

The Mississippian period throughout the TVA study area was dominated by chiefdom level societies, which influenced the surrounding tribal groups, arguably the most radical shift in social organization in the prehistoric era (Harle et al. 2013). Elaborate mortuary practices involving burial pits, mounds, and more extravagant grave goods evolved during this time. Large, planned villages are often fortified. The villages contain extensive midden deposits and a high density of features. Rectangular, wall trenched dwellings with raised clay fire basins are also evident. In addition, many inhabitants were dispersed into farming hamlets throughout the landscape.

The beginning of the Contact/Protohistoric period in the Southeast is commonly marked by the de Soto expeditions deep into interior portions of the Southeast (A.D.1544-1543). From the period of initial European contact to the Historic period, the archaeological and ethnohistoric record indicates a steady decline of the Native American population and extensive movement of many tribes. Introduced disease, especially smallpox, may have been a major catalyst for this decline (Smith 2002). The Mississippian pattern of large towns surrounded by smaller hamlets continued to operate in some areas even during the latter part of the Protohistoric when there were influxes of Native Americans from outside groups who were displaced by Euroamerican encroachment (Davis 1990). Eventually, these villages declined in number, population, and overall size and were ultimately abandoned.

European influx only increased throughout the eighteenth century, and following the Revolutionary War, settlement further west beyond the Appalachian Mountains began in earnest. This resulted in the forced cessation of Native American lands throughout the Tennessee River Valley, including those belonging to the Chickasaw, Choctaw, Muscogee-Creek, Seminole, and Cherokee to name a few. In 1830, Congress passed the Indian Removal Act resulting in the forced removal of tens of thousands of Native Americans westward, known as the 'Trail of Tears' or Indian Removal. Over 20 federally recognized Indian tribes traces their descendants back to the Tennessee Valley. These tribes include: Absentee Shawnee Tribe of Indians of Oklahoma, Alabama-Coushatta Tribe of Texas, Alabama-Quassarte Tribal Town, Cherokee Nation, The Chickasaw Nation, The Choctaw Nation of Oklahoma, Coushatta Tribe of Louisiana, Delaware Nation, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Jena Band of Choctaw Indians, Kialegee Tribal Town, Mississippi Band of Choctaw Indians, The Muscogee (Creek) Nation, Osage Nation, Poarch Band of Creek Indians, The Quapaw Tribe of Indians, The Seminole Nation of Oklahoma, Shawnee Tribe, Thlopthlocco Tribal Town, and United Keetoowah Band of Cherokee Indians in Oklahoma.

The American Industrial Revolution occurred within subsequent decades, resulting in marked growth of urban centers, large plantations, and smaller subsistence farming homesteads throughout the study area. The construction of railroads furthered the growth of industry in the Valley. The Civil War played a significant role in the development of the region. The Reconstruction Era of the late nineteenth century and the influx of European immigrants during the turn of the nineteenth and early twentieth century also had a major impact to settlement and the economy of the Valley.

Archaeological investigations in the study area began in the early 19th century with the explorations of Cyrus Thomas, C.B. Moore, and the Smithsonian Institute. These early investigations focused on larger sites such as mound complexes. The earliest TVA related archaeological surveys occurred in the 1930s and 1940s, prior to inundation of Norris, Wheeler, Guntersville, Chickamauga, Douglas, Pickwick, and Kentucky Reservoirs among others (Webb 1939; Lewis and Kneberg 1995). These surveys, staffed by New Deal public works programs, were opportunistic in nature focusing on the excavation of large village sites. Following the passage of the NHPA in 1966 TVA has implemented numerous archaeological investigations throughout the study area as they consider effects to cultural resources by their undertakings in compliance with Sections 106 and 110.

Only portions of the ROWs subject to this EA have undergone systematic Phase I archaeological surveys since the mid-1990s in association with compliance with Section 106. Much of the survey work was conducted at the planning stages and prior to new construction of transmission lines. As a result, numerous archaeological sites within the ROWs have been identified and evaluated with respect to their eligibility status for listing on the National Register of Historic Places (NRHP).

#### 3.8.1.2.2 Archaeological Sites

Prehistoric Archaeological sites located within the TVA study area can take many forms. These can range from low-density lithic artifact scatter to extensive and complex village sites. Prehistoric sites are most often discovered within sub-surface deposits or below ground. Near surface deposits have often been previously disturbed by historic plowing activities, but intact cultural deposits can occur below what is termed the 'plowzone.' Earlier prehistoric sites, namely Paleoindian and earlier Archaic sites, are less common and are characterized by low density lithic artifact scatters across a variety of topographical settings;

both upland and along lower elevated landforms along river drainages. In general, Middle and Late Archaic sites are more numerous across the study area landscape. Later Woodland and Mississippian period as well as Protohistoric sites are common along terrace sequences of major rivers, including the Tennessee River. These sites can represent long-term villages and contain rich archaeological deposits. Lithic resource procurement sites are also prehistoric archaeological sites types that can occur within the study area.

Historic era archaeological sites throughout the study area are predominately associated with industrial, military, and domestic activities dating to the late eighteenth, nineteenth, and early twentieth centuries. Historic sites often contain both above- and below-ground cultural remains. Above-ground remains can be represented by structural remnants, wells and cisterns, and chimney remains mainly for industrial and domestic sites and various earthwork forms associated with Civil War military sites. Below-ground deposits can be represented by structure floors and layouts, storage cellars, and privies. Examples of industrial sites within the study area can include anything business related including mill complexes, iron furnaces, plantation operations, blacksmith shops, and taverns to name a few. Worker camp complexes can also occur within the study area. These can be associated with mill operations as well as early twentieth century TVA dam construction. Civil War military historic sites involve different types of sites, including battlefields, training camps, bivouacs (encampments), earthen fortifications, masonry fortifications, and other strictly military features on the landscape. Domestic sites are the most prevalent historic site within the study area. These sites are dotted across the landscape and can occur as small communities or individual farmstead complexes. Associated out buildings can also occur. In addition, historic cemeteries have been located within transmission line corridors and can represent themselves by single or multiple grave markers that may or may not be fenced off and maintained. In many cases, only a few grave markers remain, but depressions representing unmarked graves may be present.

The study area represents a diverse cultural landscape that held special meaning to its past inhabitants and to their descendants. Some of these places can be considered Traditional Cultural Properties (TCP). A TCP is defined as a property that is eligible for inclusion on the NRHP because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (Parker and King 1998). Similarly, a cultural landscape is defined as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values" (Birnbaum 1996). It should be noted that TVA does not disclose to the public any sensitive information regarding the location or other information such as sacred sites or TCPs identified by consulting tribes. Some examples of TCPs within the study area include segments of the Trail of Tears. The Congressionally designated Trail of Tears National Historic Trail is a prominent cultural resource within the study area. The Trail of Tears consisted of many routes and sub-routes that involved the removal of Native Americans from their ancestral homelands. Analysis indicated there are approximately 435 incidences where the Trail of Tears crosses TVA’s transmission lines within the ROWs planned for vegetation management. The majority of these crossings are where Trail of Tear/Removal Routes are part of existing improved roads, which follows the historic alignment.

### 3.8.2 Environmental Consequences for Archaeological and Historic Resources

As described above a range of cultural resources have the potential to be present within the transmission system ROWs proposed for maintenance in FY25 and FY26, including prehistoric Native American archaeological sites, historic era archaeological sites, and TCPs including Trail of Tears segments. The majority of vegetation management activities within the ROW have little to no potential to affect cultural resources. Activities with the potential to cause soil disturbance can disturb sub-surface cultural deposits related to both prehistoric and historic era archaeological sites. However, this potential effect would be low as activities are focused on maintaining vegetation within an established transmission system ROW. The use of spot or localized herbicides as a method to control vegetation within the study area, would not adversely affect cultural resources. However, broadcast and aerial spray, which is rarely used, have the potential to affect culturally significant and traditionally used native plants should they be present. Methods involving manual vegetation activities include the use of hand tools for either pulling or cutting vegetation and have a low potential for disturbance of subsurface cultural resources given that vegetation would be cut and not actually removed from the soil. The use of machinery within the transmission system ROW has the potential to disturb sensitive above-ground historic resources, if present.

TVA executed a PA in consultation with the Advisory Council on Historic Preservation, seven SHPOs, and all federally recognized Indian tribes with an interest in the region. The purpose of the PA is to establish a program alternative for compliance with Section 106 of the NHPA that would allow compliance to be achieved more efficiently through consultation at the programmatic level. The PA set forth procedures and criteria for an alternative process for all existing TVA operation and maintenance activities that are similar and repetitive in nature. The majority of the activities associated with ROW vegetation management are covered within the PA.

TVA executed a PA with the seven state SHPOs and all federally recognized Indian tribes with an interest in the region. TVA released the PA for public comment in December 2018. The PA covers the majority of TVA vegetation management activities that are subject to the PEIS (TVA 2019), categorizing them in the PA into Appendix A and B activities. Appendix A activities are those activities that have been determined through the PA consultation process as being unlikely to affect historic properties and are therefore excluded from further Section 106 review. Appendix A activities include the "*use of herbicides (except for aerial applications), brush hog, mulcher, mower, and other light-duty equipment to control vegetation and establish or maintain ROW width that involve no new ground disturbance, with the exception of activities occurring within cemeteries or other previously flagged sensitive archaeological sites*." Archaeologically sensitive areas (including known Trail of Tear/Removal routes with the potential for intact deposits) and cemeteries would be restricted to hand clearing only and no mechanized equipment would be allowed within the boundaries. If such activities are proposed that fall outside of those described in the PA's Appendix A then TVA would follow the Section 106 process as set forth by the PA for those portions of the transmission system ROW.

## 3.9 Summary of Method Impacts and Mitigation Measures

As described in each of the preceding sections, and in TVA's PEIS (TVA 2019) which is incorporated by reference, each aspect of TVA's vegetation management program (vegetation control, debris management, restoration) varies with respect to their impact to environmental resources. A summary of impacts associated with each of the vegetation methods is provided in Appendix J.

TVA employs standard practices when constructing, operating, and maintaining transmission lines, structures, and the associated ROW and access roads. These "Related Guidelines and Specifications" are found on TVA's Transmission website (TVA 2024b). Some of the more specific routine measures applied to reduce the potential for adverse environmental effects during the proposed ROW vegetation management are as follows:

- O-SAR Process
- To minimize the introduction and spread of invasive species in the ROW, access roads and adjacent areas, TVA would follow standard operating procedures consistent with EO 13112 (Invasive Species) for revegetating with noninvasive plant species (TVA 2022b).
- Only EPA-registered and TVA approved herbicides determined to be safe for use near aquatic environments would be used in accordance with label directions.

The following O-SAR buffers would be applied near sensitive wildlife resources associated with the FY25 and FY26 vegetation management actions:

- Cave - 200 feet - No herbicide use within 200 feet of cave due to potentially sensitive subterranean aquatic resource. Hand clearing or small machinery clearing only (i.e.: chainsaws, brush hog, mowers). Vehicles and equipment confined to existing access roads. Avoid entering cave.
- Osprey nest - 660 feet - Either 1) Assume presence. No broadcast spraying. Only use brush hogs or mowers for vegetation removal or selective herbicide spraying between March 1 and July 31 within 660 feet of nest site; OR 2) Request seasonal field survey to determine if nest is active.
- Heronry - 660 feet - Either 1) Assume presence. No broadcast spraying. Only use brush hogs or mowers for vegetation removal or selective herbicide spraying between February 1 and July 15 within 660 feet of nest site; OR 2) Request seasonal field survey to determine if nests are active.
- Bald Eagle nest - 660 feet - Either 1) Assume presence. No disturbance, spraying, or vegetation clearing would occur between December 1 and July 1 within 660 feet of nest site; OR 2) Request seasonal field survey to determine if nest is active.
- In rare instances in which restricted actions need to take place while osprey or heron nests are active, TVA would coordinate with USDA-WS to ensure any actions comply with the conditions specified under USDA's "Take" permit.

Wetland BMPs (TVA 2022b) would be implemented within locations where mapped NWI and O-SAR wetlands are present and vegetation management activities are necessary:

- Work in wetland areas would occur on a dry season schedule (September to mid-November) when practicable.
- Soils ruts would not exceed 12 inches; if necessary, low ground pressure equipment would be used, such as rubberized tracks, wide tires, or lightweight ATVs in mapped wetlands to adequately minimize soil rutting/compaction/disturbance.
- Woody wetland vegetation should be cut less than 12 inches from ground level.
- Woody debris would be removed outside identified wetland area.

- Stumps would be left intact, no grubbing.
- Water flow into or out of mapped wetlands would not be restricted during work activities.
- Erosion control techniques would be implemented within 50 feet of identified wetland areas where soil disturbance is proposed.
- Existing contours within wetlands would be restored to preconstruction specifications.
- Disturbed and exposed wetland soils would be seeded upon completion of work (or within 14 days, whichever comes first).

Natural Areas mitigation measures to minimize impacts to include:

- The appropriate land manager would be contacted before implementing vegetation maintenance activities to coordinate timing of the ROW maintenance such to minimize impacts to visitors, park operations, scheduled hunting, etc.
- Opportunities would be sought to partner with natural area managers to plan and conduct vegetation management that would meet multiple natural resource management objectives.
- Where available, existing site-specific vegetation management plans would be utilized for ROWs that cross managed lands.

Archaeologically sensitive areas (including known trail of tear routes with the potential for intact deposits) and cemeteries would be restricted to hand-clearing only and no mechanized equipment would be allowed within the boundaries. If such activities are proposed that fall outside of those described in the PA's Appendix A, then TVA would follow the Section 106 process as set forth by the PA for those portions of the transmission system ROW.

## 3.10 Environmental Consequences Summary of the Proposed Vegetation Management Alternative

Under both the No Action Alternative and the Action Alternative there would be no change to the current process authorized by the *Sherwood* injunction by which TVA manages vegetation along the transmission system ROW.

Under the Action Alternative, TVA would manage vegetation along ROWs with an IVM approach to promote the establishment of a low-growing herbaceous plant community (end-state) that is compatible with the safe and reliable operation of the transmission system. Routine vegetation maintenance would include identification and removal of vegetation within the ROW that is incompatible with TVA's desired end-state condition (herbaceous). Floor work planned for FY25 and FY26 within the twelve Sectors in the TVA Power Service Area would result in plant communities of variable composition that are managed in a low height existing condition. TVA would also use an approach that is condition based for identification and removal of trees deemed as hazardous that would use LiDAR and other assessment techniques. Due to the 2017 *Sherwood v. TVA* litigation, TVA stopped removing woody vegetation in ROWs (except for trees identified as an immediate hazard). As a result, the existing ROW continued to contain vegetation incompatible with TVA's

transmission system. The volume of non-compatible woody vegetation is also increasing in previously cleared ROWs due to compliance with the court injunction order.

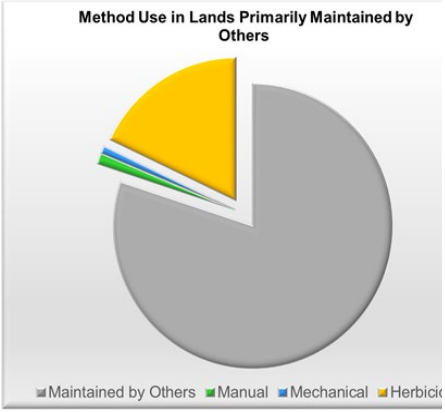
As part of this alternative, TVA must leave existing trees in the maintained area of the ROW so long as they do not pose an immediate hazard to the transmission lines or structures. TVA may remove or trim any trees in the maintained area of the ROW, or in the non-maintained areas of the ROW, or any danger tree outside the ROW, in accordance with its contract rights, that it deems to present an immediate hazard to the transmission system. No removal of woody vegetation or trees that either remained or have redeveloped within the ROW since the initial construction period would be conducted.

As a result of the regular cycle of floor work, vegetation would be controlled using a range of techniques. Plant communities within the ROW would be maintained in the existing condition and the larger expanses of lands that may be subject to vegetation removal would remain forested. Woody vegetation would establish within the existing maintained ROW by either sprouting from existing root stocks or by germination and growth of propagules that are dispersed to the corridor from seed sources. Because TVA utilizes an IVM approach to manage vegetation on a site-specific basis, some localized impacts may be expected to result from the selection and application of methods of each tool as described for each of the resources described in the preceding sections. However, impacts of this alternative within a broader context (sector or study area) can be evaluated in consideration of:

- The frequency and context of tool application.
- TVA's O-SAR methodology (see Section 2.2.2 and Appendix I) for identification of sensitive resources that represent a BMP-approach to guiding vegetation management methods and minimizing environmental impacts.
- PAs and related agreements with other agencies including USFWS, USFS, NPS, SHPOs and tribes.
- Long-term cost effectiveness.
- Effect on system reliability and safety.
- Assessment approach.

Within lands actively managed and maintained by TVA, herbicide methods would be the primary tools used to maintain the floor in its existing condition. In general, vegetation within ROWs would be controlled using a mix of approximately 90 percent herbicide, 6 percent mechanical and 4 percent manual methods. The resulting end-state consisting of a mix of herbaceous and low-growing shrub species is more compatible and expected to provide improved habitat value that over time is expected to minimize intensity of floor work. For large public lands (NPS, USFS, etc.) methods would be subject to the terms of any special agreements and authorizations with each agency. Tree removal would be the focus of vegetation management within ROW where such trees present an immediate hazard to the transmission system. Mechanical and manual methods would be used as the primary tools for controlling or removing such incompatible woody vegetation including trees in the maintained area or in the non-maintained areas of the ROW, or any danger tree that is outside the ROW.

Within lands primarily maintained by others but managed by TVA, it is expected that the approximately 80 percent of floor and buffer areas would be maintained by others using mechanical or manual methods. TVA would perform limited treatments of fence rows, towers, and other areas using primarily herbicide techniques. Additionally, TVA would use mechanical and manual methods as the primary tools for controlling or removing incompatible woody vegetation including trees in the maintained area or in the non-maintained areas of ROW, or any danger tree outside the ROW.




**Method Use in Lands Primarily Maintained by Others**

As such, direct impacts to herbaceous plant communities' vegetation with this alternative would continue to exert a recurring impact on plants within the ROW. Such effects would include crushing, damaging, accidental treatment or removal of both target and non-target vegetation. However, because this is part of an existing management program it would not result in in widespread alteration of the overall plant community. Therefore, overall impacts to vegetation are considered to be moderate as the routine maintenance of vegetation would periodically impact plant communities across the broader transmission system, but they would not destabilize the general plant communities of the study area.

As described in the PEIS (TVA 2019), other potential natural resource impacts of this disturbance within the ROW include the following:

- Limited disturbance and erosion of soils resulting from vegetation removal, traffic of maintenance equipment, and localized manual clearing activities.
- Potential for small, localized and short-term alteration of water quality from runoff including residual herbicides and sedimentation through erosion from disturbed surfaces are mitigated by use of O-SAR process and adherence to BMPs.
- Potential for small, localized and short-term effects on aquatic biota are minimized by use of the O-SAR process and adherence to BMPs.
- Potential removal of bat roost trees.
- Potential inadvertent spraying or damage to listed or sensitive plant species and communities.
- Potential for recruitment of sensitive herbaceous plant species within suitable areas of the ROW
- Potential for increased habitat and support for pollinator species.
- Disturbance and displacement of wildlife (disturbance or removal of habitats).
- Relatively increased long-term habitat quality associated with ROW floor end-state.
- Potential for generation of woody debris that may impede or alter flood flows.

- Potential for reduced frequency of vegetative controls in localized areas of the ROW that are established by inherently more compatible herbaceous and shrub communities.

However, sound planning and the incorporation of TVA's O-SAR process as a BMP measure and the incorporation of other established TVA ROW vegetation management BMPs (TVA 2022b) and established transmission-related environmental protection practices (Appendix H) would minimize the effects to sensitive resources (Appendices K and L) from this alternative. Each of the above effects would be localized and short-term disturbances that are not expected to result in notable or destabilizing effects on any of the above resources. As such, impacts from this alternative on the natural environment are minor.

Impacts on factors related to the human environment (land use, socioeconomics, air, noise, cultural resources, solid/hazardous waste, public and worker safety, etc.) and landowners/managers (residential, recreational, agricultural, commercial, industrial, NPS, USFS, city, county, and state) specific to this vegetation management approach would occur as a result of the repetitive and intensive maintenance disturbance on the ROW. Periodic recurring vegetation control of the floor would be conducted in conjunction with other vegetation management actions within Buffer Zones and along the edges of the ROW where danger trees may represent a risk to reliability and safety. The potential impacts of this repeated disturbance within the ROW to elements of the human environment include the following:

- Periodic presence of work crews on private and public lands within project areas.
- Transient movement of equipment and work crews on the associated roadway network.
- Localized air, greenhouse gas and noise emissions from operated equipment.
- Visual intrusion of workers and equipment.
- Disturbance of cultural resource sites.
- Periodic intrusions into the immediate viewshed of sacred sites.
- Management of debris.
- Need for access and local coordination efforts with affected landowners.
- Exposure of the public and workers to herbicides and other safety hazards.

Each of the above effects would be localized and short-term and are not expected to result in notable or destabilizing effects on any of the above resources. Additionally, impacts to cultural, historic and TCPs would be minimized by sound planning and the incorporation of mitigation measures such as TVA ROW vegetation management BMPs (TVA 2022b) and the executed Section 106 PA (Appendix D). They also may be minimized by adhering to any conditions or program alternative established in the Section 106 process. As such, impacts from this alternative on the elements of the human environment are minor.

Under this alternative, vegetation management activities within ROWs would continue within the safety-conscious culture in accordance with applicable standards or specific TVA guidance. TVA would continue to address and manage reduction or elimination of public and worker safety hazards through implementation of safety practices, training and control measures. Debris and wastes generated in conjunction with vegetation management would

be managed in accordance with federal, state, and local requirements. Worker and public health and safety during vegetation management operations including material transportation would be maintained, and impacts to public health and safety would, in general, be minor.

## 3.11 Unavoidable Adverse Impacts

Unavoidable adverse impacts are the effects of the proposed action on natural and human resources that would remain after mitigation measures or BMPs have been applied. Mitigation measures and BMPs are typically implemented to avoid, minimize or compensate for potential environmental impacts. Managing vegetation requires controlling the growth of plants within the ROW, which is an adverse effect. However, this adverse effect is needed to promote the safe, efficient, and reliable operation of the existing transmission system. Sound planning, the incorporation of TVA's O-SAR process as a BMP measure, and the incorporation of other established transmission system BMPs identified in this EA would reduce adverse effects associated with vegetation management practices.

The presence of humans and noise from vegetation maintenance activities has the potential to temporarily disturb wildlife located within the ROW. However, it is anticipated that wildlife would avoid areas when work is underway and TVA employs mitigation measures as described in Section 3.2.2 for specific animals and habitats. These adverse effects would be temporary, short-term and localized.

Additional unavoidable adverse impacts would be dependent on the specific vegetation control method selected. Although each vegetation control method creates unavoidable adverse impacts, TVA considers the environmental setting as well as cost effectiveness in its selection of control method.

With the application of appropriate BMPs and adherence to permit requirements, these unavoidable adverse effects would be minor.

## 3.12 Relationship of Short-Term Uses to Long-Term Productivity

NEPA requires a discussion of the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity. For the purposes of this EA, vegetation maintenance activities including controlling vegetation within TVA transmission system ROWs are considered a short-term use of the environment. Long-term productivity relates to converting the natural productivity of the land to some developed use including transmission lines.

Under the Action Alternative, TVA would manage vegetation height within the ROW. The long-term productivity of lands within ROWs has already been affected by construction of the existing facilities. The use of transmission system ROWs for transmitting power precludes the use of the land for some activities (e.g., mining, timber production) and the implementation of a vegetation management program would not affect long-term productivity.

## 3.13 Irreversible and Irretrievable Commitments of Resources

A resource commitment is considered irreversible when impacts from its use would limit future use options and the change cannot be reversed, reclaimed, or repaired. Irreversible commitments generally occur to nonrenewable resources such as minerals or cultural resources and to those resources that are renewable only over long time spans, such as soil productivity. A resource commitment is considered irretrievable when the use or

consumption of the resource is neither renewable nor recoverable for use by future generations until reclamation is successfully applied. Irretrievable commitments generally apply to the loss of production, harvest, or natural resources and are not necessarily irreversible.

Resources required by vegetation maintenance activities, including labor and fossil fuels for vehicles and equipment, would be irreversibly lost regardless of the alternative selected. However, it is unlikely that their limited use in TVA's vegetation management program would adversely affect the overall future availability of these resources.

Land and natural resources within TVA's transmission system ROWs were previously committed to uses compatible with safe and reliable electric transmission at the time the transmission lines were constructed. While this commitment is long-term, it is not irretrievable as transmission lines may be decommissioned and lands re-committed to other uses. Additionally, uses of lands primarily maintained by others would be unaltered with any alternative as the productivity of croplands, orchards and other related lands would not be modified. No new transmission lines would be constructed as part of the No Action or the proposed action alternative. Vegetation management would not impact potential future uses of the land should the transmission lines be removed. Therefore, no additional areas of land or natural resources would be irretrievably committed under any alternative.

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# CHAPTER 4 – LIST OF PREPARERS

## 4.1 NEPA Project Management

**Anita E. Masters**

| | |
|---|---|
| Education: | M.S., Biology/Fisheries; B.S., Wildlife Management |
| Project Role: | NEPA Project Manager, NEPA Coordinator, NEPA Compliance, Document Preparation, and Technical Editor |
| Experience: | 36 years in Project Management, Managing and Performing NEPA Analyses; ESA Compliance; CWA Evaluations; Community/Watershed Biological Assessments |

**Laura Woods**

| | |
|---|---|
| Education: | M.S., Secondary Science Education, B.S., B.S. Ecology & Environmental Science |
| Project Role: | Program Manager, Transmission Projects  Environmental Support |
| Experience: | 9 years in environmental compliance and permitting and related project and program management |

## 4.2 Other Contributors

**Mark Babin**

| | |
|---|---|
| Education: | M.A., Anthropology |
| Project Role: | Archaeologist |
| Experience: | 12 years in archaeology and cultural resources management |

**Zach Buecker**

| | |
|---|---|
| Education: | B.S. Biology, PWS, QHP |
| Project Role: | Wetlands |
| Experience: | 14 years of experience with Wetland/Stream Assessments, Wetland/Stream Regulations, NEPA and CWA Compliance |

**Brenda Hall**

| | |
|---|---|
| Education: | B.S., Civil Engineering |
| Project Role: | Sr. Manager, Transmission ROW |
| Experience: | 25 years in Transmission utility including 3 years in Right-of-Way |

**David Mitchell**

| | |
|---|---|
| Education: | M.S., Soil and Water Science, B.S., Horticulture |
| Project Role: | Vegetation, Threatened and Endangered Plants |
| Experience: | 17 years Botanical Surveys, Restoration Ecology, Research Management |
| Experience: | 15 years Sampling and Hydrologic Determinations for Streams and Wet-Weather Conveyances; 10 years in Environmental Reviews |

**Matt Reed**

| | |
|---|---|
| Education | M.S., Wildlife and Fisheries Science |
| Project Role | Aquatic Ecology and Threatened & Endangered Species |
| Experience | 14 years working with threatened and endangered aquatic species in the Southeastern United States; 8 years in ESA, NEPA, and CWA compliance and stream assessments |

**Chloe Sweda**

| | |
|---|---|
| Education: | B.S., Geography, Minor Ecology, Earth and Environmental Sciences |
| Project Role: | Natural Areas |
| Experience: | 7 years of experience in Natural Resource Management |

**Jesse Troxler**

| | |
|---|---|
| Education: | M.S., Wildlife and B.S. Biology |
| Project Role: | Terrestrial Ecology (Animals), Terrestrial Threatened and Endangered Terrestrial Animals |
| Experience: | 12 years in Biological Data Collection, 8 years in Environmental Reviews |

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# Appendix A – U.S. District Court for the Eastern District of Tennessee, Sherwood v. TVA, No. 3:12-CV-156-TAV-HBG

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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TENNESSEE

| | | |
|---|---|---|
| DONNA W. SHERWOOD, et al., | ) | |
| | ) | |
| Plaintiffs, | ) | |
| | ) | |
| v. | ) | No.: 3:12-CV-156-TAV-HBG |
| | ) | |
| TENNESSEE VALLEY AUTHORITY, | ) | |
| | ) | |
| Defendant. | ) | |

**INJUNCTION ORDER**

For the reasons discussed in the Memorandum Opinion and Order entered contemporaneously with this Injunction Order, and for good cause being shown, it is hereby ordered, adjudged, and decreed as follows:

**IT IS ORDERED** that TVA is **ENJOINED** from further implementing the transmission line right-of-way vegetation management practice that has come to be known in this litigation as the "15-foot rule" until TVA has prepared and published an environmental impact statement pursuant to the National Environmental Policy Act ("NEPA"), 42 U.S.C. §§ 4321–4370m12. TVA shall submit a request for dissolution of the injunction after completion of the procedural steps necessary to comply with NEPA. Plaintiffs will then have the opportunity to state their position with respect to the dissolution of the injunction.

**IT IS FURTHER ORDERED** that the terms of this injunction will remain in effect until the Court grants TVA's request for dissolution of the injunction.

**IT IS FURTHER ORDERED** that TVA will maintain buffer zones on the edges of its rights-of-way as described in TVA's 1997 and 2008 Line Maintenance Manuals:

a. When re-clearing 500-kV transmission lines on ROWs that are 200 feet wide, TVA will re-clear 150 feet, that is, 75 feet from centerline to outside edges, leaving a 25-foot buffer zone on each side.

b. On the more recently purchased 500-kV transmission line ROWs where 175 feet is all that is purchased, TVA will re-clear 150 feet, that is, 75 feet from centerline to outside edges, leaving a 12.5-foot buffer zone on each side.

c. When re-clearing 161-kV transmission lines, the structure type and height will determine the width.

i. On multiple-pole structures and single- and double-circuit steel tower lines where TVA has 150 feet of easement, TVA will re-clear 100 feet, that is, 50 feet from centerline to outside edges, leaving a 25-foot buffer zone on each side. Where TVA only has 100 feet of ROW, the entire 100 feet is re-cleared.

ii. On lines that utilize single-pole structures where TVA has an easement of 75 feet, the entire 75 feet will be re-cleared.

iii. On 69-kV transmission lines, re-clearing will be accomplished.

d. On easements with multiple transmission lines, the "centerline to outside edges" will apply to the transmission line nearest the outside boundary.

TVA will leave the existing trees in the wire zone so long as they do not pose an immediate hazard to the transmission lines.

TVA may remove or trim any trees in the wire zone of the right-of-way, or in the buffer zones of the right-of-way, or any danger tree outside the right-of-way, in accordance with its contract rights, that it deems to present an immediate hazard to its transmission lines.

In using the term "re-clearing" in this Order the Court is simply utilizing the terminology that TVA has used in its Line Maintenance Manuals and is making no determination as to whether TVA either has or has not cleared the right-of-way previously.

**IT IS FURTHER ORDERED** that where TVA has previously allowed a given landowner to trim his or her own trees, TVA shall continue to do so, except that TVA will have the right to immediately remove or trim any tree that it deems to present an immediate hazard to its transmission lines.

The Court accepts TVA's representations that it has budgeted $15 million for its yearly vegetation management and $14 million for vegetation management during Fiscal Year 2018 through 2020. TVA shall report its quarterly and cumulative annual spending levels to plaintiffs when those figures are reasonably available through its accounting department.

**IT IS FURTHER ORDERED** that TVA shall post a copy of this Order and any subsequent substantive Order in a prominent location on its website to inform the public and in particular the landowners on the right-of-way that TVA has been enjoined from further implementing the 15-foot rule, and to inform the public and landowners as to the practices that TVA is being ordered to follow pursuant to this Order.

**IT IS FURTHER ORDERED** that TVA is required to pay plaintiffs' reasonable attorney's fees and costs in this litigation related to the NEPA and mootness issues pursuant to the Equal Access to Justice Act ("EAJA") with reasonableness to be determined by the Court in accordance with the EAJA if the parties cannot agree on the amount.

TVA will inform the Court within **thirty (30) days** after entry of this Order of the measures taken to inform TVA employees and contractors involved in transmission line right-of-way vegetation management of the terms of this injunction.

If a party seeks to modify any provision of the injunction, the parties must first meet and confer, in order to attempt to reach agreement before applying to the Court.

The Court retains continuing jurisdiction to enforce this Order through contempt or otherwise, to clarify the injunction should the need arise, to determine whether the injunction should be dissolved, and for such other proceedings as may be appropriate.

IT IS SO ORDERED.

s/ Thomas A. Varlan
CHIEF UNITED STATES DISTRICT JUDGE

# Appendix B – Federal and State Agencies, and Federally Recognized Native American Tribes Represented in the TVA Power Service Area that were Recipients of the Programmatic Transmission System Vegetation Management Environmental Impact Statement

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# Agencies and Tribal Recipients of the Programmatic Transmission System Vegetation Management Environmental Impact Statement

Following is a list of the federal and state agencies, and federally recognized Native American tribes represented in the TVA Power Service Area who received copies of the Transmission System Vegetation Management EIS (PEIS) or notices of its availability with instructions on how to access the PEIS on the project web page.

## Federal Agencies

USDA Forest Service, Region 8, Atlanta, GA
U.S. Environmental Protection Agency, Washington, DC
U.S. Environmental Protection Agency, Region 4, Atlanta, GA
Department of Interior, Atlanta, GA
U.S. Fish and Wildlife Service, Southeast Region Office, Atlanta, GA
U.S. Fish and Wildlife Service, Frankfort, KY
U.S. Fish and Wildlife Service, Asheville, NC
U.S. Fish and Wildlife Service, Abingdon, VA
U.S. Fish and Wildlife Service, Cookeville, TN
U.S. Fish and Wildlife Service, Gloucester, VA
U.S. Fish and Wildlife Service, Daphne, AL
U.S. Fish and Wildlife Service, Athens, GA
U.S. Army Corps of Engineers, Savannah District
U.S. Army Corps of Engineers, Nashville District
U.S. Army Corps of Engineers, Memphis District
U.S. Army Corps of Engineers, Wilmington District
U.S. Army Corps of Engineers, Vicksburg District
U.S. Army Corps of Engineers, Mobile District
Economic Development Administration, Atlanta, GA
Advisory Council on Historic Preservation

## Federally Recognized Tribes

Cherokee Nation
Eastern Band of Cherokee Indians
United Keetoowah Band of Cherokee Indians in Oklahoma
The Chickasaw Nation
Muscogee (Creek) Nation of Oklahoma
Poarch Band of Creek Indians
Alabama-Coushatta Tribe of Texas
Alabama-Quassarte Tribal Town
Kialegee Tribal Town
Thlopthlocco Tribal Town
Choctaw Nation of Oklahoma
Jena Band of Choctaw
Mississippi Band of Choctaw
Seminole Tribe of Florida
Seminole Nation of Oklahoma
Absentee Shawnee Tribe of Oklahoma
Eastern Shawnee Tribe of Oklahoma
Shawnee Tribe

## State Agencies

### Alabama

Department of Agriculture and Industries
Department of Conservation and Natural Resources
Department of Economic and Community Affairs
Department of Environmental Management
Department of Transportation
Alabama Historic Commission
Top of Alabama Regional Council of Governments
North-Central Alabama Regional Council of Governments
Northwest Alabama Council of Local Governments

### Georgia

Georgia State Clearinghouse
Historic Preservation Division

### Kentucky

Department for Local Government
Department for Environmental Protection
Energy and Environment Cabinet
Department for Energy Development and Independence
Department for Natural Resources
Kentucky Heritage Council

### Mississippi

Northeast Mississippi Planning and Development District
Department of Finance and Administration
Department of Environmental Quality
Department of Wildlife, Fisheries, and Parks
Historic Preservation Division

### North Carolina

North Carolina State Clearinghouse
Office of Archives and History

### Tennessee

Department of Environment and Conservation
Office of Policy and Planning
Tennessee Historical Commission
Tennessee Wildlife Resources Agency
First Tennessee Development District
East Tennessee Development District
Southeast Tennessee Development District
Upper Cumberland Development District
South Central Tennessee Development District
Greater Nashville Regional Council
Southwest Tennessee Development District
Memphis Area Association of Governments
Northwest Tennessee Development District

### Virginia

Office of Environmental Review
Department of Historic Resources

# Appendix C – Agency Correspondence and Consultation on Federally Listed Threatened and Endangered Species (Except Bats, Bog Turtle, Monarch Butterfly and Alligator Snapping Turtle) on the Impacts of Routine Vegetation Management Activities

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# Appendix D – National Historic Preservation Act Programmatic Agreement on TVA Operation and Management Activities

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# Appendix E –General Agreement Addressing TVA Right-of-Way Easements and Permits on National Park Service Lands

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United States Department of the Interior

NATIONAL PARK SERVICE
Southeast Regional Office
Atlanta Federal Center
1924 Building
100 Alabama St., SW.
Atlanta, Georgia 30303

IN REPLY REFER TO:
1.A.2 (SERO-PC)

APR 10 2019

Tricia Roelofs
Tennessee Valley Authority
400 West Summit Hill Drive
Knoxville, Tennessee 37901

Dear Ms. Roelofs:

Enclosed is a signed General Agreement between the Tennessee Valley Authority and the National Park Service (NPS) which addresses vegetation management for electric transmission and distribution line right-of-way easements and permits on NPS lands. If you have any questions, please contact Anita Barnett at Anita_Barnett@nps.gov or 404-507-5706.

Sincerely,

Robert A. Vogel
Regional Director

Enclosure

**GENERAL AGREEMENT**
**ON VEGETATION MANAGEMENT FOR POWERLINE RIGHTS-OF-WAY**

**Between**

**TENNESSEE VALLEY AUTHORITY**

**and**

**U.S. DEPARTMENT OF THE INTERIOR**
**NATIONAL PARK SERVICE**

## I. Purpose

This General Agreement (GA) is entered into by the Tennessee Valley Authority (TVA) and the National Park Service (NPS) and addresses vegetation management for electric transmission and distribution line right-of-way (ROW) easements and permits (referred to throughout this GA as powerline ROWs) on NPS lands. The GA will help facilitate cooperation and coordination among TVA and the NPS regarding vegetation management within and immediately adjacent to existing and future powerline ROWs and associated facilities. Specifically, the GA will expedite implementation of cost-effective and environmentally sound vegetation management plans, procedures, and practices for powerline ROWs that will identify and, if possible, reduce any potential adverse environmental and cultural impacts while enhancing the ability of utilities to provide uninterrupted electrical service to customers and address public safety, including the public safety risks that may arise from wildfires caused by inadequate vegetation management.

This GA does not substitute for park-specific agreements, which should be established, or updated where existing, between TVA and individual NPS parks to address issues specific to that park unit, including consideration and/or protection of cultural resources, protection of state and federally listed species and habitats, and other similar relevant issues.

## II. Authorities

TVA is a federal agency and instrumentality of the United States, created by and existing pursuant to the TVA Act (1933) to foster the social and economic welfare of the people in the Tennessee River Valley, promote stewardship of the region's natural resources, provide low cost energy, and improve flood control and navigation of the Tennessee River and its tributaries. In furtherance of that mission, TVA operates and maintains the nation's largest public power system, including hydropower, coal, gas, nuclear, solar and wind generation facilities, auxiliary structures and electrical distribution lines and facilities. Also in furtherance of that mission, TVA maintains approximately 237,000 acres of transmission line ROW powerline easements, collectively over 16,200 circuit miles.

The NPS is directed to manage all national park lands to protect and preserve natural and cultural resources, pursuant to the National Park Service Organic Act, 54 U.S.C. 100101. The NPS is

responsible for managing nearly 84 million acres with over 400 units of the National Park System. The mission of the NPS is to preserve unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of current and future generations. The NPS also has management responsibilities over other areas, including parts of the National Wild and Scenic Rivers System, National Trails System, National Heritage Areas, and NPS Affiliated Areas, which are closely linked in importance and purpose to those areas directly managed by the NPS. Each park unit has its own enabling legislation that defines the purpose of the park and other specifics related to resource protections. Management, including the issuance of permits, for each NPS unit is directed by each unit's superintendent.

## III. Coordination and Cooperation

A number of TVA's powerline easements pass through NPS land. Therefore, coordination and cooperation between TVA and the NPS is important to enhance electric transmission reliability, increase maintenance efficiencies, reduce management costs, prevent the spread of invasive plants, reduce fuel loads, reduce the risk of wildfires, and minimize other potential environmental and cultural resource impacts and human safety risks. This coordination and cooperation should include each party's best efforts toward the following goals:

A. Completion of natural resource surveys to identify sensitive habitats and threatened and endangered flora within TVA ROWs on NPS land where appropriate.
B. Sharing data on state and federal listed species and protected habitats within and adjacent to ROWs to ensure that ROW access and management within ROWs protects sensitive species and habitats to the full extent possible.
C. Development of vegetation management plans that identify vegetation control prescriptions within a given year for each powerline ROW on NPS land. Such vegetation management plans must comply with applicable federal mandates and policies, be consistent with operations and maintenance plans for each powerline, and consider requirements for Federal reliability standards.
D. Develop protocols for maintenance, access, and safety. This includes protocols for wildfire management and response.

## IV. Roles and Responsibilities

A. Both TVA and the NPS will:
    a. Facilitate coordination with each other at the local level to develop vegetation management plans, and cooperate to complete any necessary vegetation surveys for plan development. In addition, the Parties will work together on any necessary land use authorizations for powerline ROWs on NPS lands.
    b. Promote safety during vegetation management activities associated with powerline ROWs on NPS lands. The parties to this GA acknowledge that:
        i. In general, the safety of electric utility workers and the public at transmission and distribution facilities is the responsibility of TVA. Moreover, TVA will conduct their operations in accordance with applicable National Electrical Safety Code (NESC) and Occupational Safety and Health Administration (OSHA) standards, and the terms and

conditions in the ROW authorizations, and other worker protection standards where applicable.

ii. The NPS will coordinate with TVA to develop appropriate measures to ensure personal and public safety and protection of NPS lands and resources during vegetation management activities.

c. Address the management of trees that have the potential to interfere with the reliable operation of TVA's transmission system in all vegetation management plans and authorizations.
d. Prevent and control the spread of invasive species through a proactive and integrated management approach along powerline ROWs on NPS lands.
e. Work together to identify resource protection needs or cooperative resource management opportunities within TVA ROWs on NPS lands, such as pollinator enhancement projects and/or establishment of early successional habitat through the use of selective herbicide application or other methods.
f. Coordinate their efforts to comply with Section 106 of the National Historic Preservation Act. NPS and TVA will work together to address any cultural or tribal resources potentially affected by vegetation management and seek ways to balance and integrate cultural and natural resource management, including working together to identify opportunities for selective herbicide use to avoid potential impacts to cultural resources
g. Coordinate measures to protect sensitive species or habitats.
h. Consider the impacts of various vegetation management strategies on other resources, such as potential impacts to water quality from herbicide use or soil erosion.
i. Consider wetland impacts, both permanent and temporary, from vegetation management actions, such as use of heavy equipment, changes to the plant community and potential hydrology alterations.
j. Work together to establish site-specific wildfire prevention and response plans.

B. TVA will:

a. Provide the NPS with the necessary information for development of the proposed or revised vegetation management plan for ROWs on NPS lands. The information will include vegetation surveys, proposed treatment procedures and herbicide or pesticide use, maps, best management practices, and mitigation measures.
b. Develop site-specific vegetation management plans collaboratively with the NPS.
c. Collaborate and coordinate with the NPS on vegetation management activities associated with the powerline ROW with individual parks.
d. Ensure that TVA employees and contractors are informed on the terms and conditions of applicable ROW permits and approved vegetation management plans to best ensure compliance and avoid unauthorized boundary encroachment and resource damage.
e. Ensure this GA is disseminated to appropriate TVA staff and contractors within three months of the effective date.

3

C. NPS will:

a. To the extent practicable and consistent with other NPS obligations and priorities, strive to review requests for any required, non-emergency vegetation management for powerline ROWs on NPS lands within 60 calendar days of receipt from TVA.
b. Review and provide park-level input on draft vegetation management plans, including wildlife protection requirements and mitigation measures.
c. When necessary, the NPS will use information provided by TVA to develop permit terms and conditions.
d. Ensure this GA is disseminated to all appropriate units of the National Park System within three months of the effective date.
e. Identify cultural resources on NPS lands that may need to be addressed in ROW vegetation plans and any related resource protection requirements; information regarding certain cultural resources, including their exact location, may be legally protected under Federal law and require safeguarding.

## V. Principal Contacts

The principal contacts for this GA are:

Tricia Roelofs
Tennessee Valley Authority
400 West Summit Hill Drive
Knoxville, TN 37902
(202) 436-6043
tlroelofs@tva.gov

Kim Pilarski-Hall
Tennessee Valley Authority
400 West Summit Hill Drive
Knoxville, TN 37902
(865) 632-3405
kpilarski@tva.gov

Niki Stephanie Nicholas
Superintendent, Big South Fork National Recreation Area
4564 Leatherwood Road
Oneida, TN 37841
(423) 569-9778
biso_superintendent@nps.gov

Brad Bennett
Superintendent, Chickamauga and Chattanooga National Military Park
3370 LaFayette Road
Fort Oglethorpe, GA 30742
(706) 866-9241
brad_bennett@nps.gov

Cassius Cash
Superintendent, Great Smoky Mountains National Park
107 Park Headquarters Road
Gatlinburg, TN 37738
(865) 436-1200
cassius_cash@nps.gov

Kim Kirk (Acting)
Superintendent, Little River Canyon National Preserve
4322 Little River Trail NE
Suite 100
Fort Payne, AL 35967
(256) 845-9605
kim_kirk@nps.gov

Mary Risser
Superintendent, Natchez Trace Parkway
2608 Natchez Trace Parkway
Tupelo, MS 38804
(662) 680-4005
mary_risser@nps.gov

Kim Kirk (Acting)
Superintendent, Russell Cave National Monument
3729 County Road 98
Bridgeport, AL 35740
(256) 495-2672
kim_kirk@nps.gov

**VI. Implementation, Amendments, and Termination**

This GA will become effective on the date it is fully executed and will remain in effect for five years, unless it is terminated in writing by TVA or NPS prior to its expiration. This GA may be amended with the written consent of TVA and NPS.

**VII. Non-Fund-Obligating Document**

Each party will fund its own participation under this GA and will carry out its separate activities in a coordinated and mutually beneficial manner. Nothing in this Agreement obligates the NPS

to expend in any one fiscal year any sum in excess of appropriations made by Congress, or to involve the NPS in any contract or other obligation for the further expenditure of money in excess of such appropriations or allocations.

Although TVA is committed to cooperating with the NPS to the full extent possible, nothing in this Agreement shall obligate TVA to spend funds in excess of its annual ROW vegetation management budget.

**VIII. Limitations**

This GA is not intended to and does not create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, by a party against the United States, its agencies, its officers, or any person. This GA has no legal effect on existing or future land use authorizations for powerline ROWs on NPS lands.

Nothing in this Agreement obligates TVA or the NPS to expand their respective legal obligations under the National Environmental Policy Act, the Endangered Species Act, National Historic Preservation Act, or any other law or regulation applicable to their respective activities on TVA ROW powerline easements.

**IX. Authorized Representatives**

In Witness Hereof, the Parties hereto have signed their names and executed this General Agreement.

Tricia L. Roelofs
Senior Manager
Tennessee Valley Authority

5.2.19
Date

Robert A. Vogel
Southeast Regional Director
National Park Service

4-10-19
Date

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# Appendix F – Fiscal Year 2025 Planning Cycle - Transmission Line Segments by Sector Proposed for Vegetation Management

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**Appendix Table F 1 TVA Transmission System Line Centerville Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Centerville | CV | DAVIDSON-MONTGOMERY |
| Centerville | CV | BROWNS FERRY-MAURY |
| Centerville | CV | MT PLEASANT-ELK RIDGE |
| Centerville | CV | JOHNSONVILLE-MONSANTO1 |
| Centerville | CV | LAWRENCEBURG-PULASKI |
| Centerville | CV | JOHNSONVILLE-CENTERVILLE |
| Centerville | CV | JOHNSONVILLE-MT PLEASANT1 |
| Centerville | CV | JOHNSONVILLE-CUMBERLAND |
| Centerville | CV | CENTERVILLE-WAYNESBORO |
| Centerville | CV | JOHNSONVILLE-MCEWEN |
| Centerville | CV | COLUMBIA-MT PLEASANT |

**Appendix Table F 2 TVA Transmission System Line Cleveland Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Cleveland | CL | ALPHA - COLVARD |
| Cleveland | CL | APALACHIA-E CLEVELAND 1 |
| Cleveland | CL | APALACHIA -E CLEVELAND 2 |
| Cleveland | CL | BASIN -TOCCOA |
| Cleveland | CL | BULL RUN- WATTS BAR NP 500 KV |
| Cleveland | CL | CENTER POINT - MOSS LAKE |
| Cleveland | CL | CONCORD - W RINGGOLD |
| Cleveland | CL | E CLEVELAND - CATOOSA |
| Cleveland | CL | E CLEVELAND-MCDONALD |
| Cleveland | CL | FT LOUDOUN - ATHENS |
| Cleveland | CL | HIWASSEE - MURPHY |
| Cleveland | CL | SEQUOYAH NP - CHARLESTON 1 |
| Cleveland | CL | SEQUOYAH-CHICKAMAUGA 1 |
| Cleveland | CL | SEQUOYAH-WATTS BAR HP |
| Cleveland | CL | W RINGGOLD - ALPHA |
| Cleveland | CL | WATTS BAR-ROANE |

**Appendix Table F 3 TVA Transmission System Line Hickory Valley Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Hickory Valley | HV | BOLIVAR-WHITESVILLE |
| Hickory Valley | HV | BURNSVILLE-TRI STATE |
| Hickory Valley | HV | COLBERT-SELMER |
| Hickory Valley | HV | CORDOVA-FREEPORT |
| Hickory Valley | HV | CORDOVA-HICKORY VALLEY 2 |
| Hickory Valley | HV | CORDOVA-S JACKSON |
| Hickory Valley | HV | CORINTH-BIGGERSVILLE |
| Hickory Valley | HV | HICKORY VALLEY-WHITESVILLE |
| Hickory Valley | HV | MARTINTOWN-ENTERPRISE |
| Hickory Valley | HV | NEW ALBANY-BELDEN |
| Hickory Valley | HV | NEW ALBANY-CORINTH |
| Hickory Valley | HV | NEW ALBANY-HOLLY SPRINGS |
| Hickory Valley | HV | PICKWICK-CORINTH |
| Hickory Valley | HV | PICKWICK-TRI STATE |
| Hickory Valley | HV | SHELBY-DELL |
| Hickory Valley | HV | UNION-NEW ALBANY |

**Appendix Table F 4 TVA Transmission System Line Hopkinsville Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Hopkinsville | HK | BARKLEY-HOPKINSVILLE |
| Hopkinsville | HK | BARKLEY-OAKWOOD SW ST |
| Hopkinsville | HK | KENTUCKY DAM-EARLINGTON |
| Hopkinsville | HK | KENTUCKY DAM-ROCKCASTLE |
| Hopkinsville | HK | MARSHALL-C33(DOE) |
| Hopkinsville | HK | PARADISE-HOPKINSVILLE 1 |
| Hopkinsville | HK | PARADISE-HOPKINSVILLE 2 |
| Hopkinsville | HK | SHAWNEE-C-33(DOE) |
| Hopkinsville | HK | SHAWNEE-C-37(DOE) |
| Hopkinsville | HK | SHAWNEE-CLINTON |

**Appendix Table F 5 TVA Transmission System Line Madison Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Madison | MD | ALBERTVILLE-ALBERTVILLE DST |
| Madison | MD | BELLEFONT-SCOTTSBORO |
| Madison | MD | BROWNS FERRY-MADISON 1 |
| Madison | MD | BROWNS FERRY-MAURY |
| Madison | MD | FT PAYNE-GROVE OAK |
| Madison | MD | GOOSE POND-FT PAYNE |
| Madison | MD | GUNTERSVILLE-FARLEY |
| Madison | MD | HUNTSVILLE-DECATUR |
| Madison | MD | MADISON-FARLEY1 |
| Madison | MD | SCOTTSBORO-HENAGAR |
| Madison | MD | WIDOWS CR-GOOSE POND |
| Madison | MD | WIDOWS CR-MADISON |

**Appendix Table F 6 TVA Transmission System Line Manchester Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Manchester | MC | BELFAST-CORNERSVILLE |
| Manchester | MC | CHICKAMAUGA -MOCCASIN 1 |
| Manchester | MC | FRANKLIN-AEDC |
| Manchester | MC | FRANKLIN-BELFAST |
| Manchester | MC | FRANKLIN-WINCHESTER |
| Manchester | MC | GREAT FALLS - SPRING CITY |
| Manchester | MC | GREAT FALLS-MCMINNVILLE |
| Manchester | MC | GREAT FALLS-W COOKEVILLE |
| Manchester | MC | MAURY-RUTHERFORD |
| Manchester | MC | RACCOON MTN PS-RACCOON MTN1 |
| Manchester | MC | RUTHERFORD-MURFREESBORO |
| Manchester | MC | WARTRACE-MANCHESTER |
| Manchester | MC | WATTS BAR HP - ROCKWOOD |
| Manchester | MC | WATTS BAR HP - SPRING CITY |
| Manchester | MC | WIDOWS CREEK - NICKAJACK |
| Manchester | MC | WIDOWS CREEK-OGLETHORPE 1 |
| Manchester | MC | WIDOWS CREEK-OGLETHORPE 2 |
| Manchester | MC | WIDOWS CREEK-RACCOON MTN |
| Manchester | MC | WIDOWS CREEK-RACCOON MTN 1 |
| Manchester | MC | WIDOWS CR-GOOSE POND |
| Manchester | MC | WIDOWS CR-MADISON |
| Manchester | MC | WINCHESTER-WATTS BAR FP |

**Appendix Table F 7 TVA Transmission System Line Milan Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Milan | ML | CLINTON-GREAT LAKES |
| Milan | ML | CLINTON-MARTIN |
| Milan | ML | DYERSBURG-HWAY 412 |
| Milan | ML | DYERSBURG-RICHWOOD |
| Milan | ML | GLEASON-WEAKLEY |
| Milan | ML | HWAY 412-NEW TIPTONVILLE |
| Milan | ML | JOHNSONVILLE-GLEASON |
| Milan | ML | JOHNSONVILLE-MARTIN |
| Milan | ML | JOHNSONVILLE-PARIS |
| Milan | ML | JOHNSONVILLE-PARIS |
| Milan | ML | LAGOON CR-WEAKLEY |
| Milan | ML | MURRAY-MAYFIELD |
| Milan | ML | SHELBY-LAGOON |
| Milan | ML | UNION CITY-GREAT LAKES |
| Milan | ML | UNION CITY-N UNION CITY |
| Milan | ML | WEAKLEY-DYERSBURG1 |
| Milan | ML | WEAKLEY-HWAY 412 |
| Milan | ML | WEAKLEY-MILAN |
| Milan | ML | WEAKLEY-UNION CITY1 |

**Appendix Table F 8 TVA Transmission System Line Morristown Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Morristown | MT | ALCOA - NIXON ROAD |
| Morristown | MT | ALCOA SW STA - NIXON ROAD 2 |
| Morristown | MT | CHEROKEE-DOUGLAS |
| Morristown | MT | DOUGLAS-PIGEON FORGE 1 |
| Morristown | MT | DOUGLAS-WALTERS |
| Morristown | MT | FONTANA - ALCOA SW STA 2 |
| Morristown | MT | JOHN SEVIER-JONESBOROUGH SW STA |
| Morristown | MT | JOHN SEVIER-VOLUNTEER |
| Morristown | MT | JOHN SEVIER-WHITE PINE 1 |
| Morristown | MT | PHIPPS BEND-POCKET |
| Morristown | MT | PHIPPS BEND-SULLIVAN |
| Morristown | MT | VOLUNTEER-PHIPPS BEND |
| Morristown | MT | WATUGA-S HOLSTON |

**Appendix Table F 9 TVA Transmission System Line Muscle Shoals Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Muscle Shoals | MS | COLBERT-LOWNDES |
| Muscle Shoals | MS | COLBERT-REYNOLDS 1 |
| Muscle Shoals | MS | COLBERT-SELMER |
| Muscle Shoals | MS | COLBERT-TUPELO |
| Muscle Shoals | MS | TRINITY-CULLMAN |
| Muscle Shoals | MS | TRINITY-DECATUR 2 |
| Muscle Shoals | MS | TRINITY-DECATUR E.C. |
| Muscle Shoals | MS | WILSON HP-FLORENCE |
| Muscle Shoals | MS | WILSON HP-SHOALS |
| Muscle Shoals | MS | WILSON-WHEELER |

**Appendix Table F 10 TVA Transmission System Line Nashville Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Nashville | NA | CENTER HILL-GORDONSVILLE |
| Nashville | NA | CENTER HILL-LEBANON |
| Nashville | NA | DALE HOLLOW-BYRDS TOWN |
| Nashville | NA | DAVIDSON-W NASHVILLE1 |
| Nashville | NA | GALATIN-W NASHVILLE |
| Nashville | NA | GALLATIN FP-W COOKEVILLE |
| Nashville | NA | GREAT FALLS-CENTER HILL |
| Nashville | NA | MAURY-E FRANKLIN1 |
| Nashville | NA | MONTGOMERY-WILSON |
| Nashville | NA | RADNOR-E FRANKLIN1 |
| Nashville | NA | RUTHERFORD-SMYRNA |
| Nashville | NA | S NASHVILLE-W NASHVILLE |
| Nashville | NA | W COOKEVILLE-LIVINGSTON |
| Nashville | NA | WILSON-LEBANON |

**Appendix Table F 11 TVA Transmission System Line Oak Ridge Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Oak Ridge | OR | BRAYTOWN-WARTBURG |
| Oak Ridge | OR | BULL RUN - N KNOXVILLE 2 |
| Oak Ridge | OR | BULL RUN FP - NORRIS |
| Oak Ridge | OR | BULL RUN-VOLUNTEER |
| Oak Ridge | OR | FT. LOUDOUN-ALCOA 1 |
| Oak Ridge | OR | FT. LOUDOUN-ALCOA 2 |
| Oak Ridge | OR | MELTON HILL -LENOIR CITY |
| Oak Ridge | OR | N KNOXVILLE - EAGLE BEND |
| Oak Ridge | OR | NORRIS - CLINTON |
| Oak Ridge | OR | NORRIS -COAL CREEK 2 |
| Oak Ridge | OR | NORRIS -MCCREARY CO |
| Oak Ridge | OR | VOLUNTEER - N KNOXVILLE 2 |
| Oak Ridge | OR | WATTS BAR-ROANE |

**Appendix Table F 12 TVA Transmission System Line West Point Segments Proposed for Vegetation Management in Fiscal Year 2025**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| West Point | WP | BATESVILLE-COFFEEVILLE |
| West Point | WP | BATESVILLE-OXFORD |
| West Point | WP | BATESVILLE-W BATESVILLE |
| West Point | WP | MCGREGORS CHAPEL-OXFORD |
| West Point | WP | PHILADELPHIA-MIDWAY |
| West Point | WP | STURGIS-CALHOUN CITY |
| West Point | WP | UNION-MCGREGORS CHAPEL |
| West Point | WP | WEST POINT-MIDWAY |

# Appendix G – Fiscal Year 2026 Planning Cycle - Transmission Line Segments by Sector Proposed for Vegetation Management

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**Appendix Table G 1 TVA Transmission System Line Centerville Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Centerville | CV | CENTERVILLE-MONSANTO |
| Centerville | CV | CLARKSVILLE-W NASHVILLE |
| Centerville | CV | COLBERT-LAWRENCEBURG |
| Centerville | CV | COLUMBIA-W COLUMBIA |
| Centerville | CV | CUMBERLAND-MONTGOMERY |
| Centerville | CV | DICKSON-DAVIDSON |
| Centerville | CV | JOHNSONVILLE-MT PLEASANT2 |
| Centerville | CV | MAURY-MT PLEASANT |
| Centerville | CV | MONSANTO-NAT CARBON |
| Centerville | CV | MT PLEASANT-LAWRENCEBURG |
| Centerville | CV | PULASKI-FAYETTEVILLE |
| Centerville | CV | WAYNESBORO DST-CLIFTON CITY |
| Centerville | CV | WHEELER-Mt PLEASANT 1 |

**Appendix Table G 2 TVA Transmission System Line Cleveland Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Cleveland | CL | APALACHIA - BASIN |
| Cleveland | CL | ATHENS-ETOWAH SW STA |
| Cleveland | CL | CENTER POINT - MOSS LAKE |
| Cleveland | CL | CHARLESTON - ATHENS |
| Cleveland | CL | E CLEVELAND - CHARLESTON |
| Cleveland | CL | LOOPERS FARM - ALPHA |
| Cleveland | CL | MURPHY-MARBLE |
| Cleveland | CL | MURPHY - TOCCOA RIVER |
| Cleveland | CL | OGLETHORPE-CONCORD |
| Cleveland | CL | OGLETHORPE - ROCK SPRING |
| Cleveland | CL | ROCK SPRING - CENTER POINT |
| Cleveland | CL | ROPER - MEAG |
| Cleveland | CL | WATTS BAR HP - ATHENS |
| Cleveland | CL | WATTS BAR-VOLUNTEER |
| Cleveland | CL | WIDOWS CREEK-OGLETHORPE 2 |

**Appendix Table G 3 TVA Transmission System Line Hickory Valley Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Hickory Valley | HV | ALLEN-HORN LAKE |
| Hickory Valley | HV | BENTON-CORDOVA |
| Hickory Valley | HV | BOLIVAR-TOONE |
| Hickory Valley | HV | BOONEVILLE-BOONEVILLE DST |
| Hickory Valley | HV | BURNSVILLE-CORINTH |
| Hickory Valley | HV | COUNCE-HICKORY VALLEY |
| Hickory Valley | HV | HAYWOOD-CORDOVA |
| Hickory Valley | HV | HENDERSON-JACKS CR |
| Hickory Valley | HV | HENDERSON-JACKSON |
| Hickory Valley | HV | HOLLY SPRINGS-OXFORD |
| Hickory Valley | HV | PICKWICK-COUNCE |
| Hickory Valley | HV | PICKWICK-SAVANNAH |
| Hickory Valley | HV | PICKWICK-STR 190(S JACKSON) |

**Appendix Table G 4 TVA Transmission System Line Hopkinsville Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Hopkinsville | HK | CUMBERLAND-MARSHALL |
| Hopkinsville | HK | HOPKINSVILLE-CLARKSVILLE |
| Hopkinsville | HK | HOPKINSVILLE DST-EDGOTEN |
| Hopkinsville | HK | MAYFIELD-HICKORY GROVE |
| Hopkinsville | HK | MONTGOMERY-OAKWOOD |
| Hopkinsville | HK | OHIO CO-STEPHENSBURG |
| Hopkinsville | HK | PARADISE-E BOWLING GREEN |
| Hopkinsville | HK | PARADISE-GOODLETTSVILLE |
| Hopkinsville | HK | PARADISE-MONTGOMERY |
| Hopkinsville | HK | PARADISE-N NASHVILLE |

**Appendix Table G 5 TVA Transmission System Line Madison Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Madison | MD | ALBERTVILLE-FT PAYNE |
| Madison | MD | ARAB-FAIRVIEW |
| Madison | MD | BESSEMER(APCO)-S BESSEMER |
| Madison | MD | COLLINSVILLE-GERALDINE |
| Madison | MD | EAST POINT-GUNTERSVILLE |
| Madison | MD | FAYETTEVILLE-SALEM |
| Madison | MD | GOOSE POND-SCOTTSBORO |
| Madison | MD | GUNTERSVILLE-ALBERTVILLE |
| Madison | MD | GUNTERSVILLE-GOOSE POND |
| Madison | MD | MADISON-FARLEY2 |
| Madison | MD | MADISON-GOOSE POND |
| Madison | MD | TIMS FORD-WINCHESTER |
| Madison | MD | WIDOWS CR-FT PAYNE |
| Madison | MD | WIDOWS CR-MILLER |

**Appendix Table G 6 TVA Transmission System Line Manchester Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Manchester | MC | FRANKLIN-WARTRACE 1 |
| Manchester | MC | NICKAJACK - OGLETHORPE |
| Manchester | MC | NICKAJACK-RACCOON MOUNTAIN |
| Manchester | MC | MURFREESBORO-WARTRACE |
| Manchester | MC | SEQUOYAH-FRANKLIN |
| Manchester | MC | WATTS BAR HP-GREAT FALLS |
| Manchester | MC | WIDOWS CREEK- MOCCASIN |
| Manchester | MC | WIDOWS CREEK-RACCOON MTN |
| Manchester | MC | WIDOWS CREEK-ROCK SPRINGS |
| Manchester | MC | WIDOWS CREEK-SEQUOYAH |
| Manchester | MC | WIDOWS CR-MILLER |
| Manchester | MC | WIDOWS CR-WINCHESTER |

**Appendix Table G 7 TVA Transmission System Line Milan Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Milan | ML | BUD CROCKETT--W LEXINGTON |
| Milan | ML | CLINTON-FULTON |
| Milan | ML | COVINGTON-ALAMO |
| Milan | ML | COVINGTON-DYERSBURG |
| Milan | ML | DYERSBURG-BONICORD |
| Milan | ML | FULTON-PILOT OAK |
| Milan | ML | JACKSON-AMERISTEEL |
| Milan | ML | JOHNSONVILLE-BUD CROCKETT |
| Milan | ML | JOHNSONVILLE-S JACKSON |
| Milan | ML | MADISON WEST-McKELLAR |
| Milan | ML | MAYFIELD-PILOT OAK |
| Milan | ML | MILAN-ALAMO |
| Milan | ML | MILAN-MIDDALE |
| Milan | ML | PARIS-MAYFIELD |

**Appendix Table G 8 TVA Transmission System Line Morristown Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Morristown | MT | BOONE-FT PATRICK HENRY |
| Morristown | MT | BOONE-SULLIVAN |
| Morristown | MT | ELIZABETHTON-SHOUNDS |
| Morristown | MT | ELIZABETHTON-NE JOHNSON CITY |
| Morristown | MT | FONTANA - SANTEETLAH |
| Morristown | MT | JOHN SEVIER-BOONE |
| Morristown | MT | JOHN SEVIER-CHEROKEE 1 |
| Morristown | MT | JOHN SEVIER-FT PATRICK HENRY |
| Morristown | MT | JONESBOROUGH-ERWIN |
| Morristown | MT | NE JOHNSON CITY-ELIZABETHTON |
| Morristown | MT | NE JOHNSON CITY-ERWIN |
| Morristown | MT | NORRIS-PINEVILLE |
| Morristown | MT | PHIPPS BEND-PHIPPS BEND IND PK |
| Morristown | MT | SULLIVAN-BLUFF CITY 1 |
| Morristown | MT | SULLIVAN-BLUFF CITY 2 |
| Morristown | MT | SULLIVAN-BROADFORD |
| Morristown | MT | SULLIVAN-ELIZABETHTON |
| Morristown | MT | SULLIVAN-NAGEL |
| Morristown | MT | SULLIVAN-NE JOHNSON CITY 1 |

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Morristown | MT | TUSCULUM-WASHINGTON COLLEGE |
| Morristown | MT | VOLUNTEER-MORRISTOWN |
| Morristown | MT | WATUGA-WILBUR |

**Appendix Table G 9 TVA Transmission System Line Muscle Shoals Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Muscle Shoals | MS | ARDMORE-ATHENS |
| Muscle Shoals | MS | ARDMORE-ELKTON |
| Muscle Shoals | MS | ARDMORE-PEACH ORCHARD |
| Muscle Shoals | MS | ATHENS-BROWNS FERRY |
| Muscle Shoals | MS | BROWNS FERRY-MADISON 1 |
| Muscle Shoals | MS | BROWNS FERRY-WEST POINT |
| Muscle Shoals | MS | COLBERT-BURNSVILLE |
| Muscle Shoals | MS | COLBERT-LAWRENCEBURG |
| Muscle Shoals | MS | COLBERT-PICKWICK |
| Muscle Shoals | MS | GUNTOWN-KIRKVILLE |
| Muscle Shoals | MS | LIMESTONE-ATHENS |
| Muscle Shoals | MS | MARGERUM-BURNSVILLE |
| Muscle Shoals | MS | MEC-TRINITY 1 |
| Muscle Shoals | MS | TRINITY-DECATUR 1 |
| Muscle Shoals | MS | WILSON-COLBERT |
| Muscle Shoals | MS | WHEELER-TRINITY |
| Muscle Shoals | MS | WILSON-TRINITY |

**Appendix Table G 10 TVA Transmission System Line Nashville Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Nashville | NA | BOWLING GREEN-GALLATIN FP |
| Nashville | NA | CLARKSVILLE-W NASHVILLE |
| Nashville | NA | CORDELL HULL-S CARTHAGE |
| Nashville | NA | DAVIDSON-PINHOOK |
| Nashville | NA | DAVIDSON RD-DAVIDSON |
| Nashville | NA | E BOWLING GREEN-PORTLAND |
| Nashville | NA | GALLATIN-MURFREESBORO |
| Nashville | NA | GREAT FALLS-W COOKEVILLE |
| Nashville | NA | MAURY-DAVIDSON |
| Nashville | NA | MAURY-SATURN1 |
| Nashville | NA | MURFREESBORO RD-AIRPORT |
| Nashville | NA | MURFREESBORO-SMYRNA 1 |
| Nashville | NA | PARADISE-GOODLETTSVILLE |
| Nashville | NA | PARADISE-N NASHVILLE |
| Nashville | NA | PIN HOOK-CAIN RIDGE |
| Nashville | NA | PIN HOOK-MURFREESBORO RD |
| Nashville | NA | PIN HOOK-SMYRNA 2 |
| Nashville | NA | PINHOOK-WILSON |
| Nashville | NA | RADNOR-CAIN RIDGE |
| Nashville | NA | RADNOR-CRAIGHEAD |
| Nashville | NA | RUTHERFORD-E FRANKLIN |
| Nashville | NA | SMYRNA-PIN HOOK |
| Nashville | NA | S NASHVILLE-AIRPORT |
| Nashville | NA | S NASHVILLE-CRAIGHEAD |
| Nashville | NA | SUMMER SHADE- E BOWLING GREEN |
| Nashville | NA | W NASHVILLE-DAVIDSON RD |

**Appendix Table G 11 TVA Transmission System Line Oak Ridge Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| Oak Ridge | OR | BRAYTOWN-PETROS |
| Oak Ridge | OR | BULL RUN-ELZA |
| Oak Ridge | OR | BULL RUN-LONSDALE1 |
| Oak Ridge | OR | BULL RUN - LONSDALE 2 |
| Oak Ridge | OR | CLINTON - EAGLE BEND |
| Oak Ridge | OR | ELZA - HUNTSVILLE |
| Oak Ridge | OR | FARRAGUT - MELTON HILL |
| Oak Ridge | OR | FT LOUDOUN -JENA |
| Oak Ridge | OR | FT LOUDOUN-LOUDON |
| Oak Ridge | OR | KINGSTON-BULL RUN |
| Oak Ridge | OR | KINGSTON FP - FT LOUDOUN |
| Oak Ridge | OR | KINGSTON FP-LOUDON 1 |
| Oak Ridge | OR | LONSDALE - N KNOXVILLE |
| Oak Ridge | OR | LONSDALE - W HILLS |
| Oak Ridge | OR | NORRIS -COAL CREEK 1 |
| Oak Ridge | OR | NORRIS-PINEVILLE |
| Oak Ridge | OR | OAK RIDGE-FLAT FORK |
| Oak Ridge | OR | ROCKWOOD - PEAVINE SW STA |
| Oak Ridge | OR | ROCKWOOD - ROANE1 |
| Oak Ridge | OR | SUMMERSHADE-BULLITT CO |
| Oak Ridge | OR | VOLUNTEER - N KNOXVILLE 1 |
| Oak Ridge | OR | WATTS BAR-VOLUNTEER |
| Oak Ridge | OR | W COOKEVILLE-ALGOOD |
| Oak Ridge | OR | W COOKEVILLE - PEAVINE SW STA |

**Appendix Table G 12 TVA Transmission System Line West Point Segments Proposed for Vegetation Management in Fiscal Year 2026**

| SECTOR NAME | SECTOR ABBREVIATION | PRIMARY LINE NAME |
|---|---|---|
| West Point | WP | BATESVILLE-BLUE GOOSE |
| West Point | WP | BROWNS FERRY-WEST POINT |
| West Point | WP | COFFEEVILLE-NEWS PRINT |
| West Point | WP | COLUMBUS-COLLEGE STREET |
| West Point | WP | COLUMBUS-DEKALB |
| West Point | WP | LEAKE-SINGLETON |
| West Point | WP | PHILADELPHIA-DEKALB |
| West Point | WP | RED HILLS-STURGIS |
| West Point | WP | STARKVILLE-STURGIS |
| West Point | WP | STURGIS-PHILADELPHIA |
| West Point | WP | UNION-TUPELO1 |
| West Point | WP | W COLUMBUS SW STA - SEVERCORR SW STA |
| West Point | WP | W POINT - W COLUMBUS SW STA |
| West Point | WP | WEST POINT-LOWNDES 1 |
| West Point | WP | WEST POINT-W VERNON |

# Appendix H – TVA Vegetation Management Guidelines

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## Transmission Environmental Protection Procedures
## *Right-Of-Way Vegetation Management Guidelines*

### 1.1 Overview

A. The Tennessee Valley Authority (TVA) must manage the vegetation on its rights-of-way and easements to ensure emergency maintenance access and routine access to structures, switches, conductors, and communications equipment. In addition, TVA must maintain adequate clearance, as specified by the National Electrical Safety Code, between conductors and tall growing vegetation and other objects. This requirement applies to vegetation within the right-of-way (ROW) as well as to trees located off the right-of-way.

B. Each year TVA assesses the conditions of the vegetation on and along its rights-of-way. This is accomplished by aerial inspections, ground inspections, periodic field inspections, aerial photography, LiDAR / Phodar data and information from TVA personnel, property owners and the general public. TVA utilizes this data to evaluate vegetation clearances and identifies vegetation on and off ROW that does, or could potentially pose a risk to reliability.

C. TVA transmission foresters develop a vegetation re-clearing plan that is specific to each line segment and is based on terrain conditions, species mix, growth, and density.

### 2.1 Right-of-Way Management Methods

A. TVA takes an Integrated Vegetation Management (IVM) approach that is based on a carefully planned, multidimensional strategy developed in consultation with forestry and habitat experts. Integrated vegetation management aims to improve safety and prevent power outages by creating healthy and self-sustaining ecosystems in ROWs while ensuring compliance with regulatory standards (NERC 2006). These ecosystems foster beneficial, attractive and low-maintenance habitat where tall trees won't grow and other, more benign forms of vegetation can thrive. Integrated vegetation management encourages early successional native habitats that pose less threat to power reliability yet offer safe havens for desirable plants and animals. By combining selective use of herbicides with physical removal, integrated vegetation management can more thoroughly eradicate problem vegetation and allow more compatible species to fill in, making it harder for tall-growing trees to reestablish.

TVA executes its transmission vegetation maintenance on a 2-, 3-, or 4-year cycle based on data that is acquired by various inspection methods. Photogrammetry, LiDAR, ground inspection and aerial inspection data are utilized to evaluate the next year's scheduled work to determine the annual vegetation maintenance work scope. LiDAR and Photogrammetry technologies provide a detailed vegetation threat analysis that can be used to assess risk as well as prioritize vegetation management work plans. This detailed analysis supports TVA's efforts to target incompatible species as well as promote the growth of compatible vegetation. This precision management approach is effective in reducing overall environmental impact by limiting work to specific areas of incompatibility.

Rev (7) September 2016

B. TVA uses a variety of herbicides specific to the species present with a variety of possible application techniques. Herbicides are selectively applied from the ground with backpack sprayers or vehicle-mounted sprayers. Any herbicides used are applied in accordance with applicable state and federal laws and regulations. Only herbicides registered with the United States Environmental Protection Agency (USEPA) are used.

C. In very steep terrain, in sensitive environmental areas, in extensive wetlands, at stream banks, and in sensitive property owner land use areas, hand clearing may be utilized. Hand clearing is recognized as one of the most hazardous occupations documented by the Occupational Health and Safety Administration. For that reason, TVA utilizes low volume herbicide applications in these areas when feasible.

D. TVA does not encourage tree re-clearing by individual property owners because of the high hazard potential of hand clearing, possible interruptions of the line, and electrical safety considerations for untrained personnel that might do the work.

E. Mechanical mowers not only cut the tall saplings and seedlings on the right-of-way, they also shatter the stump and the supporting near surface root crown. The tendency of resistant species is to re-sprout from the root crown and shattered stumps can produce a multi-stem dense stand in the immediate area. Repeated use of mowers on short cycle re-clearing with many original stumps re-growing in the above manner can create a single species thicket or monoculture. With the original large root system and multiple stems, the resistant species can produce re-growth at the rate of 5-10 feet in a year. In years with high rainfall, the growth can reach 12-15 feet in a single year. These dense, monoculture stands can become nearly impenetrable for even large tractors. Such stands have low diversity, little wildlife food or nesting potential, and become a property owner concern. Selective herbicide application may be used to control monoculture stands.

### 3.1 Herbicide Program

A. TVA has worked with universities (such as Mississippi State University, University of Tennessee, Purdue University and others), chemical manufacturers, other utilities, U.S. Department of Transportation, U.S. Fish and Wildlife Service (USFWS), and U.S. Forest Service (USFS) personnel to explore options for vegetation control. The results have been strong recommendations to use species-specific, low volume herbicide applications in more situations. Research, demonstrations, and other right-of-way programs show a definite improvement of rights-of-way treated with selective low-volume applications of new herbicides using a variety of application techniques and timing. Table 1 below identifies herbicides currently used on TVA rights-of-way. Table 2 identifies pre-emergent herbicides currently being used on bare ground areas on TVA rights-of-way and in substations. Table 3 identifies TGRs that may be used on tall trees that have special circumstances that require trimming on a regular cycle, e.g., restrictions on complete removal. The rates of application utilized are those listed on the U.S. Environmental Protection Agency (USEPA) approved label and consistent with utility standard practice throughout the Southeast.

Rev (7) September 2016

Table 1 - Herbicides Currently Used on TVA Rights-of-Way

| Trade Name | Active Ingredient | Label Signal Word |
|---|---|---|
| Accord/Accord XRT II | Glyphosate/Liquid | Caution |
| Arsenal | Imazapyr/Liquid/Granule | Caution |
| Chopper | Imazapyr/RTU | Caution |
| Clearstand | Imazapyr/Metsulfuron Methyl/Liquid | Caution |
| Escort | Metsulfuron Methyl/Dry Flowable | Caution |
| Garlon | Triclopyr/Liquid | Caution |
| Garlon 3A | Triclopyr/Liquid | Danger |
| Habitat | Imazapyr/Liquid | Caution |
| Krenite S | Fosamine Ammoinium | Caution |
| Milestone VM | Aminopyralid/Liquid | Caution |
| Pathfinder II | Triclopyr/RTU | Caution |
| Rodeo | Glyphosate/Liquid | Caution |
| Roundup | Glyphosate/Liquid | Caution |
| Roundup Pro | Glyphosate | Caution |
| Streamline | Aminocyclopyrachlor/ Metsulfuron Methyl/Liquid | Caution |
| Transline | Clopyralid/Liquid | Caution |
| Viewpoint | Imazapyr/Aminocyclopyrachlor/ Metsulfuron Methyl/Liquid | Caution |

Table 2 - Pre-Emergent Herbicides Currently Used for Bare Ground Areas On TVA Rights-of-Way

| Trade Name | Active Ingredients | Label Signal Word |
|---|---|---|
| Arsenal 5G | Imazapyr/Granule | Caution |
| Sahara | Diuron/Imazapyr | Caution |
| SpraKil SK-26 | Tebuthiuron/Diuron/Granules | Caution |
| SpraKil S-5 | Tebuthiuron/Granules | Caution |
| Topsite | Diuron/Imazapyr | Caution |

Table 3 - Tree Growth Regulators (TGRs) Currently Used On TVA Rights-of-Way

| Trade Name | Active Ingredients | Label Signal Word |
|---|---|---|
| Profile 2SC | TGR-paclobutrazol | Caution |
| TGR | Flurprimidol | Caution |

B. The herbicides listed in Table 1 and 2 and TGRs listed in Table 3 have been evaluated in extensive studies in support of registration applications and label requirements. Many have been reviewed in the USFS vegetation management environmental impact statements (EISs), and those

evaluations are incorporated here by reference (USFS 1989a, 1989b, 2002a, and 2002b). Electronic copies can be accessed at https://cdxnodengn.epa.gov/cdx-enepa- public/action/eis/search. The result of these reviews has been a consistent finding of limited environmental impact beyond that of control of the target vegetation. All the listed herbicides have been found to be of low environmental toxicity when applied by trained applicators following the label and registration procedures, including prescribed measures, such as buffer zones, to protect threatened and endangered species.

C. Low volume herbicide applications are recommended since research demonstrates much wider plant diversity after such applications. There is better ground erosion protection and more wildlife food plants and cover plants develop. In most situations there is increased development of wild flowering plants and shrubs. In conjunction with herbicides, the diversity and density of low-growing plants provide control of tall-growing species through competition.

D. Herbicides are used in place of rotary mowing in order to avoid damage to nesting and tunneling wildlife. This method retains ground cover year around with a better mix of food species and associated high-protein insect populations for birds in the right seasons. Most also report less damage to soils (even when compared with rubber-tired equipment).

E. Best Management Practices (BMPs) governing application of herbicides are contained within *A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Transmission Construction and Maintenance Activities* (Muncy 2016) which is incorporated by reference. Herbicides can be liquid, granular, or powder and can be applied aerially or by ground equipment and may be selectively applied or broadcast, depending on the site requirements, species present, and condition of the vegetation. Water quality considerations include measures taken to keep herbicides from reaching streams whether by direct application or through runoff of or flooding by surface water. "Applicators" must be trained, licensed, and follow manufacturers' label instructions, USEPA guidelines, and respective state regulations and laws.

F. When herbicides are used, their potential adverse impacts are considered in selecting the compound, formulation, and application method. Herbicides that are designated "Restricted Use" by USEPA require application by or under the supervision of applicators certified by the respective state control board. Applications are done either by TVA or by contractors in accordance with the following guidelines identified in the TVA BMP manual (Muncy 2016):

1. The sites to be treated are selected and application directed by the appropriate TVA official.
2. A preflight walking or flying inspection is made within 72 hours prior to applying herbicides aerially. This inspection ensures that no land use changes have occurred, that sensitive areas are clearly identified to the pilot, and that buffer zones are maintained.
3. Aerial application of liquid herbicides will normally not be made when surface wind speeds exceed 5 miles per hour, in areas of fog, or during periods of temperature inversion.
4. Pellet application will normally not be made when the surface wind speeds exceed 10 miles per hour, or on frozen or water saturated soils.
5. Liquid application is not performed when the temperature reaches 95 degrees Fahrenheit or above.

Rev (7) September 2016

6. Application during unstable, unpredictable, or changing weather patterns is avoided. Equipment and techniques are used that are designed to ensure maximum control of the spray swath with minimum drift.
7. Herbicides are not applied to surface water or wetlands unless specifically labeled for aquatic use. Filter and buffer strips will conform at least to federal and state regulations and any label requirements. The use of aerial or broadcast application of herbicides is not allowed within a streamside management zone (SMZ) adjacent to perennial streams, ponds, and other water sources. Hand application of certain herbicides labeled for use within SMZs is used only selectively.
8. For aerial inspections, buffers and filter strips (200 feet minimum width) are maintained next to agricultural crops, gardens, farm animals, orchards, apiaries, horticultural crops, and other valuable vegetation.
9. Herbicides are not applied in the following areas or times: (a) in city, state, and national parks or forests or other special areas without written permission and/or required permits (b) off the right-of-way and (c) during rainy periods or during the 48- hour interval prior to rainfall predicted with a 20 percent or greater probability by local forecasters, when soil active herbicides are used.

G. TVA currently uses primarily low volume applications of foliar and basal applications, e.g., Accord (Glyphosate), Arsenal (Imazapyr), Clearstand (Imazapyr / Metsulfuron Methyl), Milestone VM (Aminopyralid) and Streamline (Aminocyclopyrachlor / Metsulfuron Methyl).

**4.1 Benefits**

A. Proper maintenance—including vegetation management—of ROW and its supporting facilities is crucial to ensuring the reliable transmission of affordable electrical power. Unmanaged and poorly maintained vegetation can cause electricity outages, wildfires, soil erosion, and water quality issues. Utility companies that adopt long-term IVM approaches often benefit from significant vegetation management cost savings, which can be reflected in customer rates.

B. ROW also provide important wildlife habitats. As wildlife habitats in the United States are lost to development, these ROW become increasingly important. The IVM approach can create natural, diverse, and sustaining ecosystems, such as a meadow transition habitat. A variety of wildlife species (including threatened and endangered species) consider these habitats home, such as butterflies, songbirds, small mammals, and deer. These habitats also encourage the growth of native plant species and can increase plant diversity.

C. Invasive and exotic species are often a problem on ROW, and, consequently, the surrounding land. IVM techniques (such as selective herbicide application) can minimize this problem, while ensuring native and endangered species are not affected.

**5.0 References**

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# Appendix I – Sensitive Areas Class Definitions for Re-clearing

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# TVA Sensitive Areas Class Definitions for Right-of-Way Re-clearing

## Plants

**Class 1**: No broadcast herbicide application. Alternatives are: 1) Select spray woody plants, 2) Mechanical or hand-clearing, 3) Request field surveys by TVA botanist to determine if species exists in the subject area.

**Class 2**: Contact TVA botanist at least three weeks before conducting maintenance activities in subject areas to determine if the proposed activities require restrictions.

## Natural Areas

**Class 1**: No broadcast herbicide application. Alternatives are: 1) Select spray woody plants, 2) Mechanical or hand-clearing, 3) Request field surveys by TVA Biological Compliance staff to determine if species exists in the subject area.

**Class 2**: Must contact area land manager prior to entering or conducting maintenance in subject area. No broadcast herbicide application. Alternatives are: 1) Select spray woody plants, 2) Mechanical or hand-clearing, 3) Request field surveys by TVA Biological Compliance staff to determine if species exists in the subject area.

**Class 3**: Contact TVA Natural Areas biologist at least three weeks before conducting maintenance activities to determine if the proposed activities require restrictions.

## Wetland Areas

**Class 1:** Wetland/potential wetland- Refer to "Wetlands ROW Re-clearing and Pole Replacement Guidelines" for restrictions.

## Terrestrial Animal Areas

**Class BALDEAGLE:** Bald Eagle nest- Either 1) Assume presence. No disturbance, spraying or vegetation clearing between Dec. 1 - July 1 within 660 feet of nest site; OR 2) Request seasonal field survey to determine if nest is active.

**Class CAVE:** Cave - No herbicide use within 200 ft of cave due to potentially sensitive subterranean aquatic resource. Hand or small machinery clearing only (ie: chainsaws, bush hog, mowers). Vehicles and equipment confined to existing access roads. Avoid entering cave.

**Class HERONOSPREY:** Heronry and Osprey - Either 1) Assume presence. No broadcast spraying. Only use bushogs or mowers for vegetation removal or selective herbicide spraying between February 1 and July 15 within 660 feet of nest site; OR 2) Request seasonal field survey to determine if nests are active.

**Class HERONRY:** Heronry - Either 1) Assume presence. No broadcast spraying. Only use bushogs or mowers for vegetation removal or selective herbicide spraying between February 1 and July 15 within 660 feet of nest site; OR 2) Request seasonal field survey to determine if nests are active.

**Class IBAT:** Potential Indiana Bat Summer Roosting Habitat - Cut trees with exfoliating bark Nov 15 - Mar 31. If cutting necessary outside of time restriction a bat and/or habitat survey is required.

**Class IBATNLEBAT:** Potential Indiana Bat and Northern Long-Eared Bat Summer Roosting Habitat-Cut trees with exfoliating bark during the following seasons differentiated by state: VA, KY, TN and NC = Nov 15-Mar 31; AL, MS and GA = Dec 1 - Mar 15. If cutting necessary outside of time restriction a bat and/or habitat survey is required.

**Class NLEBAT:** Potential Northern Long-Eared Bat Summer Roosting Habitat - Cut trees with exfoliating bark during the following seasons differentiated by state: VA and KY = Nov 15 - Mar 31; TN and NC = Oct 15 - Mar 31; AL, MS, and GA = Dec 1 - Mar 15. If cutting necessary outside of time restriction a bat and/or habitat survey is required.

**Class OSPREY:** Osprey nest - Either 1) Assume presence. No broadcast spraying. Only use bushogs or mowers for vegetation removal or selective herbicide spraying between March 1 and July 15 within 660 feet of nest site; OR 2) Request seasonal field survey to determine if nests are active.

**Class SPECIAL:** Special Circumstance - Contact TVA Terrestrial Zoologist at least three weeks before conducting maintenance activities in buffered area to determine if the proposed activities require restrictions.

**Aquatic Animal Areas**

**Class 1**: No broadcast herbicide application. Alternatives are: 1) Select spray woody plants, 2) Mechanical or hand-clearing, 3) Request field surveys by TVA aquatic biologist to determine if species exists in the subject area.

**Class 2**: Contact TVA aquatic biologist at least three weeks before conducting maintenance activities in subject areas to determine if the proposed activities require restrictions.

## ROW ACCESS

O-SAR data is appropriate and applicable to projects where all vehicular access to or within the ROW is existing and no access road improvements are required. The data provided in O-SAR does not apply to work involving road building, upgrading, improvement, or repair, such as but not limited to additional fill greater than 0.10 -acre, new or upgraded stream crossings, and vegetation removal outside the originally cleared ROW footprint. In such cases, a separate environmental review is necessary.

2

# Appendix J – Summary of Vegetation Management Method Impacts as Assessed in TVA's 2019 Programmatic Transmission System Vegetation Management Environmental Impact Statement

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**Appendix Table J-1. Summary of Impacts Associated with Vegetation Management Methods as Assessed in TVA's 2019 Programmatic Environmental Impact Statement**

| Resource | Manual | Mechanical | Herbicides | Debris Management | Restoration |
|---|---|---|---|---|---|
| Vegetation | Potential impact on non-target vegetation; may result in benefits to some herbaceous species due to improved light penetration. Tree removal may result in conversion of forest or tree dominated communities to herbaceous communities. | May result in substantial impacts to non-target vegetation, potential and increase the spread of invasive species due to soil disturbance.<br>Some methods may reduce adverse effects by minimizing soil disturbance.<br>Repeated mowing may promote dense regrowth of woody stems that suppress herbaceous species. | Direct effects to targeted vegetation.<br>Spot or localized spraying result in reduced impacts to non-target vegetation and may result in some positive effects on species composition.<br>Broadcast and aerial application methods may have high potential for negative impacts to vegetation, including non-target vegetation. | Some methods may hinder or impede plant growth and restoration of treated areas. | Little potential to negatively affect transmission ROW vegetation because standard BMPs would dictate revegetation efforts to avoid the use of invasive weed species. |
| Wildlife | Lower potential for toxic inputs; less disturbing to soils; short-term noise and odor disturbance; disruptive to wildlife due to more frequent treatments; potential for localized direct injury to wildlife. | Promotes early successional habitat favorable to wildlife; less disruptive to wildlife due to less frequent treatments; short-term disturbance of wildlife; habitat alteration, impact to less mobile biota; short-term soil disturbance. | Use can create low-growing habitat beneficial to some wildlife; less disruptive to wildlife due to less frequent treatments; potential for herbicide toxicity to non-target wildlife, soil, and water. | Leaving debris can be beneficial by creating cover, nutrient recycling, and erosion control; leaving debris increases wildfire fuel load and can harbor tree diseases and pests; debris piles alter habitat; offsite debris removal involves mechanical equipment that increases wildlife disturbance and erosion. | Minor temporary impacts associated with increased erosion and potential for fuel oil leaks or spills. Impacts minimized with standard BMPs. Overall long-term benefit to habitat. |

**Appendix Table J-1. Summary of Impacts Associated with Vegetation Management Methods as Assessed in TVA's 2019 Programmatic Environmental Impact Statement**

| Resource | Manual | Mechanical | Herbicides | Debris Management | Restoration |
|---|---|---|---|---|---|
| Aquatic Ecology | Minor potential for sedimentation; minor chance of chainsaw oil/fuel leaks/spills; likely no impacts to aquatic biota. | Minor potential for sedimentation and stream bank destabilization from soil-disturbing mechanical equipment; minor amounts of cut debris reaching streams; minor chance of oil/fuel leaks/spills; minor potential for altered water quality and impacts to aquatic biota. Minimized through the use of BMPs. | Minor potential for sedimentation from equipment; minimized through the use of BMPs.<br>Potential for herbicides to reach waterways (rarely at toxic concentrations); potential acute and chronic impacts minimized through BMPs, prior planning, proper herbicide mixtures, and advanced technology to reduce or eliminate drift during application. | Minor impacts to aquatic biota as TVA manages placement of debris to avoid placement proximate to streams or other aquatic environments.<br>Minor positive impact as large woody debris can provide fish habitat; wood chips and mulch can reduce erosion. | Minor potential for sedimentation from soil-disturbing equipment; minor amounts of cut debris reaching streams.<br>Overall long-term benefit to the aquatic environment due to reduced erosion and sedimentation. |
| Threatened and Endangered Species[1] | TVA uses the Office-Level Sensitive Area Review (O-SAR) process to avoid and minimize impacts to federally and state-listed species that are known to occur on transmission ROWs and select methods that are least likely to negatively impact those resources. | TVA uses the O-SAR process to avoid impacts to federally and state-listed species that are known to occur on transmission ROWs and select methods that are least likely to negatively impact those resources. | Similar to Vegetation, Wildlife, and Aquatic Ecology impacts.<br>TVA uses the O-SAR process to avoid impacts to federally and state-listed species that are known to occur on transmission ROWs and select methods that are least likely to negatively impact those resources. | TVA uses the O-SAR process to avoid impacts to federally and state-listed species that are known to occur on transmission ROWs and select methods that are least likely to negatively impact those resources. | Minor temporary impacts associated with increased erosion and potential for fuel oil leaks or spills. Impacts minimized with standard BMPs and SMZs. Overall long-term benefit to habitat. |

**Appendix Table J-1. Summary of Impacts Associated with Vegetation Management Methods as Assessed in TVA's 2019 Programmatic Environmental Impact Statement**

| Resource | Manual | Mechanical | Herbicides | Debris Management | Restoration |
|---|---|---|---|---|---|
| Surface Water | Temporary, minor impacts from potential sedimentation; less impact relative to mechanical control. | Temporary, minor impacts from potential fuel/lubricant leaks and spills and sedimentation from soil-disturbing heavy equipment. Minimized through use of BMPs. | Minor potential for herbicides to reach surface waters through leaching, drift, or runoff and potential for sedimentation from heavy equipment. No significant impact expected due to BMPS, prior planning, proper implementation, and proper application of herbicides. | Excess vegetation debris in surface water may alter flows; potential fuel/lubricant leaks and spills; sedimentation from soil-disturbing heavy equipment. Impacts expected to be temporary and minor through use of BMPs. | Minor, temporary impacts from the use of soil disturbing equipment. Overall long-term benefit to water quality due to reduced erosion and sedimentation. |
| Wetlands | Little/no impact on non-target wetland areas. Tree removal may result in conversion of wetland type and reduction in wetland function; forested wetland conversion may be considered a jurisdictional activity by wetland regulatory agencies. | Minor potential for vehicular rutting and disturbance of wetland soils. Impact minimized with the use of BMPs such as matting, low ground pressure equipment, and dry season work.<br>Tree removal may result in conversion of wetland type and reduction in wetland function; forested wetland conversion may be considered a jurisdictional activity by wetland regulatory agencies. | Impacts to non-target wetland areas due to runoff, leach, or drift of herbicides. Conversion of forest to emergent wetland may result in reduction of wetland function. | Debris left in wetlands may be considered a regulated fill by wetland regulatory agencies due to potential for obstructing flow, altering existing contours, changing water storage, and/or conversion to upland. | Positive benefit to wetlands as restoration would prevent the spread of invasive weeds within the wetlands, promote the establishment of low-growing vegetation, and promote wildlife habitat. |

**Appendix Table J-1. Summary of Impacts Associated with Vegetation Management Methods as Assessed in TVA's 2019 Programmatic Environmental Impact Statement**

| Resource | Manual | Mechanical | Herbicides | Debris Management | Restoration |
|---|---|---|---|---|---|
| Floodplains | No impact. | No significant impact; greater impact relative to manual or selective herbicide. Impacts mitigated through the use of BMPs and measures taken to comply with EO 11988 and the National Flood Insurance Program. | No significant impact Impacts mitigated through the use of BMPs and measures taken to comply with EO 11988 and the National Flood Insurance Program. | Debris left in floodplains can impede the flow of water and create obstructions in the floodplain and floodway.<br>Impacts mitigated through the use of BMPs and measures taken to comply with EO 11988 and the National Flood Insurance Program. | No impact. |
| Geology/Soils | No impact. | No impact to geology. Potential for localized soil disturbance and erosion. | No impact to geology or soils. | No impact on geology. Potential beneficial impact in erosion control. | No impact on geology. Potential beneficial impact in erosion control. |
| Groundwater | No impact. | Potential impact associated with contaminant release in proximity to groundwater recharge zones. Impact would be mitigated by BMPs and are anticipated to be minor. | Potential impact associated with contaminant release in proximity to groundwater recharge zones. Impact would be mitigated by BMPs and are anticipated to be minor. | Potential impact associated with contaminant release in proximity to groundwater recharge zones. Impact would be mitigated by BMPs and are anticipated to be minor. | Potential impact associated with contaminant release in proximity to groundwater recharge zones. Impact would be mitigated by BMPs and are anticipated to be minor. |

**Appendix Table J-1. Summary of Impacts Associated with Vegetation Management Methods as Assessed in TVA's 2019 Programmatic Environmental Impact Statement**

| Resource | Manual | Mechanical | Herbicides | Debris Management | Restoration |
|---|---|---|---|---|---|
| Land Use and Land Ownership/ Management | No impact to land use, potential short-term disruption of character of lands.<br><br>Vegetation management on state and federal lands must adhere to existing Land and Resource Management Plans, Special Use Permits, as well as programmatic or related agreements. | No impact to land use, potential short-term disruption of character of lands.<br><br>Vegetation management on state and federal lands must adhere to existing Land and Resource Management Plans, Special Use Permits, as well as programmatic or related agreements. | No impact to land use, potential short-term disruption of character of lands.<br><br>Vegetation management on state and federal lands must adhere to existing Land and Resource Management Plans, Special Use Permits, as well as programmatic or related agreements. | No impact to land use, potential short-term disruption of character of lands.<br><br>Vegetation management on state and federal lands must adhere to existing Land and Resource Management Plans, Special Use Permits, as well as programmatic or related agreements. | No impact to land use.<br><br>Vegetation management on state and federal lands must adhere to existing Land and Resource Management Plans, Special Use Permits, as well as programmatic or related agreements. |
| Prime Farmland | No impact | Localized potential for disturbance or degradation of prime farmland soils from use of mechanized equipment. Minimized using BMPs. | No impact. | No impact. | No impact. |
| Natural Areas, Parks, Recreation | Minor, short-term impacts from equipment noise and presence of work crews. | Minor, short-term impact from equipment noise and work crews associated with trimming. Impacts from clearing would be greater as the character of vegetation could change. | Potential impacts from noise and odors from application of selective targeting herbicides. Minor beneficial impact associated with erosion protection, enhanced wildlife food and cover, and greater diversity. Greater minor, temporary impact from aerial application | Minor impacts from large debris left in place as it could interfere with recreation activities. Short-term impacts from burning due to presence of smoke and work crews. | Minor temporary impact associated with increased pedestrian traffic and noise. Long-term benefit due to enhancement of Natural Areas. |

**Appendix Table J-1. Summary of Impacts Associated with Vegetation Management Methods as Assessed in TVA's 2019 Programmatic Environmental Impact Statement**

| Resource | Manual | Mechanical | Herbicides | Debris Management | Restoration |
|---|---|---|---|---|---|
| | | | indiscriminate treatment of vegetation. | | |
| Cultural | No impact on subsurface cultural deposits when cutting methods are employed. Pulling methods have the potential to disturb cultural deposits depending on size of plant and root ball. Caution should be used when cutting or pulling near aboveground historic remains (i.e. foundations, cemeteries) and sacred sites. | If machinery causes soil disturbance, subsurface cultural deposits could be affected. Impacts would be minimized through adherence to BMPs and Section 106 program alternatives, such as the PA, where applicable. Activities that would have the potential to effect historic properties would require Section 106 review on an individual basis. | No impact to subsurface cultural deposits. | No impact to subsurface deposits. | No impact to subsurface deposits. |
| Visual Resources | Pruned trees and shrubs, exposed stumps, and the resulting debris may seem unsightly to some viewers. | Can leave swaths of disturbed areas that can contrast with surrounding vegetation. | Areas of browned vegetation can be unsightly. However, the impact would be temporary as vegetation would eventually reestablish. | Felled logs and scattered branches can contrast with the surrounding landscape; stacking as windrows can reduce the unkempt look. Mulching and chipping can improve the visual landscape by covering bare earth with woodchips. | Minor, temporary visual discord due to the presence of additional personnel and equipment. Long-term improvement aesthetic condition. |

**Appendix Table J-1. Summary of Impacts Associated with Vegetation Management Methods as Assessed in TVA's 2019 Programmatic Environmental Impact Statement**

| Resource | Manual | Mechanical | Herbicides | Debris Management | Restoration |
|---|---|---|---|---|---|
| Public and Worker Health & Safety | Minimal impact on public safety, minor potential for worker safety in conjunction with type and frequency of tool use and environmental conditions. | Minor potential for public safety issues, improved worker safety in proportion to treated area. | Low potential for public exposure to herbicides; selectively higher risk to workers based on herbicide active ingredient, tool use, and environmental conditions. Potential adverse effects mitigated and minimized by training, safety equipment, and adherence to labeling guidelines. | Debris left in place has potential implications on worker safety. Burning has potential minor localized effects on public and worker health and safety. | Additional workforce increases short-term safety risk. Long-term increase in worker safety through development of a plant community that is compatible to ROW management. |
| Solid and Hazardous Waste | Low impact. Minor generation of waste oil/fluids from maintenance of equipment. | Maintenance on equipment generates waste oils/fluids. Potential spills/releases of fuel/fluids. Generation of waste containers. | Potential accidental releases/spills. Generation of waste containers for herbicides. | Low impact related to use of mechanized equipment. Reduction in solid waste when debris is left to compost. | Low impact related to use of mechanized equipment. |
| Transportation | Little to no impact. | No impact with side-wall trimming (from air). Minor traffic volume generated by construction workforce. | No impact with aerial spraying of herbicides. Minor traffic volume generated by construction workforce. | Short-term increase in traffic volumes due to additional haul trucks needed for debris transport. No impact when debris is managed on site. | Minor traffic volume generated by construction workforce. |

**Appendix Table J-1. Summary of Impacts Associated with Vegetation Management Methods as Assessed in TVA's 2019 Programmatic Environmental Impact Statement**

| Resource | Manual | Mechanical | Herbicides | Debris Management | Restoration |
|---|---|---|---|---|---|
| Air Quality and Climate Change | No impact to overall air quality; mobilization of work crews to and from project sites represents a negligible increase in roadway traffic. | No impact to overall air quality; mobilization of work crews to and from project sites, represents minimal localized and temporary emissions from combustion engines. | No impact to overall air quality; in addition to crew mobilization, minor impacts may be from mechanical methods and airborne herbicide constituents. | Chipping, mulching, etc. would have impacts similar to manual control methods; pile burning would produce local smoke and particulate emissions; overall minor impacts to air quality would be temporary and local. | No impact to overall air quality; in addition to crew transport-related impacts minimal localized and temporary emissions from combustion engines. |
| Noise | Loud intermittent and short-term noise from use of chainsaws. | Loud intermittent and short-term increase in noise from transport of equipment and crews and use of chainsaws and mechanized equipment. | Limited and minor noise from crews on foot. Loud intermittent noise from aerial spraying. | Loud noise from transport of equipment and crews and use of heavy mulchers and chippers. | Intermittent and short-term increase in noise from transport of equipment and crews and use of chainsaw and mechanized equipment. |
| Socioeconomics and Environmental Justice | Minor short-term impact to local economies due to increased workforce. | Minor short-term impact to local economies due to increased workforce. | Minor short-term impact to local economies due to increased workforce. | Minor short-term impact to local economies due to increased workforce. | Minor short-term impact to local economies due to increased workforce. |

# Appendix K – List of Threatened and Endangered Species Where Vegetation Management is Proposed in Fiscal Year 2025

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**Appendix Table K 1 Federally Listed and State-Protected Animal and Plant Species Occurrences Previously Reported from Within 50 feet of TVA ROW Where Vegetation Management is Proposed in Fiscal Year 2025[1]**

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| **AQUATIC ANIMALS** | | | | | | | |
| Cumberland Elktoe | *Alasmidonta atropurpurea* | E | TN | E | S1S2 | | OR |
| Anthony's River Snail | *Athearnia anthonyi* | E, XN | AL | SP | S1 | | MD |
| Boxclaw Crawfish | *Cambarus distans* | - | GA | - | S1 | | MC |
| Blue Sucker | *Cycleptus elongatus* | - | TN | T | S2 | | HV, OR |
| Fanshell | *Cyprogenia stegaria* | E, XN | TN | E | S1 | | HV |
| Egg-mimic Darter | *Etheostoma pseudovulatum* | UR | TN | E | S1 | | CV |
| Tuscumbia Darter | *Etheostoma tuscumbia* | UR | AL | SP | S2 | | MD |
| Fine-lined Pocketbook | *Lampsilis altilis* | T | GA | T | S2 | | CL |
| Ornate Rocksnail | *Lithasia geniculata* | - | TN | - | S2 | | MC |
| Rugose Rocksnail | *Lithasia jayana* | - | TN | - | SX | | MC |
| Tangerine Darter | *Percina aurantiaca* | - | TN | D | S3 | | MT |
| Snail Darter | *Percina tanasi* | DL | TN | T | S2S3 | | CL |
| Blackside Dace | *Phoxinus cumberlandensis* | T | TN | T | S2 | | OR |
| Southern Clubshell | *Pleurobema decisum* | E | GA | E | S1 | | CL |
| Southern Pigtoe | *Pleurobema gergianum* | E | GA | E | S1 | | CL |
| Round Pigtoe | *Pleurobema sintoxia* | - | AL | SP | S1 | | ML |
| Skirted Hornsnail | *Pleurocera pyrenella* | - | AL | - | S2 | | MD |
| Pink Heelsplitter | *Potamilus alatus* | - | MS | - | S2 | | HV |
| Coosa Creekshell | *Villosa vanuxemensis umbrans* | UR | GA | - | - | | CV |
| **PLANTS** | | | | | | | |
| Southern Maidenhair Fern | *Adiantum capillus-veneris* | - | MS | - | S2 | 1 | WP |
| Yellow Giant-hyssop | *Agastache nepetoides* | - | GA | - | S1 | 1 | CL |
| Yellow Giant-hyssop | *Agastache nepetoides* | - | AL | - | S1 | 1 | MD |
| Price's Potato-bean | *Apios priceana* | T | TN | E | S3 | 1 | HK |

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| Canada Wild-ginger | *Asarum canadense var. reflexum* | - | MS | - | S3 | 1 | WP |
| Tennessee Milk-vetch | *Astragalus tennesseensis* | - | TN | S | S3 | 1 | NA |
| Spreading False-foxglove | *Aureolaria patula* | - | TN | S | S3 | 1 | OR |
| Cream Wild Indigo | *Baptisia bracteata* var. *leucophaea* | - | KY | S | S3 | 9 | HK |
| Nuttall's Rayless Golden-rod | *Bigelowia nuttallii* | - | AL | | S3 | 1 | MD |
| Smooth Blephilia | *Blephilia subnuda* | - | AL | | S1S2 | 3 | MD |
| Tall Bellflower | *Campanulastrum americanum* | - | MS | | S3S4 | 1 | WP |
| Asa Gray Sedge | *Carex grayi* | - | GA | | S2? | 1 | CL |
| Hairy sharp-scaled Sedge | *Carex oxylepis* var. *pubescens* | - | MS | | S2S3 | 1 | WP |
| Red Turtlehead | *Chelone obliqua* | - | TN | S | S1 | 1 | ML |
| Yellowwood | *Cladrastis kentukea* | - | MS | | S2 | 1 | WP |
| Bastard Toad-flax | *Comandra umbellata* | - | AL | | S1 | 2 | MD |
| Woodland Tickseed | *Coreopsis pulchra* | - | AL | | S2 | 1 | MD |
| American Smoke-tree | *Cotinus obovatus* | - | AL | | S2 | 3 | MD |
| Gattinger Prairie-clover | *Dalea gattingeri* | - | AL | | S3 | 1 | MS |
| Dwarf Larkspur | *Delphinium tricorne* | - | GA | | S2? | 1 | CL |
| Creamflower Tick-trefoil | *Desmodium ochroleucum* | - | AL | | S2 | 1 | MD |
| Dutchman's Breeches | *Dicentra cucullaria* | - | AL | | S2 | 1 | MD |
| Glade fern | *Diplazium pycnocarpon* | - | MS | | S2S3 | 1 | WP |
| Wedge-leaf Whitlow-grass | *Draba cuneifolia* | - | AL | | S3 | 1 | MD |
| Crested Woodfern | *Dryopteris cristata* | - | TN | T | S2 | 1 | OR |
| Eastern Purple Coneflower | *Echinacea purpurea* | - | MS | | S3 | 1 | WP |
| Bald Spikerush | *Eleocharis erythropoda* | - | MS | STNS | S1 | 1 | MS |
| Svenson's Wild-rye | *Elymus svensonii* | - | TN | T | S2 | 1 | NA |
| White-bract Thoroughwort | *Eupatorium leucolepis* | - | TN | E | S1 | 1 | MC |
| Creeping Aster | *Eurybia surculosa* | - | GA | W1 | S1 | 4 | CL |
| Creeping Aster | *Eurybia surculosa* | - | AL | STNS | S1 | 4 | MD |
| Viscid Bushy Goldenrod | *Euthamia gymnospermoides* | - | TN | E | S1 | 2 | MS |

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| Big-head Evax | *Evax prolifera* | - | MS | STNS | S1 | 1 | WP |
| American Columbo | *Frasera caroliniensis* | - | AL | | S2 | 1 | MD |
| Hairy Umbrella-sedge | *Fuirena squarrosa* | - | TN | S | S1 | 1 | CV |
| Dwarf Huckleberry | *Gaylussacia dumosa* | - | TN | T | S3 | 2 | MC |
| Eggert's Sunflower | *Helianthus eggertii* | DL | TN | S | S3 | 1 | MC |
| Longleaf Sunflower | *Helianthus longifolius* | - | AL | | S1S2 | 6 | MD |
| Naked-stem sunflower | *Helianthus occidentalis* | - | TN | S | S2 | 1 | MC |
| Green Violet | *Hybanthus concolor* | - | MS | | S3 | 2 | WP |
| Straggling St. John's-wort | *Hypericum dolabriforme* | - | GA | | S3 | 1 | CL |
| St. John's-wort | *Hypericum nudiflorum* | - | TN | S | S2 | 1 | MC |
| Barrens St. Johnswort | *Hypericum sphaerocarpum* | - | GA | | S1 | 1 | CL |
| Narrow Blue Flag | *Iris prismatica* | - | TN | T | S2S3 | 1 | MC |
| Smooth Veiny Peavine | *Lathyrus venosus* | - | AL | | S1 | 1 | MD |
| Michaux Leavenworthia | *Leavenworthia uniflora* | - | AL | | S2 | 1 | MD |
| Narrowleaf Bushclover | *Lespedeza angustifolia* | - | TN | T | S2 | 2 | MC |
| Grooved Yellow Flax | *Linum sulcatum* | - | MS | | S3 | 1 | WP |
| Fraser Loosestrife | *Lysimachia fraseri* | - | TN | E | S2 | 1 | CV |
| Small Sundrops | *Oenothera perennis* | | KY | E | S1S2 | 3 | HV |
| False Gromwell | *Onosmodium molle* ssp. *subsetosum* | - | AL | | S1 | 2 | MD |
| Smoother Sweet-cicely | *Osmorhiza longistylis* | - | MS | | S3S4 | 5 | WP |
| Allegheny-spurge | *Pachysandra procumbens* | - | MS | | S3 | 1 | WP |
| American ginseng | *Panax quinquefolius* | - | GA | | S3 | 1 | CL |
| Kral's Beardtongue | *Penstemon kralii* | - | AL | | S1 | 2 | MD |
| Limestone Fame-flower | *Phemeranthus calcaricus* | - | TN | S | S3 | 5 | MC, NA |
| Roundleaf Fameflower | *Phemeranthus teretifolius* | - | TN | T | S2 | 1 | MC |
| Yellow-crested Orchid | *Platanthera cristata* | - | TN | S | S2S3 | 2 | MC |
| Yellow Fringeless Orchid | *Platanthera integra* | - | TN | E | S1 | 1 | MC |
| White Fringeless Orchid | *Platanthera integrilabia* | T | TN | E | S2S3 | 4 | MC |

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| Rose Pogonia | *Pogonia ophioglossoides* | - | TN | E | S2 | 2 | MC |
| Greek Valerian | *Polemonium reptans* | - | MS | | S2S3 | 1 | WP |
| Maryland Milkwort | *Polygala mariana* | - | TN | S | S1 | 1 | CV |
| Nuttall's Milkwort | *Polygala nuttallii* | - | TN | E | S1 | 1 | MC |
| Dense-flowered smartweed | *Polygonum densiflorum* | - | GA | | S3? | 1 | CL |
| Shadow-witch Orchid | *Ponthieva racemosa* | - | MS | | S2 | 1 | WP |
| Barbed Rattlesnake-root | *Prenanthes barbata* | - | TN | S | S2 | 3 | MD, HV |
| Mountain-mint | *Pycnanthemum curvipes* | - | AL | | S1? | 1 | MD |
| Mountain-mint | *Pycnanthemum muticum* | - | MS | | S2S3 | 5 | WP |
| Nuttall's Oak | *Quercus texana* | - | KY | T | S2S3 | 1 | HV |
| Lance-leaved Buckthorn | *Rhamnus lanceolata* | - | MS | | S2 | 1 | WP |
| Beakrush | *Rhynchospora perplexa* | - | TN | T | S2 | 1 | MC |
| Granite Gooseberry | *Ribes curvatum* | - | TN | T | S1 | 1 | MC |
| Bay Starvine | *Schisandra glabra* | - | TN | T | S2 | 1 | ML |
| Sunnybell | *Schoenolirion croceum* | - | TN | T | S3 | 3 | NA |
| Large-flowered Skullcap | *Scutellaria montana* | T | TN | T | S4 | 2 | MC |
| Cumberland Rosinweed | *Silphium brachiatum* | - | AL | | S2 | 3 | MD |
| Compass-plant | *Silphium laciniatum* | - | TN | T | S2 | 1 | ML |
| Mohr's Rosin-weed | *Silphium mohrii* | - | AL | | S1 | 3 | MD |
| Prairie-dock | *Silphium pinnatifidum* | - | AL | | S2 | 2 | MS |
| Great Plains Ladies'-tresses | *Spiranthes magnicamporum* | - | MS | | S2 | 2 | WP |
| Water Stitchwort | *Stellaria fontinalis* | - | TN | S | S3 | 1 | NA |
| Water Stitchwort | *Stellaria fontinalis* | - | TN | S | S3 | 2 | NA |
| Death-camas | *Stenanthium tennesseense* | - | TN | T | S2 | 3 | MC |
| Zigzag Bladderwort | *Utricularia subulata* | - | TN | T | S1 | 1 | MC |
| Eggleston's Violet | *Viola egglestonii* | - | GA | | S2 | 1 | CL |
| Northern Prickly-ash | *Zanthoxylum americanum* | - | TN | S | S2 | 1 | NA |
| Southern Wildrice | *Zizaniopsis miliacea* | - | KY | T | S1S2 | 1 | HV |

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| **TERRESTRIAL ANIMALS** | | | | | | | |
| Streamside Salamander | *Ambystoma barbouri* | UR | TN | E | S2 | 5 | NA |
| Green salamander | *Aneides aeneus* | UR | AL | SP | S3 | 2 | MC, MD |
| Green salamander | *Aneides aeneus* | UR | TN | - | S3S4 | 1 | OR |
| Fish crow | *Corvus ossifragus* | - | KY | S | S3B | 1 | HK |
| Southeastern Five-lined Skink | *Eumeces inexpectatus* | - | KY | S | S2S3 | 1 | HK |
| Map Turtle | *Graptemys geographica* | - | GA | R | S1 | 1 | CL |
| Bald Eagle | *Haliaeetus leucocephalus* | DL | AL | SP | S4B | 4 | MD, MS |
| Bald Eagle | *Haliaeetus leucocephalus* | DL | KY | S | S3B, S3S4, N | 3 | HK |
| Bald Eagle | *Haliaeetus leucocephalus* | DL | TN | - | - | 2 | CV, MT |
| Gray bat | *Myotis grisescens* | E | KY | T | S2 | 1 | HK |
| Gray bat | *Myotis grisescens* | E | TN | E | S2 | 1 | MC |
| Eastern small-footed bat | *Myotis leibii* | - | TN | D | S2S3 | 1 | OR |
| Northern long-eared bat | *Myotis septentrionalis* | E | NC | T | S2 | 2 | CL |
| Indiana bat | *Myotis sodalis* | E | KY | E | S1S2 | 1 | HK |
| Osprey | *Pandion haliaetus* | - | AL | SP | S4 | 42 | MD, MS |
| Osprey | *Pandion haliaetus* | - | KY | S | S3S4B | 20 | HK, ML |
| Osprey | *Pandion haliaetus* | - | MS | - | S3 | 2 | HV |
| Osprey | *Pandion haliaetus* | - | TN | - | S3B | 163 | CL, CV, HV, MC, MD, ML, MT, NA, OR |
| Tricolored Bat | *Perimyotis subflavus* | PE | KY | T | S2 | 4 | HK |
| Northern Crawfish Frog | *Rana areolata circulosa* | - | KY | S | S3 | 3 | HK |
| Cerulean Warbler | *Setophaga cerulea* | - | TN | D | S3B | 1 | OR |
| Golden-winged Warbler | *Vermivora chrysoptera* | UR | TN | T | S3B | 1 | OR |
| Meadow Jumping Mouse | *Zapus hudsonius* | PS | AL | SP | S1 | 1 | MD |

[1] Source: TVA Natural Heritage Database, queried June/July 2024.
[2] Species can be listed in the table multiple times if they occur more than one state.
[3] Status Codes: D = Deemed in Need of Management; DL = Delisted but still Monitored; E = Listed Endangered; PE = Proposed Endangered; PS = Partial Status; S = Listed Special Concern; SP = State Protected; T = Listed Threatened; UR = Under Review
[4] State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure; B = Breeding; N = Nonbreeding; S? = Inexact or uncertain; S#S# = Denotes a range of ranks because the exact rarity of the element is uncertain (e.g., S1S2)
[5] ROW Sector Abbreviations: CL = Cleveland, CV = Centerville, HK = Hopkinsville, HV = Hickory Valley, MC = Manchester, MD = Madison, ML = Muscle Shoals, MT = Morristown, NA = Nashville, OR = Oak Ridge, WP = West Point

# Appendix L – List of Threatened and Endangered Species Where Vegetation Management is Proposed in Fiscal Year 2026

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**Appendix Table L 1 Federally Listed and State-Protected Animal and Plant Species Occurrences Previously Reported from Within 50 feet of TVA ROW Where Vegetation Management is Proposed in Fiscal Year 2026[1]**

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| **AQUATIC ANIMALS** | | | | | | | |
| Hiwassee Crayfish | *Cambarus hiwasseensis* | - | NC | WL | S3S4 | | CL |
| Highfin Carpsucker | *Carpiodes velifer* | - | TN | D | S2S3 | | HV |
| Tennessee Dace | *Chrosomus tennesseensis* | - | TN | D | S3 | | OR |
| Alabama Shiner | *Cyprinella callistia* | - | MS | - | S3 | | WP |
| Arrow Darter | *Etheostoma sagitta* | - | KY | S | S3 | | MT |
| Flame Chub | *Hemitremia flammea* | - | AL | - | S3 | | ML |
| Fine-lined Pocketbook | *Lampsilis altilis* | T | GA | T | S2 | | CL |
| Muddy Rocksnail | *Lithasia salebrosa* | - | TN | - | S2 | | HV |
| Piebald Madtom | *Noturus gladiator* | UR | TN | D | S3 | | HV |
| Nashville Crayfish | *Orconectes shoupi* | E, PDL | TN | E | S1S2 | | NA |
| Southern Clubshell | *Pleurobema decisum* | E | GA | E | S1 | | CL |
| Southern Pigtoe | *Pleurobema gergianum* | E | GA | E | S1 | | CL |
| Georgia Pigtoe | *Pleurobema hanleyianum* | E | GA | E | S1 | | CL |
| Rayed Kidneyshell | *Ptychobranchus greenii* | E | GA | E | S1 | | CL |
| Smooth Rabbitsfoot | *Quadrula cylindrica cylindrica* | T | AL | - | - | | MD |
| Alabama Creekmussel | *Strophitus connasaugaensis* | - | GA | E | S1 | | CL |
| **PLANTS** | | | | | | | |
| Ohio Buckeye | *Aesculus glabra* | - | MS | - | S2 | 3 | WP |
| Little River Canyon Onion | *Allium speculae* | - | AL | - | S2 | 1 | MD |
| Round-leaved Serviceberry | *Amelanchier sanguinea* | - | TN | T | S2 | 1 | MC |
| Western Hairy Rock-cress | *Arabis hirsuta* | - | TN | T | S1 | 1 | NA |
| Pyne's Ground Plum | *Astragalus bibullatus* | E | TN | E | | 1 | MC |
| Canadian Milkvetch | *Astragalus canadensis* | - | AL | - | S1 | 2 | MD |
| Tennessee Milk-vetch | *Astragalus tennesseensis* | - | TN | S | S3 | 7 | NA, MC |
| Spreading False-foxglove | *Aureolaria patula* | - | TN | S | S3 | 3 | OR |

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| Eastern Prairie Blue Wild Indigo | *Baptisia aberrans* | - | GA | - | S2 | 1 | CL |
| Nuttall's Rayless Golden-rod | *Bigelowia nuttallii* | - | AL | - | S3 | 2 | MD |
| Smooth Blephilia | *Blephilia subnuda* | - | AL | - | S1S2 | 5 | MD |
| Wild Hyacinth | *Camassia scilloides* | - | MS | - | S2 | 1 | WP |
| Broadwing Sedge | *Carex alata* | - | KY | T | S1S2 | 3 | HV |
| Epiphytic Sedge | *Carex decomposita* | - | KY | T | S2 | 3 | HK |
| Straw Sedge | *Carex straminea* | - | KY | T | S2? | 2 | HK |
| Bastard Toad-flax | *Comandra umbellata* | - | AL | - | S1 | 4 | MD |
| Woodland Tickseed | *Coreopsis pulchra* | - | AL | - | S2 | 4 | MD |
| Pale Corydalis | *Corydalis sempervirens* | - | KY | S | S3? | 2 | HK |
| American Smoke-tree | *Cotinus obovatus* | - | AL | - | S2 | 4 | MD |
| Harper's Dodder | *Cuscuta harperi* | - | AL | - | S2 | 1 | MD |
| White Prairie-clover | *Dalea candida* | - | KY | S | S3 | 2 | HK |
| Leafy Prairie-clover | *Dalea foliosa* | E | TN | E | S2S3 | 1 | NA |
| Gattinger Prairie-clover | *Dalea gattingeri* | - | GA | - | S2S3 | 1 | CL |
| Purple Prairie-clover | *Dalea purpurea* | - | KY | S | S3? | 2 | HK |
| Bog Oat-grass | *Danthonia epilis* | - | TN | S | S1S2 | 4 | MC |
| Tall Larkspur | *Delphinium exaltatum* | - | TN | E | S2 | 3 | OR |
| Creamflower Tick-trefoil | *Desmodium ochroleucum* | - | AL | - | S2 | 1 | MD |
| Panic-grass | *Dichanthelium ensifolium* ssp. *curtifolium* | - | TN | E | S1 | 1 | MC |
| Mountain Bush-honeysuckle | *Diervilla sessilifolia* var. *rivularis* | - | AL | - | S2 | 1 | MD |
| Wedge-leaf Whitlow-grass | *Draba cuneifolia* | - | KY | E | S1 | 1 | HK |
| Dwarf Sundew | *Drosera brevifolia* | - | TN | T | S2 | 1 | MC |
| Harper's Umbrella-plant | *Eriogonum harperi* | - | AL | - | S1 | 1 | MS |
| Yellow Trout-lily | *Erythronium rostratum* | - | TN | S | S2 | 1 | CV |
| Godfrey's Thoroughwort | *Eupatorium godfreyanum* | - | TN | S | S1 | 1 | OR |
| Creeping Aster | *Eurybia surculosa* | - | AL | - | S1 | 1 | MD |

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| Viscid Bushy Goldenrod | *Euthamia gymnospermoides* | - | TN | E | S1 | 1 | CV |
| Evolvulus | *Evolvulus nuttallianus* | - | TN | S | S3 | 4 | NA |
| American Columbo | *Frasera caroliniensis* | - | MS | - | S3 | 1 | WP |
| Hairy Umbrella-sedge | *Fuirena squarrosa* | - | TN | S | S1 | 1 | HV |
| Dwarf Huckleberry | *Gaylussacia dumosa* | - | TN | T | S3 | 1 | MC |
| Manna-grass | *Glyceria acutiflora* | - | KY | E | S1S2 | 2 | HK |
| Short's Hedge-hyssop | *Gratiola viscidula* | - | KY | S | S3 | 1 | HK |
| Shortleaf Beardgrass | *Gymnopogon brevifolius* | - | TN | S | S1S2 | 1 | MC |
| Rough Pennyroyal | *Hedeoma hispida* | - | KY | T | S2 | 1 | HK |
| Eggert's Sunflower | *Helianthus eggertii* | - | TN | S | S3 | 6 | CV, NA |
| Longleaf Sunflower | *Helianthus longifolius* | - | AL | - | S1S2 | 5 | MD |
| Naked-stem sunflower | *Helianthus occidentalis* | - | TN | S | S2 | 1 | OR |
| Straggling St. John's-wort | *Hypericum dolabriforme* | - | GA | - | S3 | 2 | CL |
| St. John's-wort | *Hypericum nudiflorum* | - | TN | S | S2 | 3 | MC |
| Butler's Quillwort | *Isoetes butleri* | - | AL | - | S2 | 1 | MS |
| Twinleaf | *Jeffersonia diphylla* | - | AL | - | S2 | 1 | MD |
| Butternut | *Juglans cinerea* | - | AL | - | S1 | 1 | MD |
| Plain's Rush | *Juncus filipendulus* | - | KY | T | S2? | 3 | HK |
| Alabama Glade-cress | *Leavenworthia alabamica* | - | AL | - | S2 | 2 | MS |
| Fleshy-fruit Gladecress | *Leavenworthia crassa* | E | AL | - | S2 | 1 | MS |
| Glade Cress | *Leavenworthia exigua* var. *exigua* | - | GA | T | S2 | 1 | CL |
| Michaux Leavenworthia | *Leavenworthia uniflora* | - | AL | - | S2 | 1 | MS |
| Spring Creek Bladderpod | *Lesquerella perforata* | E | TN | E | S1 | 2 | NA |
| Turk's Cap Lily | *Lilium superbum* | - | MS | - | S3S4 | 3 | WP |
| Fraser Loosestrife | *Lysimachia fraseri* | - | TN | E | S2 | 1 | CV |
| Swamp Loosestrife | *Lysimachia terrestris* | - | TN | E | S1 | 1 | CV |
| Hispid Falsemallow | *Malvastrum hispidum* | - | KY | T | S2? | 1 | HK |
| Ozark Bunchflower | *Melanthium woodii* | - | TN | S | S2 | 1 | OR |

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| Hairy False Gromwell | *Onosmodium hispidissimum* | - | TN | E | S1 | 2 | HV |
| Western False Gromwell | *Onosmodium molle ssp. occidentale* | - | GA | - | S1 | 1 | CL |
| Limestone Adder's-tongue | *Ophioglossum engelmannii* | - | AL,GA | - | S3 | 2 | MS, CL |
| Smoother Sweet-cicely | *Osmorhiza longistylis* | - | MS | - | S3S4 | 1 | WP |
| American ginseng | *Panax quinquefolius* | - | TN | S-CE | S3S4 | 1 | OR |
| Duck River Bladderpod | *Paysonia densipila* | - | AL | - | S1 | 2 | MS |
| Limestone Fame-flower | *Phemeranthus calcaricus* | - | TN | S | S3 | 11 | NA |
| Fame-flower | *Phemeranthus mengesii* | - | TN | T | S2 | 4 | MC |
| Roundleaf Fameflower | *Phemeranthus teretifolius* | - | AL | - | S1 | 2 | MD |
| Yellow-crested Orchid | *Platanthera cristata* | - | TN | S | S2S3 | 1 | MC |
| White Fringeless Orchid | *Platanthera integrilabia* | T | TN | E | S2S3 | 1 | MC |
| Rose Pogonia | *Pogonia ophioglossoides* | - | TN | E | S2 | 1 | MC |
| Prairie Parsley | *Polytaenia nuttallii* | - | MS | - | S2 | 1 | WP |
| Pickerel Weed | *Pontederia cordata* | - | KY | T | S1S2 | 1 | HK |
| Spotted Pondweed | *Potamogeton pulcher* | - | KY | T | S1S2 | 1 | HK |
| Barbed Rattlesnake-root | *Prenanthes barbata* | - | TN,AL | S | S2 | 2 | MD, CV |
| Mountain-mint | *Pycnanthemum muticum* | - | MS | - | S2S3 | 7 | WP |
| Nuttall's Oak | *Quercus texana* | - | KY | T | S2S3 | 1 | HK |
| Tall Beakrush | *Rhynchospora macrostachya* | - | KY | E | S1 | 1 | HK |
| Granite Gooseberry | *Ribes curvatum* | - | AL,TN | T | S1 | 5 | MD, MC |
| Missouri gooseberry | *Ribes missouriense* | - | TN | S | S2 | 1 | NA |
| Sun-facing Coneflower | *Rudbeckia heliopsidis* | - | AL | - | S2 | 1 | MD |
| Cumberland Rose Gentian | *Sabatia capitata* | - | TN | E | S2 | 5 | MC |
| Sessile-fruited Arrowhead | *Sagittaria rigida* | - | TN | E | S1 | 1 | MC |
| Pussy Willow | *Salix humilis* | - | AL | - | S2S3 | 1 | MD |
| Sunnybell | *Schoenolirion croceum* | - | AL | - | S2 | 2 | MS, MD |
| Large-flowered Skullcap | *Scutellaria montana* | T | TN | T | S4 | 3 | MC |
| Spikemoss | *Selaginella arenicola ssp. riddellii* | - | AL | - | S2 | 1 | MD |

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| Spikemoss | *Selaginella rupestris* | - | AL | - | S2S3 | 1 | MD |
| Wild Pink | *Silene caroliniana ssp. pensylvanica* | - | TN | T | S1S2 | 1 | MS |
| Ovate Catchfly | *Silene ovata* | - | TN | E | S2 | 1 | CV |
| Cumberland Rosinweed | *Silphium brachiatum* | - | AL, TN | E | S3 | 2 | MD |
| Mohr's Rosin-weed | *Silphium mohrii* | - | AL | - | S1 | 2 | MD |
| Prairie-dock | *Silphium pinnatifidum* | - | GA, KY | S | S3 | 2 | HK, CL |
| Steeple-bush | *Spiraea tomentosa* | - | AL | - | S1 | 2 | MD |
| Yellow Nodding Ladies'-tresses | *Spiranthes ochroleuca* | - | TN | E | S1 | 1 | MS |
| Water Stitchwort | *Stellaria fontinalis* | - | TN | S | S3 | 1 | NA |
| White Heath Aster | *Symphyotrichum ericoides* | - | MS | - | S2 | 1 | WP |
| White Heath Aster | *Symphyotrichum priceae* | - | KY | E | S1 | 4 | HK |
| Soft-haired Thermopsis | *Thermopsis mollis* | - | AL | - | S1 | 1 | MD |
| Mapleleaf Viburnum | *Viburnum acerifolium* | - | MS | - | S1 | 1 | WP |
| Eggleston's Violet | *Viola egglestonii* | - | GA | - | S2 | 1 | CL |
| **TERRESTRIAL ANIMALS** | | | | | | | |
| Streamside Salamander | *Ambystoma barbouri* | UR | TN | E | S2 | 1 | NA |
| Hellbender | *Cryptobranchus alleganiensis* | PS | TN | E | S3 | 1 | HV |
| Black Mountain Salamander | *Desmognathus welteri* | - | TN | D | S3 | 1 | OR |
| Bald Eagle | *Haliaeetus leucocephalus* | DL | AL | | S4B | 7 | MD, MS |
| Bald Eagle | *Haliaeetus leucocephalus* | DL | TN | | - | 1 | MC |
| Gray Bat | *Myotis grisescens* | E | AL | | S2 | 1 | MD |
| Gray Bat | *Myotis grisescens* | E | KY | T | S2 | 1 | HK |
| Gray Bat | *Myotis grisescens* | E | TN | E | S2 | 5 | MC, OR |
| Eastern Small-footed Bat | *Myotis leibii* | - | TN | D | S2S3 | 1 | OR |
| Little Brown Bat | *Myotis lucifugus* | UR | TN | T | S3 | 3 | MC, OR |
| Northern Long-eared Bat | *Myotis septentrionalis* | E | TN | T | S2 | 7 | CL, OR |
| Indiana Bat | *Myotis sodalis* | E | TN | E | S1 | 1 | OR |
| A Cave Obligate Spider | *Nesticus barri* | - | AL | - | S3 | 1 | MD |

| Common Name[2] | Scientific Name[2] | Federal Status[3] | State | State Status[3] | State Rank[4] | Sites | Sector[5] |
|---|---|---|---|---|---|---|---|
| Acuminate Snaketail | *Ophiogomphus acuminatus* | - | TN | - | S2 | 1 | CV |
| Osprey | *Pandion haliaetus* | | AL | | S4 | 72 | MD, MS |
| Osprey | *Pandion haliaetus* | | KY | | S3S4B | 15 | HK, ML |
| Osprey | *Pandion haliaetus* | | MS | | S3 | 7 | HV, WP |
| Osprey | *Pandion haliaetus* | | TN | | S3B | 140 | CL, CV, HV, MC, MD, ML, MT, NA, OR |
| Tricolored Bat | *Perimyotis subflavus* | - | AL | T | S3 | 1 | MD |
| Tricolored Bat | *Perimyotis subflavus* | - | TN | T | S2S3 | 6 | MC, MT, OR |
| Bachman's Sparrow | *Peucaea aestivalis* | - | TN | E | S1B | 2 | HV, OR |
| Duck River Cave Beetle | *Pseudanophthalmus tullahoma* | - | TN | - | S1 | 1 | MC |
| Cerulean Warbler | *Setophaga cerulea* | - | TN | D | S3B | 1 | OR |
| Blue-winged Warbler | *Vermivora pinus* | - | NC | SR | S2B | 1 | CL |
| Meadow Jumping Mouse | *Zapus hudsonius* | PE | TN | - | S4 | 1 | NA |

[1] Source: TVA Regional Natural Heritage Database, queried July 2024.
[2] Species can be listed in the table multiple times if they occur more than one state.
[3] Status Codes: D = Deemed in Need of Management; DL = Delisted but still Monitored; E = Listed Endangered; PE = Proposed Endangered; PS = Partial Status; SR = Significantly Rare; SLNS = State Listed, no status assigned; S = Listed Special Concern; S-CE = Special Concern/ Commercially Exploited; T = Listed Threatened; UR = Under Review
[4] State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure; B = Breeding; N = Nonbreeding; S? = Inexact or uncertain; S#S# = Denotes a range of ranks because the exact rarity of the element is uncertain (e.g., S1S2)
[5] ROW Sector Abbreviations: CL = Cleveland, CV = Centerville, HK = Hopkinsville, HV = Hickory Valley, MC = Manchester, MD = Madison, ML = Muscle Shoals, MT = Morristown, NA = Nashville, OR = Oak Ridge, WP = West Point

# Appendix M – Habitat Requirements of Federally and State-Listed Terrestrial Animal Species Known from Areas Crossed by Transmission Line Segments Proposed for Vegetation Management during the Fiscal Years 2025 and 2026 Planning Cycles

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# Habitat Requirements of Federally and State-Listed Terrestrial Animal Species Known from Areas Crossed by Transmission Line Segments Proposed for Vegetation Management during the Fiscal Years 2025 and 2026 Planning Cycles

Species specific information comes from Cornell (2021), Natureserve (2021), Tennessee Wildlife Resources Agency (2021) and Scott and Redmond (2021).

Spruce-fir moss spiders are known only from Fraser fir and red spruce forest communities of the highest elevations of the southern Appalachian Mountains in western North Carolina and eastern Tennessee. This species can be found in damp, well drained moss mats growing on rock outcrops and boulders in well shaded areas of these forests. This species was identified by IPaC as potentially present in the project area.

Monarch butterflies are a highly migratory species, with eastern United States (US) populations overwintering in Mexico. Summer breeding habitat in the US requires milkweed plant species, on which adults exclusively lay eggs for larvae to develop and feed on. Adults will drink nectar from other blooming wildflowers when milkweeds are not in bloom. This species has not been tracked historically by Natural Heritage programs, but the USFWS has determined that this species could occur within the project area.

Mitchell's satyr butterflies require wetlands with a strong sedge component and a tree canopy nearby. Suitable habitat for this species exists in areas of forested wetland scattered across the ROW. Seven O-SAR polygons for Mitchell's satyr are located in areas proposed for vegetation management in Fiscal Year (FY) 25/FY26 within the Hickory Valley, Muscle Shoals, and West Point sectors.

Painted snake coiled forest snail can be found within crevices or under ledges of limestone in areas with karst topography. This species prefers areas with dense, mature forest and moist conditions, but tend to avoid areas with heavy moss growth. USFWS had determined that this species may occur in the project area.

Acuminate snaketail is a species of dragonfly that inhabits clear streams, often with exposed bedrock. This state-listed species requires high water quality. Their range is probably naturally limited to the western Highland Rim physiographic region and major drivers of decline include logging, agriculture, and stream gravel removal which cause stream substrates to become unstable, open, and silted. Records of this species are known along ROW in the Centerville Sector.

Duck River Cave beetle is a cave obligate in the genus *Pseudanophthalmus* which typically occur in twilight zone or deeper in or on moist soil, often near streams or drip areas. This state-listed species (especially larvae) probably does burrow some as they are often found under rocks or debris. *P. tullahoma* is critically imperiled and thought to inhabit 3 or fewer sites including a record near ROW in the Manchester Sector. *Nesticus barri*, a cave obligate spider, that is also state-listed, is known from about 60 caves in the southern Cumberland Plateau, including a record near ROW in the Madison Sector.

The streamside salamander is a state-listed as endangered amphibian known from records within 50 feet of TVA ROW proposed for vegetation management in the Nashville Sector in FY25/FY26. Streamside salamanders inhabit upland deciduous forests in regions of rolling topography, mostly in areas with limestone bedrock. This species breeds most frequently in first- and second-order streams, less frequently in ponds from December through early April. Hatching occurs in April, followed by metamorphosis in May and June, and migration from late October through March.

Green salamanders, primarily considered a rock-crevice dwelling species, typically inhabit shaded rock outcrops in mixed mesophytic forests between 500 and 1,300 meters in elevation. Breeding females require cool, clean and moist horizontal crevices or narrow chambers to suspend their eggs from an overhead substrate. One record of this state-listed species has been recorded within the Manchester Sector proposed for vegetation management in FY25/FY26.

Black Mountain salamander are a state-listed as in-need-of-management amphibian species which reside in mountain brooks, spring runs, and roadside puddles in the mountainous terrain of temperate forests. This species has been observed within 50 feet of FY25/FY26 proposed activities in the Oak Ridge Sector.

Eastern hellbenders favor larger, fast-flowing, streams and rivers with large shelter rocks. Eggs are laid in depressions created beneath large rocks or submerged logs. One historical record of the state-listed hellbender is known from within 50 feet of the proposed action areas at Pickwick Dam in the Hickory Valley Sector. Sedimentation is one of the larger threats to suitable habitat for this species as it fills in space under rocks preventing them from being used as shelter or nesting habitat.

Black Warrior waterdog is a federally listed as threatened species present in the Madison and Muscle Shoals sectors. It is only found in streams within the Black Warrior River Basin in Alabama and prefers substrates dominated by clay or bedrock with little sand, also containing abundant rock crevices and rock slabs for retreats (shelter) and areas for egg laying. No records are known within 50 feet of TVA ROW, but one O-SAR buffer is present on a ROW scheduled to be maintained in FY25/FY26 in the Madison Sector.

Northern crawfish frogs are associated with moist meadows, pasturelands, river floodplains, pine scrub, and golf courses. They use crayfish and rodent burrows for shelter and can be found under logs and in sewers. They breed from late February to early May in seasonal and permanent ponds primarily located in agricultural landscapes. Records of this state-listed species are known within 50 feet of a ROW proposed for FY25/FY26 vegetation management actions in the Hopkinsville Sector.

Southeastern five-lined skinks are found in a variety of wooded habitats, but generally prefer drier sites than similar species. They are often seen on fallen trees, limbs, stumps, logs, fences, and rock piles; and will occasionally climb trees when threatened. Females lay 3 to 8 eggs under rotten logs, stumps, rocks, or leaf litter during the spring or early summer. Females remain with the eggs during the 2-to-8-week incubation period. This state-listed species has been observed in the Hopkinsville Sector ROW proposed for vegetation management in FY25/FY26.

Bog turtle populations within the southern populations and occurring within the TVA Power Service Area are considered federally threatened due to similarity of appearance to populations in the northern U.S. This species inhabits slow, shallow rivulets of bogs, marshy meadows, spring seeps, wet cow pastures, and shrub swamps. Management for meadow-like vegetation on ROWs may benefit this species. Although no records are known within the proposed action area, this species was flagged by an IPaC database search, and an O-SAR buffer exists within ROW to be maintained in FY25/FY26. Mechanical equipment could crush turtles or nests and would be prohibited in wetlands near known records should they be reported in the future.

Flattened musk turtles are a federally listed as threatened species endemic to the upper Black Warrior River system in the Madison and Muscle Shoals sectors. Its optimum habitat appears to be free-flowing large creeks or small rivers with vegetated shallows about 2 to 5 feet deep with a detectable current and an abundance of crevices, rocks, or boulders. This species may nest within 100 feet of riverbanks in full to partial sun areas and may be vulnerable to stream sedimentation and injury when nesting. One O-SAR buffer is present in the Muscle Shoals Sector proposed for vegetation management in FY25/FY26.

Map turtles are a state-listed species in Georgia and inhabit slow rivers and lakes with mud bottoms, basking logs, and abundant aquatic vegetation. This species is often found in mill ponds, oxbows, and river overflow ponds. Eggs are laid in nests dug in soft soil or sand. Hatchlings emerge from mid-August to September or sometimes overwinter in nests and emerge the following spring. This species has been recorded near ROW in the Cleveland Sector.

Ringed map turtles are federally listed as a threatened species found in the Pearl River system and its tributaries. They are most abundant in streams with a moderate to fast current that contain numerous basking logs near sand and gravel bars. Sedimentation and pollution are the major threats to this species. One O-SAR buffer for this species intersects the proposed FY25/FY26 vegetation management in the West Point Sector.

Alligator snapping turtles have been proposed as federally threatened. This is a highly aquatic reptile species that emerges from water only for nesting, rarely for basking. This species is restricted to river and stream drainages that flow into the Gulf of Mexico. They generally live in the deepest waters of large rivers, canals, lakes, and swamps; hatchlings and juveniles usually live in smaller streams. Eggs are laid approximately 160-feet from a body of water in sandy floodplain soils. This species is believed to be extirpated from much of its former range but was identified by IPaC as present in the TVA region.

Bachman’s sparrow inhabits dry, open woods, especially pines. This state-listed species used to thrive in longleaf pine forests found all over the southeastern U.S. Much of the habitat for this species has disappeared due to conversion of forest for timber harvest and development, as well as fire from fire suppression. Remaining habitats are fragmented, and populations of this species have been in decline since the 1960s. With the loss of longleaf pine forests, the species has also adapted to use brushy, open fields. This type of habitat can be found within maintained ROWs that would otherwise be lost due to forest regeneration. Two records are known from ROW proposed for vegetation management in FY25/FY26 in the Hickory Valley and Oak Ridge sectors.

Fish crows inhabit beaches, bays, lagoons, inlets, swamps, near marshes, and, less frequently, deciduous or coniferous woodland. In inland situations, they primarily use bald cypress swamps along major watercourses, also garbage dumps and towns. This state-listed species nests in trees and has been observed within 50 feet of the ROW in the Hopkinsville Sector proposed for vegetation management in FY25/FY26.

Eastern black rails nest across North America, in riparian marshes, coastal prairies, saltmarshes, and impounded wetlands. Away from tidal habitat, this species nests in a variety of wet meadows, marsh edges (including along creeks and rivers), around farm ponds, and even in hayfields with standing water. Migrating birds and wintering birds select habitats with the same characteristics as breeding habitats, but some occur in dry rice fields, among other rail species, as well. This species was identified by IPaC as possibly occurring in the project area.

Piping plover can be found during migration stopovers on expansive sand flats, sandy mudflats, and ash ponds, particularly in manmade reservoirs, where habitat has a high level of heterogeneity. Red knots occasionally appear at interior locations in eastern North America, where they frequent shorelines of large lakes or even freshwater marshes. These shorebirds were identified by USFWS as potentially occurring within the TVA Power Service Area.

Whooping Crane is a large bird that once occurred throughout North America but has declined to three populations that breed in Canada and winter in coastal Texas. In the Eastern United States, a small captive-raised population breeds in Wisconsin and overwinters in Florida. Migration habitat includes marshes, shallow lakes, lagoons, and grain fields. The whooping crane is listed as endangered in the Southwest (USFWS Region 2). Outside of this region, the whooping crane is categorized as a non-essential experimental population. For the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (require consultation under 7(a)(2) of the ESA) and as a proposed species on private land (no section 7(a)(2) requirements, but Federal agencies must not jeopardize their existence (section 7(a)(4))).

Cerulean warblers utilize closed canopy habitat within forested stands containing numerous well-spaced, large trees. These areas are typically within old-growth, deciduous stands, particularly in floodplains or other moist areas. This state-listed species nests in mature trees and has been observed within 50 feet of ROW proposed for vegetation management in the Oak Ridge and the Manchester sectors in FY25/FY26.

Golden-winged warblers breed in second growth areas with patches of shrubs, scattered trees, and grassy ground cover such as abandoned pastures and shrubby fields, old shrubby strip-mine benches, and rarely clear cuts. This state-listed species nests on or near the ground. This species was observed within 50 feet of the ROW in the Oak Ridge Sector in habitat proposed for vegetation management in FY25/FY26.

Blue-winged warblers nest on brushy hillsides, second growth, partly open situations with saplings, bogs, woodland edge and clearings, stream edges, overgrown pastures, swamps. This state-listed species nests close to or on the ground, in bushes, weeds, or grasses, or under bushes, or between exposed roots of stumps. Blue winged warbler has been observed in the ROW proposed for vegetation management in FY25/FY26 in the Cleveland Sector.

Red-cockaded woodpeckers are listed as federally endangered and although no records are known within 50 feet of ROW proposed for vegetation management, O-SAR buffers protect known colonies in the West Point Sector. This species typically inhabits open, mature pine forests with a dense groundcover consisting of a variety of grass, forb, and shrub species. These woodpeckers were extirpated from most of their habitat by the clearing of mature pines. ROW vegetation management promotes their preferred groundcover but is incompatible with large trees.

Carolina northern flying squirrels are federally listed as endangered species that lives at high elevations in the Appalachian Mountains. This species was identified by IPaC and is protected by O-SAR buffers in the Morristown Sector. It feeds on lichens that grow on trees (live, dead, standing, or fallen). The lichens are very slow growing and require specific moisture levels and substrate to grow. Even select spraying could kill unintended pockets of lichen.

Meadow Jumping Mice prefer open-grassy fields, but also use hay fields, shrubby fields, fence rows, and edges of woods. This state-listed species is frequently found in moist areas or near water. Records are known in the Nashville and Madison sector ROWs proposed for maintenance in FY25/FY26.

Eastern small-footed bats inhabit caves during winter. Summer roosts and nursery sites include caves, buildings, and cavities in the ground or beneath rocks. This state-listed species forages over ponds and streams as well as in riparian forests, upland forests, clearings and ridgetops. One record of this species has been recorded in Norris Dam in the Oak Ridge Sector within 50 feet of ROW proposed for vegetation management in FY25 and FY26.

Little brown bats primarily hibernate in caves and mines. During summer, females form nursing colonies in cliff crevices, hollow trees, under loose tree bark, or in undisturbed parts of buildings such as attics. Colonies are usually close to water bodies where these bats prefer to forage. Foraging also occurs among trees in open areas. This state-listed species has suffered extreme declines due to white-nose syndrome. The nearest known little brown bat records occur in two caves within 50 feet of the ROW, one in the Hopkinsville Sector and one in the Oak Ridge Sector both proposed for vegetation management in FY25/FY26.

Tricolored bats are found hanging in trees among clumps of live and dead leaves, in tree cavities, caves, mines, buildings, bridges, and rock crevices in summer. In winter, they roost in caves, mines, or other cave-like structures including box culverts and dams. They forage in forested areas and over water. Four records are known within 50 feet of the ROW in the Hopkinsville Sector proposed for vegetation management in FY25. For proposed FY26 vegetation management, records are present in the Oak Ridge, Morristown, Madison, Manchester, and Hopkinsville sectors. Known throughout the TVA region, this species has seen dramatic population declines in recent years due to white-nose syndrome.

Virginia big-eared bats are federally listed as endangered and inhabit caves year-round. Cave disturbances could affect them. Protective 200-foot buffers have been placed around each known cave to prevent access, disturbance or contamination by chemicals and sediment. This species was identified by IPaC as potentially occurring in the project area.

Gray bats are federally listed as endangered and inhabit caves year-round. Bats roost in different caves throughout the year, dispersing from colonies at dusk to forage along waterways. Gray bat records exist within three miles of the proposed actions and species was documented within 50 feet of the Hopkinsville, Manchester, Madison, and Oak Ridge sectors.

Indiana bats inhabit caves during winter and migrate during summer to roost under exfoliating bark and within cavities of trees (typically greater than or equal to 5 inches in diameter). Foraging occurs along riparian areas and along the tops of trees such as along a forested edge or tree line. Indiana bats have been recorded in both Hopkinsville and Oak Ridge sector plots proposed for vegetation management in FY25/FY26. Some habitat requirements overlap between Indiana bats and northern long-eared bats which roost in caves or cave-like structures in winter and utilize cave-like structures as well as live and dead trees with exfoliating bark and crevices in the summer. Northern long-eared bat have been recorded on Cleveland and Oak Ridge sector plots proposed for vegetation management in FY25/FY26.

# Appendix N – Fiscal Year 2025 Planning Cycle - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management

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**Appendix Table N 1 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Centerville Sector**

| CENTERVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| CV | Barkley Reservoir Reservation | 81082.86 | Multiple | Multiple |
| CV | Cheatham Lake - US Army Corps of Engineers | 7724.45 | Multiple | TN |
| CV | Cheatham Reservoir Reservation | 6616.16 | Multiple | TN |
| CV | Cheatham Wildlife Management Area Wildlife Observation Area | 19887.64 | Cheatham (TN) | TN |
| CV | DCH *Epioblasma brevidens* (Final) | 11056.59 | Multiple | Multiple |
| CV | DCH *Epioblasma capsaeformis* (Final) | 11056.59 | Multiple | Multiple |
| CV | DCH *Pleuronaia dolabelloides* (Final) | 11769.08 | Multiple | Multiple |
| CV | DCH *Ptychobranchus subtentus* (Final) | 12865.19 | Multiple | Multiple |
| CV | DCH *Quadrula cylindrica cylindrica* (Final) | 3920.33 | Multiple | Multiple |
| CV | Conservation Easement Land Trust of Tennessee | 1771.97 | Multiple | TN |
| CV | Duck River Bottoms State Wildlife Observation Area | 174.42 | Humphreys (TN) | TN |
| CV | Duck River State Endangered Mussel Sanctuary | 6338.49 | Multiple | TN |
| CV | Duck River State Wildlife Management Area | 1078.507 | Maury (TN) | TN |
| CV | Duck River- Tennessee State Scenic River | 466.03 | Multiple | TN |
| CV | Happy Hollow Wildlife Management Area - TWRA | 1549.11 | Hickman (TN) | TN |
| CV | Conservation Easement Land Trust of Tennessee | 777.88 | Humphreys (TN) | TN |
| CV | Kentucky Reservoir Reservation | 135396 | Multiple | Multiple |
| CV | Lake Barkley | 51637.75 | Multiple | Multiple |
| CV | Little Piney Creek | 1794.65 | Hickman (TN) | TN |
| CV | M.T.S.U. State Wildlife Management Area | 863.84 | Hickman (TN) | TN |
| CV | Natchez Trace National Parkway | 44142.14 | Multiple | Multiple |
| CV | Natchez Trace Scenic Trail | 1496.01 | Multiple | TN |
| CV | Nationwide Rivers Invenory- Sycamore Creek | 35.81 | Multiple | TN |
| CV | Nationwide Rivers Inventory - Elk River | 276.99 | Multiple | TN |
| CV | Nationwide Rivers Inventory - Red River | 232.01 | Multiple | Multiple |

| CENTERVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| CV | Nationwide Rivers Inventory- Piney River | 27.85 | Multiple | TN |
| CV | Nationwide Rivers Inventory- Richland Creek | 165.05 | Multiple | TN |
| CV | Tennessee National Wildlife Refuge | 51918.29 | Multiple | TN |
| CV | Tennessee National Wildlife Refuge/Big Sandy Unit/Duck River Bottoms | 2044.706 | Multiple | TN |
| CV | The Land Trust for Tennessee Easement | 470.61 | Hickman (TN) | TN |
| CV | Yanahli Wildlife Management Area | 13708.29 | Maury (TN) | TN |

**Appendix Table N 2 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Cleveland Sector**

| CLEVELAND SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| CL | Agricultural Conservation Easement | 67.54 | Bradley (TN) | TN |
| CL | Apalachia Reservoir Reservation | 1453.68 | Multiple | Multiple |
| CL | Atlantic Coast Conservancy/Pelican Coast Conservancy Conservation Easement | 129.39 | Hamilton (TN) | TN |
| CL | The Nature Conservancy- Conservation Easement | 463.74 | Bradley (TN) | TN |
| CL | Chattanoochee-Oconee National Forest | 868225.9 | Multiple | GA |
| CL | Cherokee (South) State Wildlife Management Area | 312955.2 | Multiple | Multiple |
| CL | Cherokee Indian Reservation | 53949.47 | Multiple | NC |
| CL | Cherokee National Forest - Hiwassee Ranger District | 149733.4 | Multiple | Multiple |
| CL | Cherokee National Forest - Ocoee Ranger District | 121499.2 | Multiple | Multiple |
| CL | Cherokee National Forest - ownership boundaries | 656051.3 | Multiple | Multiple |
| CL | Chickamauga Reservoir Reservation | 103.92 | Hamilton (TN) | TN |
| CL | Chilhowee Dairy Farm | 220.28 | Polk (TN) | TN |
| CL | Conservation Easement – Land Trust for Tennessee | 88.44 | Hamilton (TN) | TN |
| CL | Crockford-Pigeon Mountain Wildlife Management Area | 20770.91 | Multiple | GA |
| CL | DCH *Epioblasma metastriata* (Final) | 4045.52 | Multiple | Multiple |
| CL | DCH *Epioblasma othcaloogensis* (Final) | 3303.04 | Multiple | Multiple |
| CL | DCH *Etheostoma trisella* (Final) | 1674.5 | Multiple | Multiple |
| CL | DCH *Etheostoma trisella* (Final) | 5887.99 | Multiple | Multiple |
| CL | DCH *Hamiota altilis* (Final) | 3362.01 | Multiple | Multiple |
| CL | DCH *Leptoxis foremani* (Final) | 649.24 | Multiple | Multiple |
| CL | DCH *Medionidus acutissimus* (Final) | 6703.85 | Multiple | Multiple |
| CL | DCH *Medionidus parvulus* (Final) | 2629.11 | Multiple | Multiple |
| CL | DCH *Myotis sodalis* (Final) | 2089321 | Multiple | Multiple |
| CL | DCH *Noturus munitus* (Proposed) | 702.7 | Multiple | Multiple |
| CL | DCH *Percina antesella* (Final) | 407.98 | Multiple | Multiple |
| CL | DCH *Pleurobema decisum* (Final) | 5448.41 | Multiple | Multiple |
| CL | DCH *Pleurobema georgianum* (Final) | 2629.11 | Multiple | Multiple |

| CLEVELAND SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| CL | DCH *Pleurobema hanleyianum* (Final) | 634.61 | Multiple | Multiple |
| CL | DCH *Pleurobema perovatum* (Final) | 7329.92 | Multiple | Multiple |
| CL | DCH *Pleuronaia dolabelloides* (Final) | 11769.08 | Multiple | Multiple |
| CL | DCH *Ptychobranchus greenii* (Final) | 5196.98 | Multiple | Multiple |
| CL | DCH *Ptychobranchus subtentus* (Final) | 12865.19 | Multiple | Multiple |
| CL | Eastern Cherokee | 2734.43 | Cherokee (NC) | NC |
| CL | Foothills Wildlife Management Area | 6247.71 | Blount (TN) | TN |
| CL | Georgia Alabama Land Trust- Conservation Easement | 1.85 | Walker (GA) | GA |
| CL | Georgia Alabama Land Trust- Conservation Easement | 100.03 | Multiple | GA |
| CL | Georgia-Alabama Land Trust- Conservation Easement | 1671.61 | Whitfield (GA) | GA |
| CL | Georgia Department of Natural Resources - CHIEF VANN HOUSE HS | 33.96 | Murray (GA) | GA |
| CL | Georgia Department of Natural Resources - CHIEF VANN HOUSE HS | 47.06 | Murray (GA) | GA |
| CL | Grandfather Mountain Preserve | 68618.44 | Multiple | Multiple |
| CL | Griffin Conservation Property | 331.22 | Multiple | TN |
| CL | Harrison Bay State Park | 1844.44 | Hamilton (TN) | TN |
| CL | Hiwassee Refuge State Wildlife Management Area | 8054.03 | Multiple | TN |
| CL | Hiwassee Reservoir Reservation | 6256.08 | Cherokee (NC) | NC |
| CL | Hiwassee River State Mussels Sanctuary | 161.39 | Polk (TN) | TN |
| CL | Hiwassee State Scenic River | 1280.658 | Multiple | Multiple |
| CL | John Muir National Recreation/State Scenic Trail | 168.37 | Polk (TN) | TN |
| CL | Mann Conservation Easement | 149.63 | Roane (TN) | TN |
| CL | Meigs County Park | 242.73 | Meigs (TN) | TN |
| CL | Nantahala National Forest | 1327388 | Multiple | Multiple |
| CL | Nantahala National Forest / Nantahala State Game Land | 530464.6 | Multiple | Multiple |
| CL | National Forest- North Carolina | 1042224 | Multiple | Multiple |
| CL | Nationwide Rivers Inventory - Conasauga River | 226.26 | Multiple | Multiple |
| CL | Nationwide Rivers Inventory - Hiwassee River | 76.32 | Multiple | Multiple |
| CL | Nationwide Rivers Inventory -South Chickamauga Creek | 34.24 | Catoosa (GA) | GA |

| CLEVELAND SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| CL | Nickajack Reservoir State Mussel Sanctuary | 777.11 | Hamilton (TN) | TN |
| CL | North Cherokee NF and Wildlife Management Area | 334706.5 | Multiple | Multiple |
| CL | Prater Island Conservation Easement- US Army Corps of Engineers | 103.32 | Multiple | GA |
| CL | Prater Island Mitigation Bank | 105.39 | Multiple | GA |
| CL | Raccoon Creek State Wildlife Management Area | 4714.16 | Jackson (AL) | AL |
| CL | Riley Creek Islands TVA HPA | 25.56 | Roane (TN) | TN |
| CL | Conservation Easement- Land Trust for Tennessee | 29.64 | Hamilton (TN) | TN |
| CL | Skipping Rock Dairy | 95.99 | Roane (TN) | TN |
| CL | Sleepy Hollow Herb Farm | 29.34 | Whitfield (GA) | GA |
| CL | Tellico Dam and Reservoir Reservation | 25657.41 | Multiple | TN |
| CL | Town of Murphy and Cherokee County - Konaheta Park | 9.83 | Cherokee (NC) | NC |
| CL | Trail of Tears (Section) | 4.95 | Bradley (TN) | TN |
| CL | Watts Bar Dam and Reservoir Reservation | 43581.58 | Multiple | TN |
| CL | Watts Bar State Wildlife Management Area | 1247.32 | Multiple | TN |

**Appendix Table N 3 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Hickory Valley Sector**

| HICKORY VALLEY SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| HV | Chambers Creek Wetland- TWRA | 487.71 | Hardin (TN) | TN |
| HV | DCH Quadrula cylindrica cylindrica (Final) | 3920.33 | Multiple | Multiple |
| HV | Divide Canal Section Wildlife Management Area | 16409.88 | Multiple | MS |
| HV | Forgey Park - Germantown | 5.656176 | Shelby (TN) | TN |
| HV | Conservation Easement- Wolf River Conservancy | 30.92 | Shelby (TN) | TN |
| HV | Grays Creek 78 - Wolf River Conservacy | 78.33 | Shelby (TN) | TN |
| HV | Hatchie River - State Scenic River | 7622.274 | Multiple | TN |
| HV | Holly Springs National Forest | 529411 | Multiple | MS |
| HV | Kentucky Reservoir Mussel Sanctuary | 72.08917 | Hardin (TN) | TN |
| HV | Kentucky Reservoir NO. 2 Sate Mussel Sanctuary | 818.43 | Hardin (TN) | TN |
| HV | Kentucky Reservoir Reservation | 135396 | Multiple | Multiple |
| HV | Nationwide Rivers Inventory - Hatchie River | 496.19 | Multiple | Multiple |
| HV | Naval Support Activity Mid-South | 3407.1 | Shelby (TN) | TN |
| HV | Conservation Easement- Land Trust for Tennessee | 422.71 | Hardeman (TN) | TN |
| HV | Pickwick Dam Reservation | 156.16 | Hardin (TN) | TN |
| HV | Pickwick Landing State Resort Park | 1623.84 | Hardin (TN) | TN |
| HV | Pickwick Reservoir Reservation | 156.16 | Hardin (TN) | TN |
| HV | Presidents Island Wildlife Management Area | 5669.18 | Shelby (TN) | TN |
| HV | Richardson's Landing- Boat Lauch Area/Fossil Site | 30.02 | Tipton (TN) | TN |
| HV | Sardis Reservoir Reservation | 51801.73 | Multiple | MS |
| HV | Sharp Forest-Mississippi State University College of Forestry Resources | 1659.58 | Multiple | Multiple |
| HV | Shelby Farms Park | 60.2 | Shelby (TN) | TN |
| HV | Shelby Farms Park- Land Trust for TN | 3983.52 | Shelby (TN) | TN |
| HV | Southwind Community | 12950.13 | Shelby (TN) | TN |
| HV | Tennessee- Tombigbee Waterway | 13793.61 | Multiple | Multiple |
| HV | Tenn-Tom Mitigation Protection Planning Site | 13793.61 | Multiple | Multiple |
| HV | US Naval Air Station at Millington | 3407.1 | Shelby (TN) | TN |
| HV | Whiteville Lake WMA | 637.13 | Hardeman (TN) | TN |

**Appendix Table N 4 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Hopkinsville Sector**

| HOPKINSVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| HK | Acree Creek Biosphere Reserve Core Area | 878.0807 | Stewart (TN) | TN |
| HK | ACUB / Readiness and Environmental Protection Integration - Funded Easement | 613.93 | Montgomery (TN) | TN |
| HK | ACUB / Readiness and Environmental Protection Integration - Funded Easement | 303.03 | Montgomery (TN) | TN |
| HK | Barkley Lake Wildlife Management Area | 601.7735 | Multiple | Multiple |
| HK | Barkley Reservoir Reservation | 81082.86 | Multiple | KY |
| HK | Barnett Woods Designated State Natural Area and TNC Preserve | 195.2772 | Montgomery (TN) | TN |
| HK | Bayou De Chien Outstanding Resource Water | 416.3 | Multiple | KY |
| HK | Cumberland River Mussel Sanctuary (KY) | 71.67 | Lyon (KY) | KY |
| HK | DCH Myotis sodalis (Final) | 2089321 | Multiple | Multiple |
| HK | DCH Quadrula cylindrica cylindrica (Final) | 3920.33 | Multiple | Multiple |
| HK | Dyers Creek Recreation Area | 30.18 | Stewart (TN) | TN |
| HK | Environmental Education Biosphere Reserve Core Area | 3744.94 | Multiple | KY |
| HK | Fort Campbell Military Reservation/State Wildlife Management Area | 104278.8 | Multiple | Multiple |
| HK | Hancock Biological Station | 83.01049 | Calloway (KY) | KY |
| HK | Kentucky Dam State Non-Game Wildlife Natural Area | 159.9639 | Livingston (KY) | KY |
| HK | Kentucky Reservoir Reservation | 135396 | Multiple | Multiple |
| HK | Lake Barkley | 51637.75 | Multiple | Multiple |
| HK | Land Between The Lakes / Ky State Wildlife Management Area | 132997 | Multiple | Multiple |
| HK | Land Between the Lakes Biosphere Reserve | 133034.8 | Multiple | KY |
| HK | Land Between the Lakes Environmental Education Area | 5334.09 | Multiple | Multiple |
| HK | Land Between the Lakes National Recreation Area | 27960.34 | Multiple | Multiple |
| HK | Land Between the Lakes Potential National Natural Landmark | 138852.7 | Multiple | Multiple |
| HK | Land Between The Lakes Wildlife Management Area | 64028.76 | Multiple | Multiple |
| HK | Mayfield Creek Swamp Macrosite | 11284.53 | Multiple | KY |
| HK | Mineral Mound State Park | 610.6998 | Lyon (KY) | KY |
| HK | Murphy's Pond | 1161.31 | Hickman (KY) | KY |
| HK | Nationwide Rivers Inventory - Cumberland River 3 | 67.04 | Multiple | KY |

| HOPKINSVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| HK | Nationwide Rivers Inventory - Red River | 232.01 | Multiple | Multiple |
| HK | Nationwide Rivers Inventory-Cumberland River | 208.4474 | Multiple | KY |
| HK | Obion Creek Nature Preserve | 2991.57 | Hickman (KY) | KY |
| HK | Easement Corporation- KY- Conservation Easement | 605.74 | Trigg (KY) | KY |
| HK | Pond Hollow Biosphere Reserve Core Area | 8375.55 | Trigg (KY) | KY |
| HK | Sand Creek Outstanding Resource Water | 40.22 | Hickman (KY) | KY |
| HK | Tennessee River (RM 12 to 22.4 -KY Lake Dam) Outstanding Resource Water | 1700.59 | Multiple | KY |
| HK | Tennessee River Mussel Sanctuary | 751.0429 | Multiple | KY |
| HK | West Kentucky State Wildlife Management Area | 7768.653 | McCracken | KY |
| HK | Wetlands Reserve Program (WRP) | 221.08 | Hickman (KY) | KY |
| HK | Wooten's Bluff | 17.19 | Montgomery (TN) | TN |
| HK | Wootens Bluff State Protection Planning SIte | 6.132839 | Montgomery (TN) | TN |

**Appendix Table N 5 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Madison Sector**

| MADISON SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MD | Agricultural Conservation Easement | 206.33 | Limestone (AL) | AL |
| MD | Bice Mountain/Bingham Mountain Potential National Natural Landmark | 4104 | Multiple | AL |
| MD | Crow Creek Refuge State Wildlife Management Area | 404.4673 | Jackson (AL) | AL |
| MD | Crow Creek State Wildlife Management Area | 3432.85 | Jackson (AL) | AL |
| MD | DCH Cambarus cracens (Final) | 423.2 | Multiple | AL |
| MD | DCH Epioblasma metastriata (Final) | 4045.52 | Multiple | Multiple |
| MD | DCH Epioblasma othcaloogensis (Final) | 3303.04 | Multiple | Multiple |
| MD | DCH Etheostoma trisella (Final) | 1674.5 | Multiple | Multiple |
| MD | DCH Etheostoma trisella (Final) | 5887.99 | Multiple | Multiple |
| MD | DCH Hamiota altilis (Final) | 3362.01 | Multiple | Multiple |
| MD | DCH Leptoxis foremani (Final) | 649.24 | Multiple | Multiple |
| MD | DCH Medionidus acutissimus (Final) | 6703.85 | Multiple | Multiple |
| MD | DCH Medionidus parvulus (Final) | 2629.11 | Multiple | Multiple |
| MD | DCH Pleurobema decisum (Final) | 5448.41 | Multiple | Multiple |
| MD | DCH Pleurobema georgianum (Final) | 2629.11 | Multiple | Multiple |
| MD | DCH Pleurobema hanleyianum (Final) | 634.61 | Multiple | Multiple |
| MD | DCH Pleurobema perovatum (Final) | 7329.92 | Multiple | Multiple |
| MD | DCH Pleuronaia dolabelloides (Final) | 11769.08 | Multiple | Multiple |
| MD | DCH Ptychobranchus greenii (Final) | 5196.98 | Multiple | Multiple |
| MD | DCH Ptychobranchus subtentus (Final) | 12865.19 | Multiple | Multiple |
| MD | DCH Quadrula cylindrica cylindrica (Final) | 3920.33 | Multiple | Multiple |
| MD | Echota Cherokee | 326770.1 | Multiple | AL |
| MD | Farm and Ranch Lands Protection Program- Conservation Easement | 198.23 | DeKalb (AL) | AL |
| MD | Georgia Alabama Land Trust- Conservation Easement | 51.85 | Jackson (AL) | AL |
| MD | Greenbrier Spring Pygmy Sunfish Site | 1552.06 | Limestone (AL) | AL |
| MD | Huntsville Land Trust - Conservation Easement | 48.69 | Madison (AL) | AL |
| MD | Huntsville- Madison County Botanical Garden | 28.83 | Madison (AL) | AL |
| MD | James D. Martin/Skyline State Wildlife Managment Area | 60806.44 | Multiple | Multiple |
| MD | Land Trust for Northern Alabama, PPIN 32240 | 81.76 | Madison (AL) | AL |

| MADISON SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MD | Land Trust for Northern Alabama, Wade Mountain Nature Preserve | 137.7 | Madison (AL) | AL |
| MD | Land Trust for Northern Alabama, Wade Mountain Nature Preserve | 20.59 | Madison (AL) | AL |
| MD | Land Trust for Northern Alabama, Wade Mountain Nature Preserve | 64.14 | Madison (AL) | AL |
| MD | Land Trust for Northern Alabama, Wade Mountain Nature Preserve | 58.1 | Madison (AL) | AL |
| MD | Mathis Mountain Conservation Easement - Land Trust of North Alabama | 17.06 | Madison (AL) | AL |
| MD | Mud Creek Wetlands Registered Heritage Area/ WMA | 8196.11 | Jackson (AL) | AL |
| MD | Muddy Bottoms TVA Habitat Protection Area | 287.53 | Madison (AL) | AL |
| MD | Nationwide Rivers Inventory - Elk River | 276.99 | Multiple | Multiple |
| MD | North Alabama Land Trust- Conservation Easement | 5.24 | Madison (AL) | AL |
| MD | North Alabama Land Trust- Conservation Easement | 26.77 | Madison (AL) | AL |
| MD | North Alabama Land Trust- Conservation Easement | 16.48 | Madison (AL) | AL |
| MD | North Alabama Land Trust- Conservation Easement | 41.37 | Madison (AL) | AL |
| MD | North Alabama Land Trust- Conservation Easement | 6.86 | Madison (AL) | AL |
| MD | North Alabama Land Trust- Conservation Easement | 17.06 | Limestone (AL) | AL |
| MD | North Alabama Land Trust- Conservation Easement | 149.98 | Madison (AL) | AL |
| MD | North Alabama Land Trust- Conservation Easement | 77.02 | Madison (AL) | AL |
| MD | North Alabama Land Trust- Conservation Easement | 569.58 | Madison (AL) | AL |
| MD | North Alabama Land Trust- Conservation Easement | 107.75 | Madison (AL) | AL |
| MD | Paint Rock River Project | 2674.09 | Multiple | Multiple |
| MD | Raccoon Creek State Wildlife Management Area | 4714.16 | Jackson (AL) | AL |
| MD | Redstone Arsenal Military Reservation | 38385.31 | Madison (AL) | AL |
| MD | Section Bluff TVA Small Wild Area | 509.92 | Jackson (AL) | AL |
| MD | Spring Pygmy Sunfish Greenbrier Site | 1552.06 | Limestone (AL) | AL |
| MD | Swan Creek State Wildlife Management Area | 9515.97 | Multiple | AL |
| MD | Tim's Ford Reservoir Reservation | 14717.09 | Multiple | TN |
| MD | United Cherokee ANI-YUN-WIYA Nation | 5931.09 | Marshall (AL) | AL |
| MD | Wetlands Reserve Program (WRP) | 38.44 | Limestone (AL) | AL |
| MD | Wheeler National Wildlife Refuge | 37553.98 | Multiple | AL |
| MD | Wheeler Reservoir Reservation | 95205.86 | Multiple | AL |

**Appendix Table N 6 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Manchester Sector**

| MANCHESTER SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MC | AEDC Arnold Engineering Development Center | 39289.34 | Coffee (TN) | TN |
| MC | AEDC Double Powerline Barrens | 293.54 | Franklin (TN) | TN |
| MC | AEDC Military Reservation | 33066.1 | Multiple | TN |
| MC | AEDC Powerline Barrens Registered State Natural Area | 34.58 | Coffee (TN) | TN |
| MC | AEDC RAILROAD BARRENS (PLANT HABITAT) | 222.89 | Multiple | TN |
| MC | AEDC ROWLAND (ROLLINS) CREEK | 1150.25 | Multiple | TN |
| MC | AEDC Spring Creek Road Barrens | 578.82 | Franklin (TN) | TN |
| MC | AEDC Tullahoma Barrens | 39289.34 | Multiple | TN |
| MC | AEDC Wildlife Management Area & Woods Reservoir | 39289.34 | Multiple | TN |
| MC | Atlantic Coast Conservancy/Pelican Coast Conservancy Conservation Easement D201401A | 31.04 | Hamilton (TN) | TN |
| MC | Land Trust of TN Conservation Easement | 266.83 | Williamson (TN) | TN |
| MC | Bledsoe State Forest | 6902.66 | Multiple | TN |
| MC | Bridgestone/Firestone Centennial Wilderness | 15641.62 | Multiple | TN |
| MC | Caney Creek State WMA | 82.97 | Multiple | TN |
| MC | Center Hill Lake- US Army Corps of Engineers | 39704.26 | Multiple | TN |
| MC | Charles Creek | 38.62 | Multiple | TN |
| MC | Cumberland Springs Former Wildlife Management Area-Privately Owned/Cumberland Springs Hunting Land and Commercial Leasing | 7003.55 | Multiple | TN |
| MC | Cumberland Trail 1 | 13951.26 | Multiple | TN |
| MC | Cumberland Trail State Park | 16570.51 | Multiple | TN |
| MC | Cummings Cove Wildlife Management Area | 1200.42 | Multiple | TN |
| MC | DCH Chrosomus saylori (Final) | 318.04 | Multiple | TN |
| MC | DCH Epioblasma brevidens (Final) | 11056.59 | Multiple | Multiple |
| MC | DCH Epioblasma capsaeformis (Final) | 11056.59 | Multiple | Multiple |
| MC | DCH Erimonax monachus (Final) | 4423.79 | Multiple | Multiple |
| MC | DCH Pleuronaia dolabelloides (Final) | 11769.08 | Multiple | Multiple |
| MC | DCH Ptychobranchus subtentus (Final) | 12865.19 | Multiple | Multiple |
| MC | DCH Quadrula cylindrica cylindrica (Final) | 3920.33 | Multiple | Multiple |
| MC | Double Powerline Barrens | 293.54 | Multiple | TN |

| MANCHESTER SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MC | Duck River State Endangered Mussel Sanctuary | 6338.49 | Multiple | TN |
| MC | Duck River- Tennessee State Scenic River | 466.03 | Multiple | TN |
| MC | Fall Creek Falls State Park/State Natural Area | 26546.5 | Multiple | TN |
| MC | GAAL Land Trust Easement | 1.85 | Walker (GA) | GA |
| MC | Georgia Alabama Land Trust- Conservation Easement | 589.9 | Multiple | GA |
| MC | Georgia-Alabama Land Trust- Conservation Easement | 1671.61 | Dade (GA) | GA |
| MC | Conservation Easement- Land Trust for TN | 24.14 | Multiple | TN |
| MC | Conservation Easement- Land Trust for TN | 109 | Bledsoe (TN) | TN |
| MC | Great Falls Reservior Reservation | 1300.94 | Multiple | TN |
| MC | Guntersville Reservoir State Mussel Sanctuary | 1258.71 | Multiple | Multiple |
| MC | Hiwassee Refuge State Wildlife Management Area | 8054.03 | Multiple | TN |
| MC | Conservation Easement - Land Trust for TN | 95.87 | Rhea (TN) | TN |
| MC | Land Trust for Tennessee- Conservation Easement | 26.76 | Moore (TN) | TN |
| MC | Laurel Snow Designated State Natural Area | 2233.82 | Rhea (TN) | TN |
| MC | Lifeline Foods, LLC | 4.3 | Bledsoe (TN) | TN |
| MC | Mountain Creek | 57.22 | Multiple | TN |
| MC | National Rivers Inventory - Charles Creek | 38.62 | Multiple | TN |
| MC | Nationwide Rivers Inventory - Collins River | 1614.2 | Multiple | TN |
| MC | Nationwide Rivers Inventory - Johnson Creek | 9.19 | Grundy | TN |
| MC | Nationwide Rivers Inventory- Overall Creek | 36.85 | Rutherford (TN) | TN |
| MC | Nationwide Rivers Inventory- Richland Creek | 165.05 | Multiple | TN |
| MC | Nationwide Rivers Inventory- Sequatchie River | 280.55 | Multiple | TN |
| MC | Newby Branch Forest Camp | 55.34 | Rhea (TN) | TN |
| MC | Nickajack Cave | 401.85 | Marion (TN) | TN |
| MC | Nickajack Cave State Wilidlife Observation Area | 401.85 | Multiple | Multiple |
| MC | Nickajack Cave TVA Habitat Protection Area/Small Wild Area | 401.85 | Marion (TN) | TN |
| MC | Nickajack Dam Reservation | 91.84 | Hamilton (TN) | TN |
| MC | Nickajack Reservoir State Mussel Sanctuary | 777.11 | Multiple | TN |
| MC | Normandy Reservoir Reservation | 7890.09 | Bledsoe (TN) | TN |
| MC | Organic Farm | 16.6201 | Rhea (TN) | TN |
| MC | Piney River Tree Farm - Bowater Recreation Complex | 19845.96 | Jackson (AL) | AL |
| MC | Raccoon Creek State Wildlife Management Area | 4714.16 | Multiple | TN |
| MC | Raccoon Mountain Pumped Storage State Wildlife Observation Area | 646.79 | Multiple | TN |
| MC | Rock Island State Park | 1208.91 | Bledsoe (TN) | TN |

| MANCHESTER SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MC | Sapp/Alvarez Property Conservation Easement- Land Trust for TN | 133.41 | Multiple | TN |
| MC | Scales Mountain Knobs State Natural Area | 318.61 | Rutherford (TN) | TN |
| MC | Spring Creek Road Barrens - AEDC | 293.5 | Multiple | TN |
| MC | Tennessee Land Trust ID 329 | 2493.79 | Multiple | TN |
| MC | Tennessee River Gorge | 29407.87 | Marion (TN) | TN |
| MC | Tennessee River Gorge Trust Easement | 215.72 | Multiple | TN |
| MC | Tennessee River Gorge Trust -Grant Tract | 912.6 | Multiple | TN |
| MC | Timberland Investment Resources Recreation Area (Formerly Bowater) | 17701.84 | Multiple | TN |
| MC | Tim's Ford Reservoir Reservation | 14717.09 | Franklin (TN) | TN |
| MC | University of Tennessee Space Institute | 230.66 | Multiple | TN |
| MC | Watts Bar Dam and Reservoir Reservation | 43581.58 | Multiple | TN |
| MC | West Harpeth River | 60.17 | Williamson (TN) | TN |
| MC | Whites Creek Public Hunting Area | 45.65 | Multiple | TN |
| MC | Whites Creek TVA SWA | 171.09 | Rhea (TN) | TN |
| MC | Woerner Bledsoe Farm Conservation Easement- Land Trust for TN | 89.64 | Bledsoe (TN) | TN |
| MC | Woods Reservoir Reservation | 6441.83 | Multiple | TN |
| MC | Yanahli Wildlife Management Area | 13708.29 | Maury (TN) | TN |

**Appendix Table N 7 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Milan Sector**

| MILAN SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| ML | Agricultural Conservation Easement | 115.3 | Obion (TN) | TN |
| ML | Agricultural Conservation Easement | 163.88 | Crockett (TN) | TN |
| ML | Agricultural Conservation Easement | 117.19 | Haywood (TN) | TN |
| ML | Agricultural Conservation Easement | 42.03 | Dyer (TN) | TN |
| ML | Agricultural Conservation Easement | 45.39 | Gibson (TN) | TN |
| ML | Bayou De Chien Outstanding Resource Water | 416.3 | Multiple | KY |
| ML | Bogota State Wildlife Management Area | 2686.32 | Dyer (TN) | TN |
| ML | Camden State Wildlife Management Area | 3721.72 | Benton (TN) | TN |
| ML | Cane Creek of Bayou De Chien Outstanding Resource Water | 209.47 | Multiple | KY |
| ML | Emergency Watershed Protection Program - Floodplain Easement (EWPP-FPE) | 341 | Multiple | TN |
| ML | Emergency Watershed Protection Program- Floodplain Easement | 220.53 | Madison (TN) | TN |
| ML | Hatchie River - State Scenic River | 7622.274 | | |
| ML | Hop-In Wildlife Refuge -TWRA | 653.18 | Obion (TN) | TN |
| ML | J. Clark Akers Wildlife Complex- TWRA | 22344.44 | Multiple | TN |
| ML | Kentucky Reservoir Reservation | 135396 | Multiple | Multiple |
| ML | Murray State University Campus | 2665.72 | Calloway (KY) | KY |
| ML | Nationwide Rivers Inventory - Hatchie River | 496.19 | Multiple | Multiple |
| ML | Nationwide Rivers Inventory- Obion River | 132.14 | Multiple | TN |
| ML | Obion River State Wildlife Management Area | 8859.54 | Multiple | TN |
| ML | Reelfoot State Wildlife Management Area | 464.9695 | | |
| ML | Sand Creek Outstanding Resource Water | 40.22 | Hickman (KY) | KY |
| ML | South Fork of Bayou De Chien Outstanding Resource Water | 198.95 | Multiple | KY |
| ML | Tennessee National Wildlife Refuge | 51918.29 | Multiple | TN |
| ML | Tigrett State Wildlife Management Area | 9093.28 | Multiple | TN |
| ML | Wetlands Reserve Program (WRP) | 12.44 | Obion (TN) | TN |
| ML | Wetlands Reserve Program (WRP) | 221.08 | Hickman (KY) | KY |

**Appendix Table N 8 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Morristown Sector**

| MORRISTOWN SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MT | Berry Island TVA Ecological Study Area | 176.41 | Hawkins (TN) | TN |
| MT | Boone Reservoir Reservation | 4908.52 | Multiple | TN |
| MT | Buffalo Springs State Fish Hatchery | 188.4772 | Grainger (TN) | TN |
| MT | Buffalo Springs State Wildlife Management Area | 336.36 | Grainger (TN) | TN |
| MT | Cherokee (North) State Wildlife Management Area | 229570.8 | Multiple | Multiple |
| MT | Cherokee (South) State Wildlife Management Area | 312955.2 | Multiple | Multiple |
| MT | Cherokee Dam Reservation | 334.39 | Multiple | TN |
| MT | Cherokee National Forest - Unake Ranger District | 342448.7 | Multiple | Multiple |
| MT | Cherokee National Forest - ownership boundaries | 656051.3 | Multiple | Multiple |
| MT | Cherokee Reservoir Reservation | 38340.54 | Multiple | TN |
| MT | Cumberland Trail State Park | 16570.51 | Multiple | TN |
| MT | DCH Alasmidonta atropurpurea (Final) | 1682.45 | Multiple | Multiple |
| MT | DCH Epioblasma brevidens (Final) | 11056.59 | Multiple | Multiple |
| MT | DCH Epioblasma capsaeformis (Final) | 11056.59 | Multiple | Multiple |
| MT | DCH Erimonax monachus (Final) | 4423.79 | Multiple | Multiple |
| MT | DCH Erimystax cahni (Final) | 4281.54 | Multiple | Multiple |
| MT | DCH Myotis sodalis (Final) | 2089321 | Multiple | Multiple |
| MT | DCH Pleuronaia dolabelloides (Final) | 11769.08 | Multiple | Multiple |
| MT | DCH Ptychobranchus subtentus (Final) | 12865.19 | Multiple | Multiple |
| MT | DCH Quadrula cylindrica strigillata (Final) | 6830.46 | Multiple | Multiple |
| MT | DCH Villosa perpurpurea (Final) | 7528.3 | Multiple | Multiple |
| MT | Douglas Dam Reservation | 123.7 | Sevier (TN) | TN |
| MT | Foothills National Parkway | 3613.14 | Blount (TN) | TN |
| MT | Foothills Wildlife Management Area | 6247.71 | Blount (TN) | TN |
| MT | Fort Loudoun Dam Reservation | 14005.26 | Multiple | TN |
| MT | French Broad River (West) | 78.91 | Multiple | TN |
| MT | FT. Loudoun Reservoir Reservation | 14005.26 | Multiple | TN |
| MT | Grandfather Mountain Preserve | 604.16 | Multiple | Multiple |
| MT | Great Smoky Moutains National Park | 518442.7 | Multiple | Multiple |
| MT | Hawkins Cave | 8.83 | Campbell (TN) | TN |

| MORRISTOWN SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MT | Conservation Easement Land Trust for TN | 706.09 | Greene (TN) | TN |
| MT | Lower French Broad and Lower Holston Nonessential Experimental Population Status | 4790.05 | Multiple | TN |
| MT | Mossy Creek TVA Ecological Study Area | 38340.54 | | |
| MT | Nantahala National Forest | 1327388 | Multiple | Multiple |
| MT | Nantahala National Forest / Nantahala State Game Land | 530464.6 | Multiple | Multiple |
| MT | National Forest- North Carolina | 1042224 | Multiple | Multiple |
| MT | Nationwide Rivers Inventory - Clinch River 1 | 80.22 | Multiple | TN |
| MT | Nationwide Rivers Inventory - French Broad River (West) | 78.91 | Multiple | TN |
| MT | Nationwide Rivers Inventory - Holston River | 128.09 | Multiple | TN |
| MT | Norris Dam Cave TVA Habitat Protection Area | 2.45 | Anderson (TN) | TN |
| MT | Norris Dam Reservation | 114.55 | Multiple | TN |
| MT | Norris Dam State Resort Park | 2799.85 | Multiple | TN |
| MT | Norris Municipal Watershed | 2257.36 | Anderson (TN) | TN |
| MT | Norris Songbird Trail State Wildlife Observation Area | 58.9 | Multiple | TN |
| MT | North Cherokee NF and Wildlife Management Area | 334706.5 | Multiple | Multiple |
| MT | North Cumberland Wildlife Management Area | 150784.4 | Multiple | TN |
| MT | Oak Grove River Bluffs TVA Habitat Protection Area | 10.49 | Campbell (TN) | TN |
| MT | Pisgah National Forest | 1123035 | Multiple | Multiple |
| MT | Pisgah State Game Land | 511249.4 | Multiple | Multiple |
| MT | River Bluff TVA Small Wild Area | 278.71 | Anderson (TN) | TN |
| MT | Royal Blue State Wildlife Management Area | 30269.32 | Multiple | TN |
| MT | Sevier County Park | 282.06 | Sevier (TN) | TN |
| MT | South Doyle High School Park | 49.87 | Knox (TN) | TN |
| MT | South Holston Dam and Reservoir Reservation | 8942.43 | Multiple | Multiple |
| MT | Stinking Creek | 50.82 | Campbell (TN) | TN |
| MT | Sundquist Wildlife Management Area | 88450.81 | Multiple | TN |
| MT | Trotter Bluff TVA Small Wild Area | 43.18 | Sevier (TN) | TN |
| MT | TVA Programmatic Agreement 2003 (French Broad) | 1956.42 | Multiple | TN |
| MT | TVA Programmatic Agreement 2003 (Holston) | 2419.58 | Multiple | TN |
| MT | UT Organic Farms Unit | 89.21 | Knox (TN) | TN |
| MT | Waterfall Creek Potential National Natural Landmark | 1123035 | Multiple | TN |

**Appendix Table N 9 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Muscle Shoals Sector**

| MUSCLE SHOALS SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MS | Bruton Branch Recreation Area | 186.79 | Hardin (TN) | TN |
| MS | Bull Mountain Creek Protection Planning Site | 2229.9 | Itawamba (MS) | MS |
| MS | Burton Branch Primitive Area - Unit of Pickwick Landing State Park | 207.1539 | | |
| MS | Canal Section WMA | 29406.14 | Multiple | MS |
| MS | DCH Epioblasma brevidens (Final) | 11056.59 | Multiple | Multiple |
| MS | DCH Epioblasma capsaeformis (Final) | 11056.59 | Multiple | Multiple |
| MS | DCH Medionidus acutissimus (Final) | 6703.85 | Multiple | Multiple |
| MS | DCH Pleurobema decisum (Final) | 5448.41 | Multiple | Multiple |
| MS | DCH Pleurobema perovatum (Final) | 7329.92 | Multiple | Multiple |
| MS | DCH Pleuronaia dolabelloides (Final) | 11769.08 | Multiple | Multiple |
| MS | DCH Ptychobranchus greenii (Final) | 5196.98 | Multiple | Multiple |
| MS | DCH Ptychobranchus subtentus (Final) | 12865.19 | Multiple | Multiple |
| MS | DCH Quadrula cylindrica cylindrica (Final) | 3920.33 | Multiple | Multiple |
| MS | Divide Canal Section Wildlife Management Area | 16409.88 | Multiple | MS |
| MS | Dry Creek Wildlife Management Area | 4055.4 | Hardin (TN) | TN |
| MS | East Fork Tombigbee River Macrosite | 8100.78 | Multiple | MS |
| MS | Echota Cherokee | 326770.1 | Multiple | AL |
| MS | Freedom Hills Wildlife Management Area | 39489.55 | Multiple | AL |
| MS | Lauderdale Wildlife Management Area | 24535.71 | Multiple | Multiple |
| MS | Muscle Shoals Reservation | 2427.5 | Multiple | AL |
| MS | Natchez Trace National Parkway | 44142.14 | Multiple | Multiple |
| MS | Nationwide Rivers Inventory - Elk River | 276.99 | Multiple | Multiple |
| MS | Old First Quarters TVA Small Wild Area | 26.16871 | Multiple | AL |
| MS | Pickwick Dam and Reservoir Reservation | 156.16 | Hardin (TN) | TN |
| MS | Pickwick Landing State Resort Park | 1623.84 | Hardin (TN) | TN |
| MS | Reelfoot State Wildlife Management Area | 186.7851 | Multiple | TN |
| MS | River Heritage Park | 26.59 | Lauderdale (AL) | AL |
| MS | Swan Creek State Wildlife Management Area | 9515.97 | Multiple | AL |

| MUSCLE SHOALS SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MS | Tennessee River/Wilson Dam Nonessential Experimental Population | 4692.18 | Multiple | AL |
| MS | Tennessee- Tombigbee Waterway | 13793.61 | Multiple | Multiple |
| MS | Tenn-Tom Mitigation Protection Planning Site | 13793.61 | Multiple | Multiple |
| MS | Veterans Park | 95.7 | Lauderdale (AL) | AL |
| MS | Wheeler Dam Tailwater Restricted Mussel Harvest Area | 2028.64 | Multiple | AL |
| MS | Wheeler National Wildlife Refuge | 37553.98 | Multiple | AL |
| MS | Wheeler Reservoir Reservation | 95205.86 | Multiple | AL |
| MS | Wilson Dam Reservation | 245.41 | Multiple | AL |
| MS | Wilson Dam Tailwater Restricted Mussel Harvest Area | 1365.5 | Multiple | AL |

**Appendix Table N 10 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Nashville Sector**

| NASHVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| NA | Bells Bend Park | 819.98 | Davidson (TN) | TN |
| NA | Caney Fork Access Site | 15.19 | DeKalb (TN) | TN |
| NA | Center Hill Lake- US Army Corps of Engineers | 39704.26 | Multiple | TN |
| NA | Center Hill Marsh | 7.66 | DeKalb (TN) | TN |
| NA | Center Hills Bluffs Protection Planning Site | 79.08 | Multiple | TN |
| NA | Cheatham Lake - USACOE | 7724.45 | Multiple | TN |
| NA | Cheatham Reservoir Reservation | 6616.16 | Multiple | TN |
| NA | Cordell Hull Reservoir Reservation- USACOE | 26773.34 | Multiple | Multiple |
| NA | Cordell Hull State Wildlife Management Area | 17194.97 | Multiple | TN |
| NA | Cumberland River NO. 3 State Mussel Sanctuary | 1409.16 | Smith (TN) | TN |
| NA | Dale Hollow Lake | 25640.91 | Multiple | Multiple |
| NA | Dale Hollow Lake - USACOE | 44755.69 | Multiple | Multiple |
| NA | Dale Hollow National Fish Hatchery | 38.57 | Clay (TN) | TN |
| NA | Dale Hollow Reservoir Reservation | 26586.53 | Multiple | Multiple |
| NA | DCH Myotis sodalis (Final) | 2089321 | Multiple | Multiple |
| NA | DCH Quadrula cylindrica cylindrica (Final) | 3920.33 | Multiple | Multiple |
| NA | Dillion Pond Park | 22.3 | Overton (TN) | TN |
| NA | Edgar Evins State Park | 935.4757 | DeKalb (TN) | TN |
| NA | Edgar Evins State Park Wildlife Management Area | 6087.19 | DeKalb (TN) | TN |
| NA | Gallatin Steam Plant Wildlife Management Area | 1718.9 | Sumner (TN) | TN |
| NA | Goodman Farm | 164.65 | Robertson (TN) | TN |
| NA | Great Falls Dam Reservation | 18.38 | Warren (TN) | TN |
| NA | Great Falls Reservior Reservation | 1300.94 | Multiple | TN |
| NA | Highland Rim Experiment Station | 374.56 | Robertson (TN) | TN |
| NA | Conservation Easement Land Trust of TN | 427.29 | Smith (TN) | TN |
| NA | Mill Creek Macrosite/Sevenmile Creek Stream Mitigation Site and City of Nashville Greenways Sevenmile Park | 998.0618 | Multiple | TN |
| NA | Mill Creek Site | 2352.71 | Multiple | TN |
| NA | Mountain Creek | 57.22 | Multiple | TN |
| NA | Natchez Trace National Parkway | 44142.14 | Multiple | Multiple |
| NA | Natchez Trace Scenic Trail | 1496.01 | Multiple | Multiple |

| NASHVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| NA | National Rivers Inventory - Roaring River | 91.43 | Multiple | Multiple |
| NA | National Rivers Inventory-Blackburn Fork of Roaring River | 3.746421 | Jackson | Jackson |
| NA | National Rivers Inventory-Obey River | 20.00276 | Multiple | Multiple |
| NA | Nationwide Rivers Invenory- Sycamore Creek | 35.81 | Multiple | Multiple |
| NA | Nationwide Rivers Inventory - Red River | 232.01 | Multiple | Multiple |
| NA | Nationwide Rivers Inventory - Sulphur Fork Red River | 68.69 | Multiple | Multiple |
| NA | Nationwide Rivers Inventory- Caney Fork | 65.75 | Multiple | Multiple |
| NA | Nationwide Rivers Inventory- East Blackburn Fork | 17.69 | Multiple | Multiple |
| NA | Nationwide Rivers Inventory- Overall Creek | 36.85 | Rutherford (TN) | Rutherford (TN) |
| NA | Nationwide Rivers Inventory- Smith Fork Creek | 72.16 | Multiple | Multiple |
| NA | Obed National Wild and Scenic River | 18.14 | Clay (TN) | Clay (TN) |
| NA | Old Hickory Reservoir Reservation | 23997.87 | Multiple | Multiple |
| NA | Old Hickory State Wildlfie Management Area | 26682.04 | Multiple | Multiple |
| NA | Pine Creek | 35.13 | DeKalb (TN) | DeKalb (TN) |
| NA | Rock Island State Park | 1208.91 | Multiple | Multiple |
| NA | Scales Mountain Knobs State Natural Area | 318.61 | Rutherford (TN) | Rutherford (TN) |
| NA | Shelby Bottoms Natural Area | 997.14 | Davidson (TN) | Davidson (TN) |
| NA | Shelby Park | 343.3137 | Davidson (TN) | Davidson (TN) |
| NA | Sink Creek | 52.94 | Multiple | Multiple |
| NA | Spring Creek | 65.18 | Multiple | Multiple |
| NA | Spring Creek Bottom and Glade | 1354.09 | Wilson (TN) | Wilson (TN) |
| NA | Standing Stone State Forest and Wildlife Management Area | 8007.52 | Multiple | Multiple |
| NA | Standing Stone State Park | 1054.75 | Overton (TN) | Overton (TN) |
| NA | Standing Stone State Rustic Park | 151.5539 | Overton (TN) | Overton (TN) |
| NA | Tennessee Land Trust ID 396 | 65.35 | Smith (TN) | Smith (TN) |
| NA | The Land Trust for Tennessee Easement | 149.84 | Multiple | Multiple |
| NA | University School of Nashville | 100.2358 | Davidson (TN) | Davidson (TN) |
| NA | Upper Cumberland Wildlife Rehabilitation Center | 7.65 | Putnam (TN) | Putnam (TN) |
| NA | West Harpeth River | 60.17 | Williamson (TN) | Williamson (TN) |

**Appendix Table N 11 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Oak Ridge Sector**

| OAK RIDGE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| OR | Adrian Burnett Elementary School Park | 10.77 | Knox (TN) | TN |
| OR | Bridgestone/Firestone Centennial Wilderness | 15641.62 | Multiple | TN |
| OR | Browder Woods Registered State Natural Area | 197.01 | Loudon (TN) | TN |
| OR | Bullrun Knobs | 188.27 | Knox (TN) | TN |
| OR | Chaffin Property- Conservation Easement held by Foothills Land Conservancy | 105.86 | Knox (TN) | TN |
| OR | Clinch State Scenic River | 3234.87 | Multiple | TN |
| OR | Cline Property- Foothills Land Conservancy | 486.2 | Loudon (TN) | TN |
| OR | Cordell Hull Reservoir Reservation- USACOE | 26773.34 | Multiple | Multiple |
| OR | Cumberland Trail 1 | 13951.26 | Multiple | TN |
| OR | Cumberland Trail State Park | 16570.51 | Multiple | TN |
| OR | Dale Hollow Lake | 25640.91 | Multiple | Multiple |
| OR | Dale Hollow Lake - USACOE | 44755.69 | Multiple | Multiple |
| OR | Dale Hollow National Fish Hatchery | 38.57 | Clay (TN) | TN |
| OR | Dale Hollow Reservoir Reservation | 26586.53 | Multiple | Multiple |
| OR | DCH Alasmidonta atropurpurea (Final) | 1682.45 | Multiple | Multiple |
| OR | DCH Epioblasma brevidens (Final) | 11056.59 | Multiple | Multiple |
| OR | DCH Epioblasma capsaeformis (Final) | 11056.59 | Multiple | Multiple |
| OR | DCH Erimonax monachus (Final) | 4423.79 | Multiple | Multiple |
| OR | DCH Etheostoma susanae (Final) | 378.11 | Multiple | Multiple |
| OR | DCH Myotis sodalis (Final) | 2089321 | Multiple | Multiple |
| OR | DCH Ptychobranchus subtentus (Final) | 12865.19 | Multiple | Multiple |
| OR | DCH Villosa perpurpurea (Final) | 7528.3 | Multiple | Multiple |
| OR | Dillion Pond Park | 22.3 | Overton (TN) | TN |
| OR | Eagle Bend Hatchery State Wildlife Observation Area | 43.96 | Anderson (TN) | TN |
| OR | East Fork Ridge Protection Planning Site | 134.72 | Anderson (TN) | TN |
| OR | Emory River Conservation Easement - TDEC | 19102.17 | Multiple | TN |
| OR | Fall Creek Falls State Park/State Natural Area | 26546.5 | Multiple | TN |

| OAK RIDGE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| OR | Fort Loudoun Dam Reservation | 14005.26 | Multiple | TN |
| OR | FT. Loudoun Reservoir Reservation | 14005.26 | Multiple | TN |
| OR | Haw Ridge Park | 762.22 | Anderson (TN) | TN |
| OR | Hawkins Cave | 8.83 | Campbell (TN) | TN |
| OR | Marsh Creek (Basin Above RM 24) Outstanding Resource Water | 27.38 | Multiple | Multiple |
| OR | Melton Hill Dam Reservation | 1063.86 | Anderson (TN) | TN |
| OR | Murphy Hills Park | 0.98 | Knox (TN) | TN |
| OR | National Rivers Inventory - Roaring River | 91.43 | Multiple | TN |
| OR | Nationwide Rivers Inventory - Clinch River 1 | 80.22 | Multiple | TN |
| OR | Nationwide Rivers Inventory - White Oak Creek | 38.52 | Multiple | TN |
| OR | Nationwide Rivers Inventory- East Blackburn Fork | 17.69 | Multiple | TN |
| OR | Nationwide Rivers Inventory- Sequatchie River | 280.55 | Multiple | TN |
| OR | Nationwide Rivers Inventory-Cumberland River | 208.4474 | Multiple | Multiple |
| OR | Nationwide Rivers Inventory-Emory River | 88.16 | Multiple | TN |
| OR | Norris Dam Cave TVA Habitat Protection Area | 2.45 | Anderson (TN) | TN |
| OR | Norris Dam Reservation | 114.55 | Multiple | TN |
| OR | Norris Dam State Resort Park | 2799.85 | Multiple | TN |
| OR | Norris Municipal Watershed | 2257.36 | Anderson (TN) | TN |
| OR | Norris Songbird Trail State Wildlife Observation Area | 58.9 | Multiple | TN |
| OR | North Cumberland Wildlife Management Area | 150784.4 | Multiple | TN |
| OR | North Ridge Trail | 103.13 | Anderson (TN) | TN |
| OR | Oak Grove River Bluffs TVA Habitat Protection Area | 10.49 | Campbell (TN) | TN |
| OR | Oak Ridge National Laboratory Reservation | 32848.61 | Multiple | TN |
| OR | ORR Black Oak Ridge Conservation Easement | 2962.94 | Roane | TN |
| OR | Powell High School Park | 23.53 | Knox (TN) | TN |
| OR | Pumping Station Embayment TVA Habitat Protection Area | 6.12624 | Anderson (TN) | TN |

| OAK RIDGE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| OR | River Bluff TVA Small Wild Area | 278.71 | Anderson (TN) | TN |
| OR | Royal Blue State Wildlife Management Area | 30269.32 | Multiple | TN |
| OR | Spring Creek | 65.18 | Multiple | TN |
| OR | Sterchi Hills Park - Knoxville | 11.4 | Knox (TN) | TN |
| OR | Stinking Creek | 50.82 | Campbell (TN) | TN |
| OR | Sundquist Wildlife Management Area | 88450.81 | Multiple | TN |
| OR | Sweetser Property-Conservation Easement | 14.11 | Knox (TN) | TN |
| OR | TDEC Emory River Conservation Easement | 19102.17 | Multiple | TN |
| OR | Tellico Dam and Reservoir Reservation | 25657.41 | Multiple | TN |
| OR | Tennessee Land Trust ID 329 | 2493.79 | Multiple | TN |
| OR | Tommy Schumpert Park | 177.93 | Knox (TN) | TN |
| OR | University of Tennessee Arboretum/State Wildlife Observation Area | 374.65 | Anderson (TN) | TN |
| OR | Watts Bar Dam and Reservoir Reservation | 43581.58 | Multiple | TN |
| OR | Watts Bar State Wildlife Management Area | 1247.32 | Multiple | TN |

**Appendix Table N 12 Fiscal Year 2025 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the West Point Sector**

| WEST POINT SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| WP | Canal Section WMA | 29406.14 | Multiple | MS |
| WP | DCH Medionidus acutissimus (Final) | 6703.85 | Multiple | Multiple |
| WP | DCH Pleurobema decisum (Final) | 5448.41 | Multiple | Multiple |
| WP | DCH Pleurobema perovatum (Final) | 7329.92 | Multiple | Multiple |
| WP | East Fork Tombigbee River Macrosite | 8100.78 | Multiple | MS |
| WP | Enid Reservoir Reservation | 45156.63 | Multiple | MS |
| WP | Holly Springs National Forest | 529411 | Multiple | MS |
| WP | Nanih Waiya Wildlife Management Area | 7842.25 | Multiple | MS |
| WP | Natchez Trace National Parkway | 44142.14 | Multiple | Multiple |
| WP | National Rivers Inventory-Noxubee River | 54.95472 | Multiple | MS |
| WP | Osborn Prairie | 291.5657 | Oktibbeha (MS) | MS |
| WP | Sam D. Hamilton Noxubee National Wildlife Refuge | 48528.6 | Multiple | MS |
| WP | Sardis Reservoir Reservation | 51801.73 | Multiple | MS |
| WP | Southern Conservation Trust - Walker & Walker | 49.81 | Lafayette (MS) | MS |
| WP | Tennessee- Tombigbee Waterway | 13793.61 | Multiple | Multiple |
| WP | Tenn-Tom Mitigation Protection Planning Site | 13793.61 | Multiple | MS |
| WP | Wildcat Brake Management Area | 2341.24 | Yalobusha (MS) | MS |

# Appendix O – Fiscal Year 2026 Planning Cycle - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management

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**Appendix Table O 1 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Centerville Sector**

| CENTERVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| CV | Alexander Cave | 205.04 | Multiple | TN |
| CV | Barkley Lake Wildlife Management Area | 65947.6 | | |
| CV | Barkley Reservoir Reservation | 81082.86 | Multiple | Multiple |
| CV | Beaver Dam Creek WMA | 6716.85 | Hickman (TN) | TN |
| CV | Buffalo State Scenic River | 436.54 | Multiple | TN |
| CV | Cheatham Lake - US Army Corps of Engineers | 7724.45 | Multiple | TN |
| CV | Cheatham Reservoir Reservation | 6616.16 | Multiple | TN |
| CV | Cheatham Wildlife Management Area Wildlife Observation Area | 19887.64 | Cheatham (TN) | TN |
| CV | David Crockett State Park | 1001.77 | Lawrence (TN) | TN |
| CV | DCH *Etheostoma boschungi* (Final) | 853.39 | Multiple | Multiple |
| CV | DCH *Pleuronaia dolabelloides* (Final) | 11769.08 | Multiple | Multiple |
| CV | DCH *Ptychobranchus subtentus* (Final) | 12865.19 | Multiple | Multiple |
| CV | DCH *Quadrula cylindrica cylindrica* (Final) | 3920.33 | Multiple | Multiple |
| CV | Duck River Megasite Fee - The Nature Conservancy - Fee Ownership | 205.04 | Multiple | TN |
| CV | Duck River State Endangered Mussel Sanctuary | 6338.49 | Multiple | TN |
| CV | Eagle Creek State Wildlife Management Area | 23166.32 | Wayne (TN) | TN |
| CV | Farm and Ranch Lands Protection Program | 237.04 | Dickson (TN) | TN |
| CV | Hick Hill WMA | 3583.23 | Lewis (TN) | TN |
| CV | Kentucky Reservoir Reservation | 135396 | Multiple | Multiple |
| CV | Conservation Easement- Land Trust for TN | 278.13 | Maury (TN) | TN |
| CV | Lake Barkley | 51637.75 | Multiple | Multiple |
| CV | Land Trust for Tennessee- Conservation Easement | 305.24 | Maury (TN) | TN |
| CV | Little Grinders Registered State Natural Area | 602.37 | Lewis (TN) | TN |
| CV | Mark's Slough | 475.78 | Montgomery (TN) | TN |
| CV | Natchez Trace National Parkway | 44142.14 | Multiple | Multiple |
| CV | Natchez Trace Scenic Trail | 1496.01 | Multiple | TN |

| CENTERVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| CV | National Rivers Inventory - Cypress Creek | 54.2 | Lauderdale (AL) | AL |
| CV | Nationwide Rivers Invenory- Sycamore Creek | 35.81 | Multiple | TN |
| CV | Nationwide Rivers Inventory - Elk River | 276.99 | Multiple | Multiple |
| CV | Nationwide Rivers Inventory - Red River | 232.01 | Multiple | Multiple |
| CV | Nationwide Rivers Inventory- Green River | 28.57 | Wayne (TN) | TN |
| CV | Nationwide Rivers Inventory- Harpeth River | 166.49 | Multiple | TN |
| CV | Shoal Creek Nonessential Experimental Population | 1306.53 | Multiple | Multiple |
| CV | Stewart State Forest | 4271.13 | Stewart (TN) | TN |
| CV | Swan Conservation Trust | 1541.61 | Lewis (TN) | TN |
| CV | Tennessee National Wildlife Refuge | 51918.29 | Multiple | TN |
| CV | Tennessee National Wildlife Refuge/Big Sandy Unit/Duck River Bottoms | 2044.706 | Multiple | TN |
| CV | The Land Trust for Tennessee Conservation Easement | 621.75 | Lewis (TN) | TN |
| CV | The Land Trust for Tennessee Easement | 762.08 | Montgomery (TN) | TN |
| CV | Tie Camp Wildlife Management Area | 7690.99 | Wayne (TN) | TN |
| CV | Wells Creek Cryptoexplosive Structure Potential NA | 17.07 | Multiple | TN |
| CV | Williamsport Lake and WMA | 1729.02 | Maury (TN) | TN |

**Appendix Table O 2 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Cleveland Sector**

| CLEVELAND SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| CL | Apalachia Reservoir Reservation | 1453.68 | Multiple | Multiple |
| CL | Atlantic Coast Conservancy NCED ID 1032214 | 213.76 | Walker (GA) | GA |
| CL | Chattahoochee-Oconee National Forest- Ownership Boundaries (1 of 4) | 1263065 | Multiple | Multiple |
| CL | Chattahoochee-Oconee National Forests Boundary (2 OF 4) | 229941.7 | Multiple | GA |
| CL | Chattanoochee-Oconee National Forest | 868225.9 | Multiple | Multiple |
| CL | Chatuge Reservoir Reservation | 7552.03 | Multiple | Multiple |
| CL | Cherokee (South) State Wildlife Management Area | 312955.2 | Multiple | Multiple |
| CL | Cherokee County Open Space | 1.57 | Cherokee (NC) | NC |
| CL | Cherokee Indian Reservation | 53949.47 | Multiple | NC |
| CL | Cherokee National Forest - Hiwassee Ranger District | 149733.4 | Multiple | Multiple |
| CL | Cherokee National Forest - Ocoee Ranger District | 121499.2 | Multiple | Multiple |
| CL | Cherokee National Forest - ownership boundaries | 656051.3 | Multiple | Multiple |
| CL | Chickamagua and Chattanooga National Military Park | 8230.26 | Multiple | Multiple |
| CL | Chickamauga Shoreline TVA HPA | 54.42 | Multiple | TN |
| CL | Chief Vann House HS - Georgia DNR | 1.71 | Murray (GA) | GA |
| CL | DCH *Epioblasma metastriata* (Final) | 4045.52 | Multiple | Multiple |
| CL | DCH *Epioblasma othcaloogensis* (Final) | 3303.04 | Multiple | Multiple |
| CL | DCH *Etheostoma trisella* (Final) | 1674.5 | Multiple | Multiple |
| CL | DCH *Etheostoma trisella* (Final) | 5887.99 | Multiple | Multiple |
| CL | DCH *Hamiota altilis* (Final) | 3362.01 | Multiple | Multiple |
| CL | DCH *Medionidus a*cutissimus (Final) | 6703.85 | Multiple | Multiple |
| CL | DCH *Medionidus parvulus* (Final) | 2629.11 | Multiple | Multiple |
| CL | DCH *Myotis sodalis* (Final) | 2089321 | Multiple | Multiple |
| CL | DCH *Noturus munitus* (Proposed) | 702.7 | Multiple | Multiple |
| CL | DCH *Pleurobema decisum* (Final) | 5448.41 | Multiple | Multiple |
| CL | DCH *Pleurobema g*eorgianum (Final) | 2629.11 | Multiple | Multiple |
| CL | DCH *Pleurobema perovatum* (Final) | 7329.92 | Multiple | Multiple |
| CL | DCH *Pleuronaia dolabelloides* (Final) | 11769.08 | Multiple | Multiple |
| CL | DCH *Ptychobranchus greenii* (Final) | 5196.98 | Multiple | Multiple |
| CL | DCH *Ptychobranchus subtentus* (Final) | 12865.19 | Multiple | Multiple |

| CLEVELAND SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| CL | Emergency Watershed Protection Program - Floodplain Easement (EWPP-FPE) | 134.76 | Gordon (GA) | GA |
| CL | Enota Certified Organic Farm and Garden | 868227.2 | Townes | GA |
| CL | Fourth Fractional Township Wildlife Management Area | 829.55 | Polk (TN) | TN |
| CL | Grandfather Mountain Preserve | 2.09 | Cherokee (NC) | NC |
| CL | Hiwassee Reservoir Reservation | 6256.08 | Cherokee (NC) | NC |
| CL | Mayfield Farm Conservation Easement | 727.85 | McMinn (TN) | TN |
| CL | Nantahala National Forest | 1327388 | Multiple | Multiple |
| CL | Nantahala National Forest / Nantahala State Game Land | 530464.6 | Multiple | Multiple |
| CL | National Forest- North Carolina | 1042224 | Multiple | Multiple |
| CL | Nationwide Rivers Inventory - Conasauga River | 226.26 | Multiple | Multiple |
| CL | Nationwide Rivers Inventory - Ocoee River | 29.76 | Polk (TN) | TN |
| CL | Nationwide Rivers Inventory -South Chickamauga Creek | 34.24 | Catoosa (GA) | GA |
| CL | NC Division of Mitigation Services Easement (Martins Creek II?) | 93.9 | Cherokee (NC) | NC |
| CL | North Cherokee NF and Wildlife Management Area | 334706.5 | Multiple | Multiple |
| CL | Nottley Dam Reservation | 46.38 | Union (GA) | GA |
| CL | Nottley Reservoir Reservation | 4046.31 | Union (GA) | GA |
| CL | Ocoee NO. 2 Reservoir Reservation | 153.42 | Polk (TN) | TN |
| CL | Ocoee NO. 3 Reservoir Reservation | 51.95 | Polk (TN) | TN |
| CL | Ocoee River Gorge | 1293.3 | Polk (TN) | TN |
| CL | Ocoee River/Ruths Golden Aster Protection Planning Site | 1293.3 | Polk (TN) | TN |
| CL | Ocoee State Bear Reserve | 18191.27 | Multiple | Multiple |
| CL | Oostanaula Creek Stream Mitigation Site | 146.69 | McMinn (TN) | TN |
| CL | Raccoon Creek State Wildlife Management Area | 4714.16 | Jackson (AL) | AL |
| CL | River's Edge Farm | 58.51 | Cherokee (NC) | NC |
| CL | Tellico Dam and Reservoir Reservation | 25657.41 | Multiple | TN |
| CL | Tennessee Land Trust ID 95 | 17.28 | McMinn (TN) | TN |
| CL | The Land Trust for Tennessee Easement | 218.91 | Loudon (TN) | TN |
| CL | Town of Murphy and Cherokee County - Konaheta Park | 9.83 | Cherokee (NC) | NC |
| CL | Watts Bar Dam Reservation | 43581.58 | Multiple | TN |
| CL | Watts Bar Reservoir Reservation | 43581.58 | Walker (GA) | GA |

**Appendix Table O 3 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Hickory Valley Sector**

| HICKORY VALLEY SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| HV | Big Hill Pond State Park | 4242.59 | McNairy (TN) | TN |
| HV | Brags, LLC - Conservation Easement Mississippi Land Trust | 845.38 | Benton (MS) | MS |
| HV | DCH *Helianthus verticillatus* (Final) | 1543.47 | Multiple | Multiple |
| HV | DCH *Quadrula cylindrica cylindrica* (Final) | 3920.33 | Multiple | Multiple |
| HV | Graham Lake Waterfowl Management Area/ Graham Lake Marsh Project | 2080.81 | Multiple | MS |
| HV | Grays Creek Wetland- TWRA | 288.5 | Hardeman (TN) | TN |
| HV | Hatchie National Wildlife Refuge | 11711.9 | Haywood (TN) | TN |
| HV | Hatchie River - State Scenic River | 7622.274 | Multiple | TN |
| HV | Holly Springs National Forest | 529411 | Multiple | MS |
| HV | Kentucky Reservoir NO. 2 Sate Mussel Sanctuary | 818.43 | Hardin (TN) | TN |
| HV | Kentucky Reservoir Reservation | 135396 | Multiple | Multiple |
| HV | Nationwide Rivers Inventory - Hatchie River | 496.19 | Multiple | Multiple |
| HV | Pickwick Dam and Reservoir Reservation | 156.16 | Hardin (TN) | TN |
| HV | Sardis Reservoir Reservation | 51801.73 | Multiple | MS |
| HV | Savannah City Park | 7.646891 | Hardin (TN) | TN |
| HV | Shaws Creek Bottoms | 10538.71 | Multiple | TN |
| HV | Tennessee- Tombigbee Waterway | 13793.61 | Multiple | Multiple |
| HV | Tenn-Tom Mitigation Protection Planning Site | 13793.61 | Multiple | Multiple |
| HV | Walker Branch Hills Designated State Natural Area | 381.3089 | Hardin (TN) | TN |
| HV | William B Clark Designated State Natural Area | 476.38 | Fayette (TN) | TN |
| HV | Wolf River Macrosite | 13834.94 | Multiple | Multiple |
| HV | Wolf River WMA and Ghost River State Natural Area | 11303.05 | Multiple | Multiple |
| HV | Wolf River WMA Unit 2 | 768.1 | Fayette (TN) | TN |

**Appendix Table O 4 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Hopkinsville Sector**

| HOPKINSVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| HK | ACUB / Readiness and Environmental Protection Integration - Funded Easement | 63.45 | Christian (KY) | KY |
| HK | ACUB / Readiness and Environmental Protection Integration - Funded Easement | 55.15 | Christian (KY) | KY |
| HK | ACUB / Readiness and Environmental Protection Integration - Funded Easement | 33.89 | Christian (KY) | KY |
| HK | Agricultural Conservation Easement | 431.7732 | Logan (KY) | KY |
| HK | Agricultural Conservation Easement | 3.32 | Marshall (KY) | KY |
| HK | Agricultural Conservation Easement | 11.43 | Marshall (KY) | KY |
| HK | Agricultural Conservation Easement | 567.95 | Marshall (KY) | KY |
| HK | Agricultural Conservation Easement | 222.72 | Multiple | KY |
| HK | Agricultural Conservation Easement | 131.14 | Marshall (KY) | KY |
| HK | Barkley Lake Wildlife Management Area | 601.7735 | Stewart | TN |
| HK | Barkley Reservoir Reservation | 81082.86 | Multiple | Multiple |
| HK | Bayou De Chien Outstanding Resource Water | 416.3 | Multiple | KY |
| HK | BRIGGS LAKE | 18.18 | Logan (KY) | KY |
| HK | Butler County Preserve 03 | 56.16 | Butler (KY) | KY |
| HK | Buzzard Knob | 413.67 | Logan (KY) | KY |
| HK | Clarks River National Wildlife Refuge | 17650.37 | Multiple | KY |
| HK | Cross Creeks National Wildlife Refuge | 8785.105 | Stewart (TN) | TN |
| HK | Cross Creeks National Wildlife Refuge Wildlife Observation Area | 79.205 | Stewart (TN) | TN |
| HK | Cypress Creek Swamp Nature Preserve | 2732.905 | Marshall (KY) | KY |
| HK | Cypress Creek Swamp TVA Habitat Protection Area | 160.01 | Marshall (KY) | KY |
| HK | DCH *Myotis sodalis* (Final) | 2089321 | Multiple | Multiple |
| HK | DCH *Quadrula cylindrica cylindrica* (Final) | 3920.33 | Multiple | Multiple |
| HK | Excel Clark Mitigation | 65.7 | Butler (KY) | KY |
| HK | Fort Campbell Military Reservation/State Wildlife Management Area | 104278.8 | Multiple | Multiple |
| HK | Grasslands Reserve Program | 119.24 | Marshall (KY) | KY |
| HK | Hogskin Ridge Bottomland Forest | 9226.12 | Multiple | KY |
| HK | Conservation Easement | 517.58 | Christian (KY) | KY |

| HOPKINSVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| HK | Kentucky Reservoir Reservation | 135396 | Multiple | Multiple |
| HK | Lake Barkley | 51637.75 | Multiple | Multiple |
| HK | Lake Malone | 834.81 | Multiple | KY |
| HK | Lake Malone State Fishing Lake | 985.43 | Multiple | KY |
| HK | National Rivers Inventory-Long Creek | 3.185602 | Stewart | TN |
| HK | Nationwide Rivers Inventory - Barren River | 193.72 | Multiple | KY |
| HK | Nationwide Rivers Inventory - Elk Fork (Red River) | 71.1 | Multiple | Multiple |
| HK | Nationwide Rivers Inventory - Gasper River (KY) | 93.71 | Multiple | KY |
| HK | Nationwide Rivers Inventory - Red River | 232.01 | Multiple | Multiple |
| HK | Nationwide Rivers Inventory - South Fork Red River | 71.87 | Multiple | Multiple |
| HK | Nationwide Rivers Inventory - West Fork Red River | 117.25 | Multiple | Multiple |
| HK | Nationwide Rivers Inventory- Green River (KY) | 249.08 | Multiple | KY |
| HK | NRCS Wetland Reserve Program (Permanent Easement) | 9200.89 | Multiple | Multiple |
| HK | NRCS Wetland Reserve Program (permanent easement) | 2790.677 | Multiple | Multiple |
| HK | Purchase Of Agricultural Easement Corporation Ky - Conservation Easement | 132.55 | Logan (KY) | KY |
| HK | Purchase Of Agricultural Easement Corporation Ky - Conservation Easement | 131.59 | Logan (KY) | KY |
| HK | Peabody Wildlife Management Area | 69655.84 | Multiple | KY |
| HK | Stewary State Forest | 4271.13 | Stewart (TN) | TN |
| HK | Tennessee National Wildlife Refuge/Big Sandy Unit | 21465.53 | Multiple | TN |
| HK | The Land Trust for Tennessee Easement | 116.46 | Robertson (TN) | TN |
| HK | The Land Trust for Tennessee Easement | 461.37 | Christian (KY) | KY |
| HK | Whipporwill Creek Outstanding Resource Water | 190.0531 | Multiple | KY |

**Appendix Table O 5 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Madison Sector**

| MADISON SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MD | Agricultural Conservation Easement | 45.4 | Jackson (AL) | AL |
| MD | Bear Hollow Mountain Wildlife Management Area TWRA | 16696.09 | Multiple | Multiple |
| MD | Carter Caves Protection Planning Site/ Designated State Natural Area | 923.11 | Franklin (TN) | TN |
| MD | Cave Mountain TVA Small Wild Area | 81.14 | Marshall (AL) | AL |
| MD | Cherokee Tribe of Northeast Alabama | 21850.69 | Multiple | AL |
| MD | Coon Gulf SWA | 2389.09 | Jackson (AL) | AL |
| MD | DCH *Cambarus cracens* (Final) | 423.2 | Multiple | AL |
| MD | DCH *Epioblasma metastriata* (Final) | 4045.52 | Multiple | Multiple |
| MD | DCH *Epioblasma othcaloogensis* (Final) | 3303.04 | Multiple | Multiple |
| MD | DCH *Etheostoma trisella* (Final) | 1674.5 | Multiple | Multiple |
| MD | DCH *Etheostoma trisella* (Final) | 5887.99 | Multiple | Multiple |
| MD | DCH *Hamiota altilis* (Final) | 3362.01 | Multiple | Multiple |
| MD | DCH *Hamiota perovalis* (Final) | 4713.24 | Multiple | Multiple |
| MD | DCH *Helianthus verticillatus* (Final) | 1543.47 | Multiple | Multiple |
| MD | DCH *Medionidus acutissimus* (Final) | 6703.85 | Multiple | Multiple |
| MD | DCH *Medionidus parvulus* (Final) | 2629.11 | Multiple | Multiple |
| MD | DCH *Pleurobema decisum* (Final) | 5448.41 | Multiple | Multiple |
| MD | DCH *Pleurobema georgianum* (Final) | 2629.11 | Multiple | Multiple |
| MD | DCH *Pleurobema perovatum* (Final) | 7329.92 | Multiple | Multiple |
| MD | DCH *Pleuronaia dolabelloides* (Final) | 11769.08 | Multiple | Multiple |
| MD | DCH *Ptychobranchus greenii* (Final) | 5196.98 | Multiple | Multiple |
| MD | DCH *Ptychobranchus subtentus* (Final) | 12865.19 | Multiple | Multiple |
| MD | DCH *Quadrula cylindrica cylindrica* (Final) | 3920.33 | Multiple | Multiple |
| MD | Echota Cherokee | 326770.1 | Multiple | AL |
| MD | Flint River Mitigation Bank | 340.41 | Madison (AL) | AL |
| MD | Flintville State Fish Hatchery/Wildlife Management Area | 704.35 | Lincoln (TN) | TN |
| MD | Franklin-Marion State Forest | 6803.12 | Multiple | TN |
| MD | Georgia Alabama Land Trust C-01013.00.00 | 341.28 | Marshall (AL) | AL |
| MD | Georgia-Alabama Land Trust Easement #564 | 138.8 | Marshall (AL) | AL |
| MD | Georgia-Alabama Land Trust Easement #946 | 316.83 | Jackson (AL) | AL |
| MD | Guntersville Dam Reservation | 217.91 | Marshall (AL) | AL |

| MADISON SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MD | Guntersville Dam Tailwater Restricted Mussel Harvest Area | 296.0037 | Marshall (AL) | AL |
| MD | Hambrick Hollow TVA Habitat Protection Area | 109.6528 | Marshall (AL) | AL |
| MD | Honeycomb Creek TVA Small Wild Area | 271.5368 | Marshall (AL) | AL |
| MD | James D. Martin/Skyline State Wildlife Managment Area | 60806.44 | Multiple | Multiple |
| MD | Lake Guntersville State Park | 5780.769 | Marshall (AL) | AL |
| MD | Land Trust of North Alabama-Monte Sano Mountain Preserve | 586.1 | Madison (AL) | AL |
| MD | Mink Creek TVA HPA | 141.69 | Jackson (AL) | AL |
| MD | Monte Sano State Park | 2490.12 | Madison (AL) | AL |
| MD | Nationwide Rivers Inventory - Elk River | 276.99 | Multiple | Multiple |
| MD | Nationwide Rivers Inventory-Black Warrior River, Mulberry Fork River | 120.28 | Multiple | AL |
| MD | North Alabama Land Trust- Blevins Gap Preserve | 1097.06 | Madison (AL) | AL |
| MD | North Sauty Creek State Wildlife Management Area | 4718.4 | Jackson (AL) | AL |
| MD | Paint Rock River Project | 2674.09 | Multiple | Multiple |
| MD | Raccoon Creek State Wildlife Management Area | 4714.16 | Jackson (AL) | AL |
| MD | South Sauty Creek TVA SWA | 1082.06 | Multiple | AL |
| MD | Thompson Hollow TVA Habitat Protection Area | 25.61813 | | |
| MD | Tim's Ford Reservoir Reservation | 14717.09 | Multiple | TN |
| MD | United Cherokee ANI-YUN-WIYA Nation | 5931.09 | Marshall (AL) | AL |
| MD | Wetlands Reserve Program (WRP) | 11.06 | Jackson (AL) | AL |
| MD | Wheeler National Wildlife Refuge | 37553.98 | Multiple | AL |
| MD | Wheeler Reservoir Reservation | 95205.86 | Multiple | AL |

**Appendix Table O 6 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Manchester Sector**

| MANCHESTER SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MC | AEDC Arnold Engineering Development Center | 39289.34 | Multiple | TN |
| MC | AEDC Bluehole Hollow | 247.7067 | Coffee (TN) | TN |
| MC | AEDC Double Powerline Barrens | 293.54 | Multiple | TN |
| MC | AEDC Military Reservation | 33066.1 | Multiple | TN |
| MC | AEDC RAILROAD BARRENS (PLANT HABITAT) | 222.89 | Multiple | TN |
| MC | AEDC ROWLAND (ROLLINS) CREEK | 1150.25 | Multiple | TN |
| MC | AEDC Tullahoma Barrens | 39289.34 | Coffee (TN) | TN |
| MC | AEDC Wildlife Management Area & Woods Reservoir | 39289.34 | Multiple | TN |
| MC | Aetna Slopes Property - TN River Gorge Trust | 1640.33 | Marion (TN) | TN |
| MC | Atlantic Coast Conservancy/Pelican Coast Conservancy Conservation Easement E201105 | 305.46 | Rhea (TN) | TN |
| MC | Atlantic Coast Conservancy/Pelican Coast Conservancy Conservation Easement E201120 | 2089.26 | Sequatchie (TN) | TN |
| MC | Bear Hollow Mountain Wildlife Management Area TWRA | 16696.09 | Multiple | Multiple |
| MC | Big Forks Tree Farm Conservation Easement - State of TN | 2961.91 | Multiple | TN |
| MC | Bledsoe State Forest | 6902.66 | Multiple | TN |
| MC | Bowater Tract - Tennessee River Gorge Trust | 750.7 | Multiple | TN |
| MC | Boyds Farm - TVA Natural Resource Management Property | 288.09 | Marion (TN) | TN |
| MC | Braswell Tract Conservation Easement - Land Trust for Tennessee | 459.21 | Franklin (TN) | TN |
| MC | Brumalow Creek | 1033.29 | Multiple | TN |
| MC | Burns Island Archaeological Site - TVA | 250.5 | Marion (TN) | TN |
| MC | Caney Creek State WMA | 82.97 | Multiple | TN |
| MC | Carter Caves Protection Planning Site/ Designated State Natural Area | 923.11 | Franklin (TN) | TN |
| MC | Carter Patten Conservation Easement - State of Tennessee | 1118.79 | Multiple | TN |
| MC | Center Hill Lake- US Army Corps of Engineers | 39704.26 | Multiple | TN |
| MC | Chickamagua and Chattanooga National Military Park | 8230.26 | Multiple | Multiple |
| MC | Cumberland Trail 1 | 13951.26 | Multiple | TN |
| MC | Cumberland Trail State Park | 16570.51 | Multiple | Multiple |
| MC | Cummings Cove Wildlife Management Area | 1200.42 | Multiple | TN |
| MC | DCH *Pleuronaia dolabelloides* (Final) | 11769.08 | Multiple | Multiple |

| MANCHESTER SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MC | DCH *Ptychobranchus subtentus* (Final) | 12865.19 | Multiple | Multiple |
| MC | DCH *Quadrula cylindrica cylindrica* (Final) | 3920.33 | Multiple | Multiple |
| MC | Duck River State Endangered Mussel Sanctuary | 6338.49 | Multiple | TN |
| MC | Fall Creek Falls State Park/State Natural Area | 26546.5 | Multiple | TN |
| MC | Franklin-Marion State Forest | 6803.12 | Multiple | TN |
| MC | Conservation Easement- Land Trust for TN | 142.98 | Sequatchie (TN) | TN |
| MC | Georgia Alabama Land Trust - Conservation Easement | 421.41 | Jackson (AL) | AL |
| MC | Georgia Alabama Land Trust - Conservation Easement | 589.9 | Dade (GA) | GA |
| MC | Georgia-Alabama Land Trust Easement #344 | 75.11 | Jackson (AL) | AL |
| MC | Great Falls Reservior Reservation | 1300.94 | Multiple | TN |
| MC | Guntersville Reservoir State Mussel Sanctuary | 1258.71 | Multiple | Multiple |
| MC | Hawkins Cove Designated State Natural Area | 0 | Franklin (TN) | TN |
| MC | Highway 55 Oak Barren | 298.04 | Coffee (TN) | TN |
| MC | ICSES TVA Project (Carbon Offset Sites) | 22.33 | Rhea (TN) | TN |
| MC | Lost and Chamnpion Coves-University of the South - Conservation Easement Land Trust for Tennessee | 2767.03 | Franklin (TN) | TN |
| MC | Merritt Farm Conservation Easement - Land Trust for Tennessee | 110.62 | Franklin (TN) | TN |
| MC | Mount Roosevelt State Wildlife Management Area | 8476.02 | Multiple | TN |
| MC | Nationwide Rivers Inventory - Cane Creek | 82.97 | Multiple | TN |
| MC | Nationwide Rivers Inventory - Collins River | 1614.2 | Multiple | TN |
| MC | Nationwide Rivers Inventory - Johnson Creek | 9.19 | Multiple | TN |
| MC | Nationwide Rivers Inventory - Middle Fork Stones River | 39.56 | Rutherford (TN) | TN |
| MC | Nationwide Rivers Inventory - Standifer Creek | 9.56 | Sequatchie (TN) | TN |
| MC | Nationwide Rivers Inventory - West Fork Stones River (South) | 21.28 | Rutherford (TN) | TN |
| MC | Nationwide Rivers Inventory- North Chickamauga Creek | 43.33 | Multiple | TN |
| MC | Nationwide Rivers Inventory- Overall Creek | 36.85 | Rutherford (TN) | TN |
| MC | Nationwide Rivers Inventory- PINEY CREEK | 39.19 | Multiple | TN |
| MC | Nationwide Rivers Inventory- Sequatchie River | 280.55 | Multiple | TN |
| MC | Natural Bridge Designated State Natural Area | 2767.03 | Franklin (TN) | TN |
| MC | Nickajack Cave State Wildlife Observation Area | 401.85 | Marion (TN) | TN |
| MC | Nickajack Cave TVA Habitat Protection Area/Small Wild Area | 401.85 | Multiple | Multiple |
| MC | Nickajack Dam Reservation | 91.84 | Marion (TN) | TN |
| MC | Normandy Dam Reservation | 297.05 | Multiple | TN |
| MC | Normandy Fish Hatchery | 165.88 | Bedford (TN) | TN |

| MANCHESTER SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MC | Normandy Reservoir Reservation | 7890.09 | Multiple | TN |
| MC | North Chickamauga Creek Gorge Designated State Natural Area | 7106.76 | Multiple | TN |
| MC | North Chickamauga Creek Wildlife Management Area | 3037.07 | Multiple | TN |
| MC | Piney River Tree Farm - Bowater Recreation Complex | 19845.96 | Multiple | TN |
| MC | Poe Branch Wetland - TWRA | 90.71 | Hamilton (TN) | TN |
| MC | Post Property Conservation Easement - Land Trust for Tennessee | 435.28 | Marion (TN) | TN |
| MC | Raccoon Creek State Wildlife Management Area | 4714.16 | Jackson (AL) | AL |
| MC | Raccoon Mountain Pumped Storage State Wildlife Observation Area | 646.79 | Multiple | TN |
| MC | Rock Island State Park | 1208.91 | Multiple | TN |
| MC | Rumbling Falls Cave System | 10134.9 | Van Buren (TN) | TN |
| MC | Russell Cave National Monument | 321.99 | Jackson (AL) | AL |
| MC | Short Springs Designated State Natural Area | 217.0564 | Coffee (TN) | TN |
| MC | Smith Tract Conservation Easement - Land Trust for Tennessee | 783.87 | Franklin (TN) | TN |
| MC | Spring Creek Road Barrens - AEDC | 293.5 | Multiple | TN |
| MC | Tennessee River Gorge | 29407.87 | Multiple | TN |
| MC | Tennessee River Gorge Trust Easement | 215.72 | Multiple | TN |
| MC | Tennessee River Gorge Trust -Grant Tract | 912.6 | Marion (TN) | TN |
| MC | Tennessee River Gorge Trust- Little Cedar Mountain Tract | 806.94 | Marion (TN) | TN |
| MC | Tennessee River Gorge Trust Properties (Formerly Bowater Property) | 1398.9 | Multiple | TN |
| MC | Timberland Investment Resources Recreation Area (Formerly Bowater) | 17701.84 | Multiple | TN |
| MC | Tim's Ford Reservoir Reservation | 14717.09 | Multiple | TN |
| MC | University of TN Space Institute | 230.66 | Franklin (TN) | TN |
| MC | Upper Elk River Bottoms | 1484.76 | Multiple | TN |
| MC | Watts Bar Dam and Reservoir Reservation | 43581.58 | Multiple | TN |
| MC | West Harpeth River | 60.17 | Williamson (TN) | TN |
| MC | Wetlands Reserve Program (WRP) | 27.91 | Jackson (AL) | AL |
| MC | Conservation Easment- Land Trust for TN | 3571.15 | Van Buren (TN) | TN |
| MC | Woods Reservoir Reservation | 6441.83 | Multiple | TN |

**Appendix Table O 7 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Milan Sector**

| MILAN SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| ML | Agricultural Conservation Easement | 15.86 | Tipton (TN) | TN |
| ML | Bayou De Chien Outstanding Resource Water | 416.3 | Multiple | KY |
| ML | Camp Mack Morris Boy Scout Camp | 214.9336 | Benton (TN) | TN |
| ML | Cane Creek of Bayou De Chien Outstanding Resource Water | 209.47 | Multiple | KY |
| ML | Col. Forrest V. Durand Wetland - State Habitat Area | 389.44 | Madison (TN) | TN |
| ML | Emergency Watershed Protection Program - Floodplain Easement (EWPP-FPE) | 341 | Madison (TN) | TN |
| ML | Hatchie National Wildlife Refuge | 11711.9 | Haywood (TN) | TN |
| ML | Hatchie River - State Scenic River | 7622.274 | Multiple | TN |
| ML | Jackson Creek | 63.81051 | Graves (KY) | KY |
| ML | Jackson Creek Outstanding Resource Water | 23.92 | Graves (KY) | KY |
| ML | Kentucky Reservoir Reservation | 135396 | Multiple | Multiple |
| ML | Lake Graham State Fishing Lake/Wildlife Observation Area | 867.26 | Madison (TN) | TN |
| ML | Natchez Trace State Forest | 36889.86 | Multiple | TN |
| ML | NATCHEZ TRACE STATE Forest and WILDLIFE MANAGEMENT AREA | 38194.74 | Multiple | TN |
| ML | Natchez Trace State Resort Park | 8244.76 | Multiple | TN |
| ML | Nationwide Rivers Inventory - Hatchie River | 496.19 | Multiple | Multiple |
| ML | NRCS Wetland Reserve Program (Permanent Easement) | 9200.89 | Multiple | Multiple |
| ML | Parker Branch Wetland - TWRA | 263.57 | Gibson (TN) | TN |
| ML | South Fork of Bayou De Chien Outstanding Resource Water | 198.95 | Multiple | KY |
| ML | Tennessee National Wildlife Refuge | 51918.29 | Multiple | TN |
| ML | Tennessee National Wildlife Refuge/Big Sandy Unit | 21465.53 | Multiple | TN |
| ML | Wetlands Reserve Program | 94.57 | Gibson (TN) | TN |
| ML | Wetlands Reserve Program | 200.76 | Henderson (TN) | TN |

**Appendix Table O 8 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Morristown Sector**

| MORRISTOWN SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MT | Ataya Tracts Molpus South - The Nature Conservancy | 88960.73 | Multiple | Multiple |
| MT | Badget Rd #1 Park | 62.2 | Multiple | TN |
| MT | Bays Mountain Addition State Protection Planning Site | 242.7779 | Hawkins | TN |
| MT | Big Laurel Branch Wilderness Study Area | 6365.1 | Multiple | TN |
| MT | Boone Reservoir Reservation | 4908.52 | Multiple | TN |
| MT | C.F. Ataya WMA - KY | 54825.8 | Multiple | KY |
| MT | Cave Burial | 25.95 | Knox (TN) | TN |
| MT | Cherokee (North) State Wildlife Management Area | 229570.8 | Multiple | Multiple |
| MT | Cherokee (South) State Wildlife Management Area | 312955.2 | Multiple | Multiple |
| MT | Cherokee Dam Reservation | 334.39 | Multiple | TN |
| MT | Cherokee National Forest - Unake Ranger District | 342448.7 | Multiple | Multiple |
| MT | Cherokee National Forest - ownership boundaries | 656051.3 | Multiple | Multiple |
| MT | Cherokee Reservoir Reservation | 38340.54 | Multiple | TN |
| MT | Chimney Rock | 1290.2 | Campbell (TN) | TN |
| MT | Cove Creek Peninsula Wildlife Managment Area | 2604.16 | Campbell (TN) | TN |
| MT | Cumberland Trail State Park | 16570.51 | Multiple | TN |
| MT | Davy Crockett Birthplace State Park | 98.03 | Greene (TN) | TN |
| MT | DCH *Myotis sodalis* (Final) | 2089321 | Multiple | Multiple |
| MT | DCH *Pleuronaia dolabelloides* (Final) | 11769.08 | Multiple | Multiple |
| MT | DCH *Ptychobranchus subtentus* (Final) | 12865.19 | Multiple | Multiple |
| MT | Doe Mountain State Recreation Area | 17721.57 | Johnson (TN) | TN |
| MT | Fontana Dam Reservation | 138.27 | Multiple | NC |
| MT | Fort Loudoun Dam Reservation | 14005.26 | Multiple | TN |
| MT | FT. Loudoun Reservoir Reservation | 14005.26 | Multiple | TN |
| MT | FT. Patrick Henry Reservoir Reservation | 459.65 | Multiple | TN |
| MT | Grainger County Park | 94.56938 | Grainger (TN) | TN |
| MT | Great Smoky Moutains National Park | 518442.7 | Multiple | Multiple |
| MT | Hawkins Cave | 8.83 | Campbell (TN) | TN |
| MT | House Mountain Designated State Natural Area | 505.4127 | Knox (TN) | TN |
| MT | John Tarleton Park | 70.17 | Knox (TN) | TN |
| MT | Kentucky Ridge Forest Wildlife Management Area | 3395.144 | Bell (KY) | KY |

| MORRISTOWN SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MT | Kentucky Ridge State Forest | 11793.02 | Bell (KY) | KY |
| MT | Lick Creek Ii Mitigation Bank | 36.14 | Greene (TN) | TN |
| MT | Lower French Broad and Lower Holston Nonessential Experimental Population Status | 4790.05 | Multiple | TN |
| MT | Lower Pine Mountain Macrosite | 19662.56 | Multiple | Multiple |
| MT | Morrill's Cave Designated State Natural Area | 46.05342 | Sullivan (TN) | TN |
| MT | Mossy Creek TVA Ecological Study Area | 38340.54 | Multiple | TN |
| MT | Nantahala National Forest | 1327388 | Multiple | Multiple |
| MT | Nantahala National Forest / Nantahala State Game Land | 530464.6 | Multiple | Multiple |
| MT | National Forest- North Carolina | 1042224 | Multiple | Multiple |
| MT | Nationwide Rivers Inventory - Clinch River 1 | 80.22 | Multiple | TN |
| MT | Nationwide Rivers Inventory - Holston River | 128.09 | Multiple | TN |
| MT | Norris Dam Cave TVA Habitat Protection Area | 2.45 | Anderson (TN) | TN |
| MT | Norris Dam Reservation | 114.55 | Multiple | TN |
| MT | Norris Dam State Resort Park | 2799.85 | Multiple | TN |
| MT | Norris Songbird Trail State Wildlife Observation Area | 58.9 | Multiple | TN |
| MT | North Cherokee NF and Wildlife Management Area | 334706.5 | Multiple | Multiple |
| MT | North Cumberland Wildlife Management Area | 150784.4 | Multiple | TN |
| MT | Overmountain Victory Scenic Trail | 1304.11 | Multiple | Multiple |
| MT | Proposed Wilderness Study Area - Cherokee National Forest | 806.7198 | Multiple | TN |
| MT | Conservation Easement - Land Trust For TN | 133.34 | Greene (TN) | TN |
| MT | Sundquist Wildlife Management Area | 88450.81 | Multiple | TN |
| MT | TVA Programmatic Agreement 2003 (Holston) | 2419.58 | Multiple | TN |
| MT | Unicoi State Bear Reserve | 59185.69 | Multiple | Multiple |
| MT | Warriors Path State Park | 986.38 | Sullivan (TN) | TN |
| MT | Watauga River Bluffs Designated State Natural Area and TNC Preserve | 50.14279 | Multiple | TN |
| MT | Wilbur Cliffs | 369.37 | Carter (TN) | TN |
| MT | Wilbur Dam Reservation | 2.24 | Carter (TN) | TN |
| MT | Wilbur Lake State Wildlife Observation Area | 107 | Carter (TN) | TN |
| MT | Wilbur Reservoir Reservation | 71.42 | Carter (TN) | TN |

**Appendix Table O 9 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Muscle Shoals Sector**

| MUSCLE SHOALS SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MS | Buttahatchie Macrosite | 3522.91 | Multiple | MS |
| MS | DCH *Etheostoma boschungi* (Final) | 853.39 | Multiple | Multiple |
| MS | DCH *Hamiota perovalis* (Final) | 4713.24 | Multiple | Multiple |
| MS | DCH *Leavenworthia crassa* (Final) | 30.28 | Multiple | AL |
| MS | DCH *Medionidus acutissimus* (Final) | 6703.85 | Multiple | Multiple |
| MS | DCH *Pleurobema decisum* (Final) | 5448.41 | Multiple | Multiple |
| MS | DCH *Pleurobema perovatum* (Final) | 7329.92 | Multiple | Multiple |
| MS | DCH *Pleuronaia dolabelloides* (Final) | 11769.08 | Multiple | Multiple |
| MS | DCH *Ptychobranchus greenii* (Final) | 5196.98 | Multiple | Multiple |
| MS | DCH *Ptychobranchus subtentus* (Final) | 12865.19 | Multiple | Multiple |
| MS | DCH *Quadrula cylindrica cylindrica* (Final) | 3920.33 | Multiple | Multiple |
| MS | Devils Den TVA Habitat Protection Area | 252.51 | Franklin (AL) | AL |
| MS | Dime Bluffs and Ravines Rare plants. | 242.9588 | Franklin (AL) | AL |
| MS | Echota Cherokee | 326770.1 | Multiple | AL |
| MS | Florence Municipal Park | 72.12645 | Lauderdale (AL) | AL |
| MS | Freedom Hills Wildlife Management Area | 39489.55 | Multiple | AL |
| MS | Mallard-Fox Creek Wildlife Management Area Alabama | 3908.96 | Multiple | AL |
| MS | McFarland Park | 327.87 | Lauderdale (AL) | AL |
| MS | Mountain View Ravines | 666.278 | Franklin (AL) | AL |
| MS | Muscle Shoals Reservation | 2427.5 | Multiple | AL |
| MS | Natchez Trace National Parkway | 44142.14 | Multiple | Multiple |
| MS | National Rivers Inventory - Cypress Creek | 54.2 | Lauderdale (AL) | AL |
| MS | Nationwide Rivers Inventory - Buttahatchee River | 303.6 | Multiple | Multiple |
| MS | Nationwide Rivers Inventory - Elk River | 276.99 | Multiple | Multiple |
| MS | Nationwide Rivers Inventory- Bear Creek | 3612 | Multiple | AL |
| MS | Pickwick Dam and Reservoir Reservation | 156.16 | Hardin (TN) | TN |
| MS | Seven Mile Island State Wildlife Management Area | 6035.31 | Multiple | AL |

| MUSCLE SHOALS SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| MS | Shoal Creek Nonessential Experimental Population | 1306.53 | Multiple | Multiple |
| MS | Tennessee River/Wilson Dam Nonessential Experimental Population | 4692.18 | Multiple | AL |
| MS | Tennessee- Tombigbee Waterway | 13793.61 | Multiple | Multiple |
| MS | Tenn-Tom Mitigation Protection Planning Site | 13793.61 | Multiple | Multiple |
| MS | Wheeler Dam Tailwater Restricted Mussel Harvest Area | 2028.64 | Multiple | AL |
| MS | Wheeler National Wildlife Refuge | 37553.98 | Multiple | AL |
| MS | Wheeler Reservoir Reservation | 95205.86 | Multiple | AL |
| MS | Wilson Dam Reservation | 245.41 | Multiple | AL |
| MS | Wilson Dam Tailwater Restricted Mussel Harvest Area | 1365.5 | Multiple | AL |

**Appendix Table O 10 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Nashville Sector**

| NASHVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| NA | Alvin G Beaman Park- State Natural Area | 1643.17 | Davidson (TN) | TN |
| NA | Barren River Lake | 21173.39 | Multiple | KY |
| NA | Barren River Lake State Wildlife Management Area | 9922.71 | Multiple | KY |
| NA | Barren River Reservoir Reservation | 19053.88 | Multiple | KY |
| NA | Branstetter Farm Conservation Easement - Land Trust for Tennessee | 110.41 | Davidson (TN) | TN |
| NA | Cedar Glades Protection Planning Site | 7840.59 | Wilson (TN) | TN |
| NA | Cedars of Lebanon State Forest | 791.8409 | Wilson (TN) | TN |
| NA | Center Hill Lake- US Army Corps of Engineers | 39704.26 | Multiple | TN |
| NA | Chaney Lake State Nature Preserve | 175.65 | Warren (KY) | KY |
| NA | Cheatham Lake - US Army Corps of Engineers | 7724.45 | Multiple | TN |
| NA | Cheatham Reservoir Reservation | 6616.16 | Multiple | TN |
| NA | Cordell Hull Reservoir Reservation- USACOE | 26773.34 | Multiple | Multiple |
| NA | Couchville Cedar Glade Designated State Natural Area | 127.8 | Davidson (TN) | TN |
| NA | Cumberland River NO. 3 State Mussel Sanctuary | 1409.16 | Smith (TN) | TN |
| NA | DCH *Myotis sodalis* (Final) | 2089321 | Multiple | Multiple |
| NA | DCH *Quadrula cylindrica cylindrica* (Final) | 3920.33 | Multiple | Multiple |
| NA | Drakes Creek | 150.4968 | Warren | KY |
| NA | Ellington Agricultural Campus | 177.33 | Davidson (TN) | TN |
| NA | Foggy Hollow Farm | 27.46 | Cheatham (TN) | TN |
| NA | Foxhedge Conservation Easement - Land Trust for Tennessee | 344.84 | Williamson (TN) | TN |
| NA | Gallatin Steam Plant Wildlife Management Area | 1718.9 | Sumner (TN) | TN |
| NA | Great Falls Dam Reservation | 18.38 | Warren (TN) | TN |
| NA | Great Falls Reservior Reservation | 1300.94 | Multiple | TN |
| NA | Green Valley Creek Stream Mitigation Site | 11.53 | Putnam (TN) | TN |
| NA | Greenhill Woods Registered Natural Area (Kentucky) | 535.9998 | Warren (KY) | KY |
| NA | Harpeth River Park | 69.9 | Multiple | TN |
| NA | Hatcher Property Conservation Easement - Land Trust for Tennessee | 28.35 | Williamson (TN) | TN |
| NA | Highland Rim Experiment Station | 374.56 | Robertson (TN) | TN |
| NA | Hobson Pike Glade | 20.75 | Davidson (TN) | TN |

| NASHVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| NA | J. Percy Preist Lake - US Army Corps of Engineers | 33686.57 | Multiple | TN |
| NA | Jamie Summers Farms | 70.27 | Simpson (KY) | KY |
| NA | Land Trust for Tennessee | 44.22 | Multiple | Multiple |
| NA | Long Hunter State Park/ Jason Allen Arboretum | 2682.2 | Multiple | TN |
| NA | Mill Creek - Indian Creek Drainage | 227.8458 | Davidson (TN) | TN |
| NA | Mill Creek - Nolensville Headwaters | 862.16 | Multiple | TN |
| NA | Mill Creek - Upper Owl Creek Drainage | 431.33 | Williamson (TN) | TN |
| NA | Mill Creek Macrosite/Sevenmile Creek Stream Mitigation Site and City of Nashville Greenways Sevenmile Park | 998.0618 | Multiple | TN |
| NA | Mill Creek Site | 2352.71 | Multiple | TN |
| NA | Conservation Easement, Land Trust for Tennessee | 49.93299 | Davidson (TN) | TN |
| NA | Natchez Trace National Parkway | 44142.14 | Multiple | Multiple |
| NA | Natchez Trace Parkway | 2.37 | Davidson (TN) | TN |
| NA | Natchez Trace Scenic Trail | 1496.01 | Multiple | TN |
| NA | Nationwide Rivers Invenory- Sycamore Creek | 35.81 | Multiple | TN |
| NA | Nationwide Rivers Inventory - Barren River | 193.72 | Multiple | KY |
| NA | Nationwide Rivers Inventory - East Fork Stones River | 45.53 | Rutherford (TN) | TN |
| NA | Nationwide Rivers Inventory - Elk Fork (Red River) | 71.1 | Multiple | Multiple |
| NA | Nationwide Rivers Inventory - Red River | 232.01 | Multiple | Multiple |
| NA | Nationwide Rivers Inventory - South Fork Red River | 71.87 | Multiple | Multiple |
| NA | Nationwide Rivers Inventory - Stones River | 61.74 | Multiple | TN |
| NA | Nationwide Rivers Inventory- Harpeth River | 166.49 | Multiple | TN |
| NA | Nationwide Rivers Inventory- Overall Creek | 36.85 | Rutherford (TN) | TN |
| NA | Old Hickory Reservoir Reservation | 23997.87 | Multiple | TN |
| NA | Old Hickory State Wildlfie Management Area | 26682.04 | Multiple | TN |
| NA | Ozburn Hollow Farm Conservation Easement - Land Trust for Tennessee | 460.02 | Williamson (TN) | TN |
| NA | Percy Priest State Wildlife Management Area | 10817.2 | Multiple | TN |
| NA | Rock Island State Park | 1208.91 | Multiple | TN |
| NA | Stones River Cedar Glade And Barrens Designated State Natural Area | 210.64 | Rutherford (TN) | TN |
| NA | Stones River National Battlefield | 707.957 | Rutherford (TN) | TN |
| NA | Tennessee Land Trust ID 395 | 93.52 | Davidson (TN) | TN |
| NA | Tennessee Land Trust ID 407 | 504.27 | Robertson (TN) | TN |

| NASHVILLE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| NA | The Land Trust for Tennessee Conservation Easement | 99.5 | Williamson (TN) | TN |
| NA | The Land Trust for Tennessee Easement | 176.36 | Davidson (TN) | TN |
| NA | The Land Trust for Tennessee Easement | 461.37 | Robertson (TN) | TN |
| NA | Trevecca Nazarene University and Arboretum | 65.37 | Davidson (TN) | TN |
| NA | University School of Nashville | 100.2358 | Davidson (TN) | TN |
| NA | West Harpeth River | 60.17 | Williamson (TN) | TN |
| NA | Conservation Easement | 292.83 | Sumner (TN) | TN |
| NA | Williams Mitigation Bank - Tennessee Wildlife Federation Ilf Site | 29.98 | Putnam (TN) | TN |

**Appendix Table O 11 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the Oak Ridge Sector**

| OAK RIDGE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| OR | Badget Rd #1 Park | 62.2 | Multiple | TN |
| OR | Ball Camp Park and AYSO Fields | 16.34 | Knox (TN) | TN |
| OR | Bearden Middle School Park | 26.77 | Knox (TN) | TN |
| OR | Bethel Valley Embayment TVA HPA | 3.64 | Anderson (TN) | TN |
| OR | Big South Fork National River and Recreation Area | 122510.1 | Multiple | Multiple |
| OR | Brushy Valley Park | 9.82722 | Anderson (TN) | TN |
| OR | Bull Run Wetland TVA Habitat Protection Area | 2.76 | Anderson (TN) | TN |
| OR | Bullrun Knobs | 188.27 | Knox (TN) | TN |
| OR | Cave Burial | 25.95 | Knox (TN) | TN |
| OR | Conservation Easement held by Foothills Land Conservancy | 105.86 | Knox (TN) | TN |
| OR | Foothills Land Conservancy | 486.2 | Loudon (TN) | TN |
| OR | Cordell Hull Reservoir Reservation- USACE | 26773.34 | Multiple | Multiple |
| OR | Cove Creek Peninsula Wildlife Managment Area | 2604.16 | Campbell (TN) | TN |
| OR | Cumberland Forests- UT Ag Experiment Station | 8637.33 | Multiple | TN |
| OR | Cumberland Trail 1 | 13951.26 | Multiple | TN |
| OR | Cumberland Trail State Park | 16570.51 | Multiple | TN |
| OR | DCH *Myotis sodalis* (Final) | 2089321 | Multiple | Multiple |
| OR | DCH *Ptychobranchus subtentus* (Final) | 12865.19 | Multiple | Multiple |
| OR | Dunn Park | 5.6 | Knox (TN) | TN |
| OR | Fall Creek Falls State Park/State Natural Area | 26546.5 | Multiple | TN |
| OR | Fort Loudoun Dam Reservation | 14005.26 | Multiple | TN |
| OR | Frozen Head State Natural Area | 22760.41 | Multiple | TN |
| OR | FT. Loudoun Reservoir Reservation | 14005.26 | Multiple | TN |
| OR | Grassy Creek TVA HPA | 271.24 | Roane (TN) | TN |
| OR | Green River (RM 207.8 to 30.5-Green River Lake Dam) Outstanding Resource Water | 1533.56 | Multiple | KY |
| OR | The Nature Conservancy- Conservation Easement | 71.71 | Metcalfe (KY) | KY |
| OR | Haw Ridge Park | 762.22 | Anderson (TN) | TN |
| OR | Hawkins Cave | 8.83 | Campbell (TN) | TN |
| OR | Hope Creek Colony Bluffs TVA Habitat Protection Area | 10.44299 | Loudon (TN) | TN |
| OR | Hundred Acre Pond | 1786.972 | Hart (KY) | KY |
| OR | John Tarleton Park | 70.17 | Knox (TN) | TN |

| OAK RIDGE SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| OR | Karns High School Park | 62.98426 | Knox (TN) | TN |
| OR | Meadow Creek Soccer Complex | 11.46988 | Knox (TN) | TN |
| OR | Melton Hill Dam Reservation | 1063.86 | Anderson (TN) | TN |
| OR | Mount Roosevelt State Wildlife Management Area | 8476.02 | Multiple | TN |
| OR | Nationwide Rivers Inventory - Clinch River 1 | 80.22 | Multiple | TN |
| OR | Nationwide Rivers Inventory- Green River (KY) | 249.08 | Multiple | KY |
| OR | Nationwide Rivers Inventory- Sequatchie River | 280.55 | Multiple | TN |
| OR | Norris Dam Cave TVA Habitat Protection Area | 2.45 | Anderson (TN) | TN |
| OR | Norris Dam Reservation | 114.55 | Multiple | TN |
| OR | Norris Dam State Resort Park | 2799.85 | Multiple | TN |
| OR | Norris Songbird Trail State Wildlife Observation Area | 58.9 | Multiple | TN |
| OR | North Cumberland Wildlife Management Area | 150784.4 | Multiple | TN |
| OR | North Eagle Bend TVA Habitat Protection Area | 0.91 | Anderson (TN) | TN |
| OR | North Ridge Trail | 103.13 | Anderson (TN) | TN |
| OR | Northwest Sports Complex | 60.23277 | Knox (TN) | TN |
| OR | NRCS Wetland Reserve Program (Permanent Easement) | 9200.89 | Multiple | Multiple |
| OR | Oak Ridge National Laboratory Reservation | 32848.61 | Multiple | TN |
| OR | Pellissippi State Community College Park | 135.74 | Knox (TN) | TN |
| OR | Penrose Farm Conservation Easement | 145.84 | Knox (TN) | TN |
| OR | Pong Gap Elementary School Park | 10.98 | Knox (TN) | TN |
| OR | Powell Middle School Park | 22.32 | Knox (TN) | TN |
| OR | Railroad Slope TVA Habitat Protection Area | 3.829508 | Anderson (TN) | TN |
| OR | Ridgedale Elementary School Park | 11.96 | Knox (TN) | TN |
| OR | Roane County Park | 96.84 | Roane (TN) | TN |
| OR | State Scenic River - Clinch River | 3234.9 | Multiple | TN |
| OR | Sundquist Wildlife Management Area | 88450.81 | Multiple | TN |
| OR | Sweetser Property-Conservation Easement | 14.11 | Knox (TN) | TN |
| OR | Tellico Dam and Reservoir Reservation | 25657.41 | Multiple | TN |
| OR | Tennessee Technological University | 87.29089 | Putnam (TN) | TN |
| OR | The Land Trust for Tennessee Easement | 218.91 | Loudon (TN) | TN |
| OR | Upper Bull Run Bluffs TVA Habitat Protection Area | 19.99331 | Anderson (TN) | TN |
| OR | Watts Bar Dam and Reservoir Reservation | 43581.58 | Multiple | TN |
| OR | Wetlands Reserve Program (WRP) | 4.5 | Roane (TN) | TN |
| OR | Williams Tract Protection Planning Site | 609.1 | Putnam (TN) | TN |

**Appendix Table O 12 Fiscal Year 2026 - Natural Areas Crossed by or Occurring within 0.1-Mile of Right-of-Way Segments Proposed for Vegetation Management in the West Point Sector**

| WEST POINT SECTOR | NAME | ACRES | COUNTY | STATE |
|---|---|---|---|---|
| WP | Black Belt Branch Experiment Station | 558.54 | Noxubee (MS) | MS |
| WP | Buttahatchie Macrosite | 3522.91 | Multiple | MS |
| WP | Choctaw State WMA | 20847.05 | Multiple | MS |
| WP | Columbus Military Reservation | 4483.01 | Lowndes (MS) | MS |
| WP | Coonewah Creek Chalk Bluffs | 84.85 | Lee (MS) | MS |
| WP | Coonewah Creek Chalk BluffsUnique geologic feature. | 339.8324 | Lee (MS) | MS |
| WP | DCH *Hamiota perovalis* (Final) | 4713.24 | Multiple | Multiple |
| WP | DCH *Medionidus acutissimus* (Final) | 6703.85 | Multiple | Multiple |
| WP | DCH *Pleurobema decisum* (Final) | 5448.41 | Multiple | Multiple |
| WP | DCH *Pleurobema perovatum* (Final) | 7329.92 | Multiple | Multiple |
| WP | Ellis Tract Mississippi Land Trust | 265.06 | Lowndes (MS) | MS |
| WP | Enid Reservoir Reservation | 45156.63 | Multiple | MS |
| WP | Grenada Reservoir Reservation | 88984.33 | Multiple | MS |
| WP | Grenada State Waterfowl Management Area | 57817.67 | Multiple | MS |
| WP | Holly Springs National Forest | 529411 | Multiple | MS |
| WP | Luxapallila Creek Recreation Area | 335.5803 | Lowndes (MS) | MS |
| WP | Mississippi Choctaw Reservation | 32248.11 | Multiple | MS |
| WP | Nanih Waiya Wildlife Management Area | 7842.25 | Multiple | MS |
| WP | Natchez Trace National Parkway | 44142.14 | Multiple | Multiple |
| WP | Nationwide Rivers Inventory - Buttahatchee River | 303.6 | Multiple | MS |
| WP | Nationwide Rivers Inventory-Noxubee River | 60.85346 | Noxubee (MS) | MS |
| WP | Noxubee River at Shaqualak | 5759.15 | Noxubee (MS) | MS |
| WP | Plum Creek Bluff | 241.97 | Noxubee (MS) | MS |
| WP | Plymouth Bluff Nature and Cultural Studies Center | 234 | Lowndes (MS) | MS |
| WP | Private John Allen National Fish Hatchery | 30.66 | Lee (MS) | MS |
| WP | Sardis Reservoir Reservation | 51801.73 | Multiple | MS |
| WP | Springdale Natural Area/WMA | 1499.58 | Lafayette (MS) | MS |
| WP | Tennessee- Tombigbee Waterway | 13793.61 | Multiple | Multiple |
| WP | Tenn-Tom Mitigation Protection Planning Site | 13793.61 | Multiple | Multiple |
| WP | Tn-Tom Columbus Reservoir Reservation | 4122.1 | Multiple | MS |
| WP | Tombigbee National Forest | 119504.7 | Multiple | MS |
| WP | Young Family Limited Partnership | 1324.1 | Multiple | MS |