

T E N N E S S E E V A L L E Y A U T H O R I T Y



Multiple Reservoir Land Management Plans

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Volume IX Wilson Reservoir

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WILSON RESERVOIR

Draft Reservoir Land Management Plan

VOLUME IX

MULTIPLE RESERVOIR LAND MANAGEMENT PLANS DRAFT ENVIRONMENTAL IMPACT STATEMENT

Prepared by
Tennessee Valley Authority

December 2016

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ACRONYMS AND ABBREVIATIONS

| | |
|--------------------|---|
| ADEM | Alabama Department of Environmental Management |
| APE | Area of Potential Effect |
| CCC | Civilian Conservation Corps |
| CVLP | Comprehensive Valleywide Land Plan |
| dBA | A-Weighted Decibel |
| EIS | Environmental Impact Statement |
| msl | Mean Sea Level |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NFDC | National Fertilizer Development Center |
| NFERC | National Fertilizer and Environmental Research Center |
| NHA | Natural Heritage Area |
| NHPA | National Historic Preservation Act |
| NRHP | National Register of Historic Places |
| NRI | Nationwide Rivers Inventory |
| NRP | Natural Resource Plan |
| PDW | Phosphate Development Works |
| PNNL | Potential National Natural Landmark |
| Reservation | Wilson Dam and Muscle Shoals Reservations |
| RLMP | Reservoir Land Management Plan |
| RFAI | Reservoir Fish Assemblage Index |
| RVSMP | Reservoir Vital Signs Monitoring Program |
| SMI | Shoreline Management Initiative |
| SMP | Shoreline Management Policy |
| SWA | Small Wild Area |
| TRM | Tennessee River Mile |
| TVA | Tennessee Valley Authority |
| U.S. | United States |
| USCB | U.S. Census Bureau |
| USACE | U.S. Army Corps of Engineers |
| USDA | U.S. Department of Agriculture |
| USDOI | U.S. Department of the Interior |
| USGS | U.S. Geologic Survey |
| USNPS | U.S. National Park Service |
| Valley | Tennessee River Valley Region |
| WHC | Wildlife Habitat Council |

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CHAPTER 1. INTRODUCTION

The draft Wilson Reservoir Land Management Plan (RLMP) is a study of the Tennessee Valley Authority (TVA)-managed public land surrounding Wilson Reservoir. It is one of eight draft RLMPs considered under Alternative B of this Environmental Impact Statement (EIS). The EIS Volume I contains information on the scoping process, allocation process, alternatives, comparison of the alternatives, and analysis of impacts. In addition, the EIS contains a summary, an index and appendices.

Volume IX of the EIS addresses TVA's draft RLMP for Wilson Reservoir. This Volume provides background information about TVA land management throughout its history and specifically TVA management of public land surrounding Wilson Reservoir. It explains the purpose of the draft RLMP and describes the process used in its development. The draft RLMP includes the planning process, which lists the objectives around which the RLMP was developed and a summary of the allocation process. The Wilson Reservoir Regional Overview (Chapter 2) describes the natural and social development of the reservoir and the surrounding area. The Parcel Descriptions (Chapter 4) include total acreage and parcel descriptions documenting proposed land management allocations. The allocation map is included as Appendix A of this draft RLMP.

Once TVA completes its Multiple RLMP EIS, this Volume will serve as the consolidated planning document addressing management of TVA reservoir lands on Wilson Reservoir and will be available to TVA staff and the public.

1.1 Tennessee Valley Authority History

President Franklin Roosevelt needed creative solutions to lift the nation out of the depths of the Great Depression, and the TVA is considered one of his most innovative initiatives. Roosevelt envisioned TVA as an agency different from any other. He asked Congress to create “a corporation clothed with the power of government but possessed of the flexibility and initiative of a private enterprise.” On May 18, 1933, Congress passed the Tennessee Valley Authority Act (TVA Act). A link to the TVA Act is available at <https://www.tva.com/About-TVA/Our-History>.

From the start, TVA established a unique problem-solving approach to fulfilling its mission: Integrated Resource Management. Each issue TVA faced—whether it was power production, navigation, flood control, malaria prevention, reforestation, or erosion control—was studied in its

broadest context. TVA weighed each issue relative to the others. From this beginning, TVA has held fast to its strategy of integrated solutions, even as the issues changed over the years. A short TVA history is available at <http://www.tva.com/abouttva/history.htm>.

1.2 Overview of TVA's Mission and Environmental Policy

1.2.1 TVA's Mission

TVA has a rich history of improving quality of life and economic prosperity for people and businesses in the TVA service area. TVA was created by Congress in 1933 and charged with a unique mission—to improve the quality of life in the Valley through the integrated management of the region's resources. For more than eight decades, we have worked tirelessly to carry out that mission, and we are working just as hard to make life better for the nine million people who live in the Valley today. We serve the people of the Tennessee Valley by focusing on three key areas: energy, environment, and economic development.

1.2.2 Environmental Policy

As stated in TVA's 2007 Strategic Plan, "TVA will be proactive in addressing environmental concerns, including those related to global climate change." About half of the identified strategic objectives and critical success factors in the plan relate directly to TVA's environmental activities and policy-making.

Following the release of the 2007 Strategic Plan, the TVA Board asked for the development of an integrated environmental policy to outline objectives and critical success factors across the multiple areas of TVA's activities. In 2008, the TVA Board approved the Environmental Policy, which provides guiding principles for reducing the environmental impacts of TVA operations while continuing to provide reliable and affordable power to the Valley. In 2010, a biennial review of the Environmental Policy was completed, which did not result in major changes or revisions. TVA's overarching Environmental Policy objective is to provide cleaner, reliable, and affordable energy; support sustainable economic growth in the Valley; and engage in proactive environmental stewardship in a balanced and ecologically sound manner. A copy of the Environmental Policy is available at <http://www.tva.com/environment/policy.htm>.

1.2.3 Land Policy

On behalf of the United States, TVA originally acquired approximately 1.3 million acres of land in the Valley. Creation of the TVA reservoir system inundated approximately 470,000 acres with water. TVA has transferred or sold approximately 508,000 acres, the majority of which was

transferred to other federal and state agencies for public uses. TVA currently controls approximately 293,000 acres of reservoir lands, which continue to be managed pursuant to the TVA Act (Figure 1-1). As part of its management of these lands, TVA allocates them to various land use zones (see Section 3.1). These TVA-managed lands are frequently referred to as “TVA lands” in this document.

In 2006, TVA adopted a Land Policy to guide retention, disposal, and planning of real property. Accordingly, it is TVA’s policy to manage its lands to protect the integrated operation of the TVA reservoir and power systems, to provide for appropriate public use and enjoyment of the reservoir system, and to provide for continuing economic growth in the Valley. Recognizing that historical land transfers have contributed substantially to meeting multipurpose objectives, TVA maintains the policy of retaining in public ownership the reservoir lands under its control except in those rare instances where the benefits to the public will be so significant that transferring lands to private ownership or another public entity is justified. The Land Policy is available at <https://www.tva.gov/Environment/Environmental-Stewardship/Land-Management/TVA-Land-Policy>.

1.2.4 Shoreline Management Policy

In November 1998, TVA completed a Shoreline Management Initiative (SMI) EIS (TVA 1999) analyzing possible alternatives for managing residential shoreline development throughout the Valley. In April 1999, TVA adopted the agency’s current Shoreline Management Policy (SMP), which incorporates a strategy of managing public shoreline through an integrated approach that conserves, protects, and enhances shoreline resources and public use opportunities while providing for reasonable and compatible use of the shoreline by adjacent residents. The SMP defines the standards for vegetation management, docks, shoreline stabilization, and other residential shoreline alterations. The SMI EIS is available at <https://www.tva.com/Environment/Environmental-Stewardship/Environmental-Reviews/Shoreline-Management-Policy>.

Draft Wilson Reservoir Land Management Plan

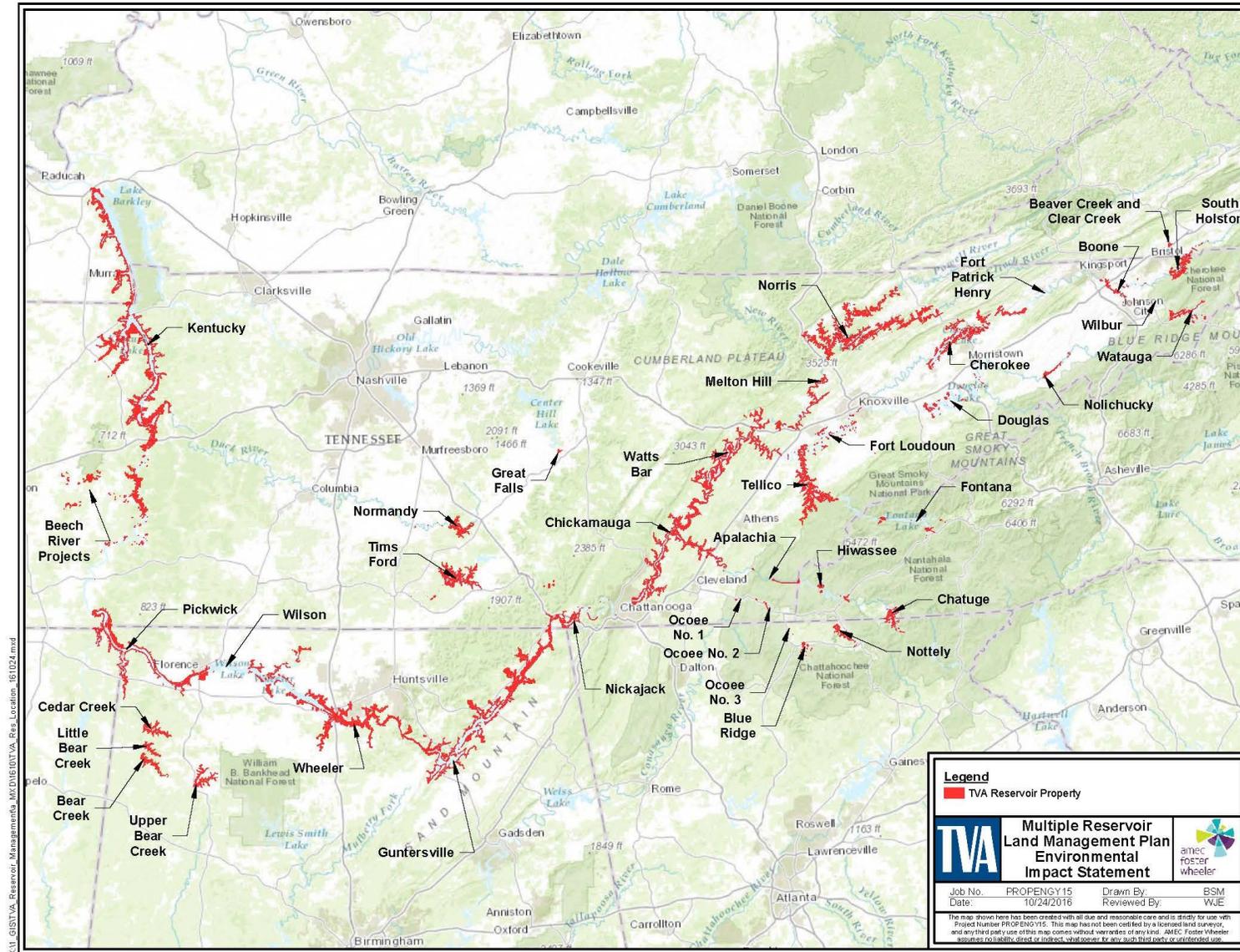


Figure 1-1. TVA Managed Reservoir Land

1.3 The Natural Resource Plan

In 2011, TVA completed a Natural Resource Plan (NRP) (TVA 2011a) that strategically guides the management of both renewable and nonrenewable resources, underscoring the importance of protecting those resources that will be lost forever if they are not actively protected or improved today. TVA is one piece of the solution and recognizes the need for a coordinated and collaborative effort to meet the near- and long-term resource needs. As such, the NRP is designed to:

- Integrate the objectives of six resource areas (biological, cultural, recreation, water, public engagement, and reservoir lands planning).
- Provide optimum public use benefit.
- Balance competing and sometimes conflicting resource uses.

These competing interests, coupled with today's environmental awareness and focus on preserving nonrenewable resources, underscore the necessity for a consistent approach to the management of TVA lands. The NRP represents TVA's high-level strategy for managing its natural resources in the near and long term. Detailed implementation plans, such as this draft RLMP, are being developed based on the NRP to drive specific implementation efforts. The NRP is available at <https://tva.com/Environment/Environmental-Stewardship/Environmental-Reviews/Natural-Resource-Plan>.

1.4 Purpose of Reservoir Land Planning

As a regional development agency and the nation's largest public power provider, TVA is committed to protecting and sustaining the environmental resources of the Valley for future generations through leadership in clean energy innovation and environmental management. In managing its public lands and resources, TVA seeks to provide efficient resource stewardship that is responsive to stakeholder interests.

TVA intends to manage its public land for an optimum level of multiple uses and benefits that protect and enhance natural, cultural, recreational, and visual resources in a cost-effective manner. Through this approach, TVA ensures that resource stewardship issues and stakeholder interests are considered while optimizing benefits and minimizing conflicts.

Draft Wilson Reservoir Land Management Plan

As part of the NRP, TVA developed a Comprehensive Valleywide Land Plan (CVLP). The CVLP guides resource management and administration decisions on the approximately 293,000 acres of TVA lands around 46 reservoirs. It identifies the most suitable uses for the land under TVA's control, identifying areas for project operations, sensitive resource management, natural resource conservation, industrial/commercial development, developed recreation, and shoreline access. The objectives of the CVLP are designed to implement TVA's mission of serving the Valley through energy, environment, and economic development. Under the CVLP, TVA will develop and update RLMPs, such as this proposed plan, for a portion of a reservoir, an entire reservoir, or a group of reservoirs. RLMPs are consistent with TVA's policies and programs discussed within this chapter.

The CVLP will be recalibrated as needed (as described under Alternative B in Volume I of this EIS, TVA proposes to update the target ranges of the CVLP to incorporate the findings of the eight proposed RLMPs). The CVLP was based, in part, on the anticipation that some parcels of land may be better allocated to different land use zones from those initially identified. For example, field assessments may identify additional areas that warrant the sensitive resource management allocation. In addition, during the creation or update of each individual RLMP, TVA may determine, either for its own management purposes or as a result of public input, that certain parcels of land should be used differently from how they have been used in the past. The preliminary results of the Wilson Reservoir planning effort have been included in determining the proposed revisions to the CVLP. The draft Wilson RLMP and proposed revisions to the CVLP will be included in the five-year cyclic review of the NRP.

CHAPTER 2. REGIONAL OVERVIEW

The headwaters of the Tennessee River are in eastern Tennessee, in southwestern Virginia, western North Carolina, and in northern Georgia. The Tennessee River is formed by the confluence of the Holston and French Broad rivers just above Knoxville, Tennessee. The river flows in a southwesterly direction through Tennessee, crosses northern Alabama, forms a small portion of the northeastern boundary of Mississippi, and then flows north through western Tennessee and western Kentucky to empty into the Ohio River at Paducah, Kentucky, a distance of about 650 miles. The Tennessee River drains an area of 40,910 square miles, about equal to the area of Ohio. The headwaters are in the Great Smoky Mountains and the Blue Ridge Mountains, which are the highest ranges east of the Rockies. The mountain region is in a striking contrast to the relatively flat lands of northern Alabama and to the rolling land of western Kentucky.

The series of rapids between the cities of Decatur and Florence, Alabama, through which the Tennessee River falls 134 feet in 37 miles, created a formidable obstacle to transportation during the early period of settlement when water routes constituted almost the only avenue of penetration into the wilderness west of the Alleghenies. The 16-mile reach at the downstream end of these rapids, where the river falls 100 feet, is the famous Muscle Shoals. The obvious desirability of continuous navigation along the river resulted in many plans and suggestions for improvement and with the advent of organized government in the territory, two attempts were made to construct canals and locks to bypass the shoals. These canals, although eventually constructed and used, were inadequate, expensive to maintain and operate, and of little lasting benefit.

The growing utilization of hydroelectric power introduced a possible solution to the navigation problem by making possible a multi-purpose, income-producing development. Starting in 1898 and continuing until September 1917, when Muscle Shoals was selected as the site for the power dam and nitrate fixation plant authorized in the National Defense Act of June 3, 1916, various bills were introduced and reports issued concerning the disposition and development of the site. Most of these proposals involved a government subsidy to cover cost of navigation facilities; the utilization and the installation of power facilities were planned to be available for private development.

Construction of Wilson Dam was started in 1918, suspended owing to lack of congressional appropriations in 1920, resumed in 1922, and completed in 1925. From 1921 to May 1933, negotiations with private companies, first for the site, the nitrate plant, and the partially completed dam, and later for the dam and nitrate plant, made the disposition of the property a national issue but did not culminate in any definite or permanent working agreements. Negotiations ended with the assignment of the property to TVA on May 18, 1933.

2.1 Muscle Shoals and Wilson Dam Reservation

The United States (U.S.) War Department constructed U.S. Nitrate Plant No. 2 between February and October 1918 to produce nitrates for World War I munitions. Wilson Steam Plant, the largest of its kind when it was constructed in 1918, provided electric power to U.S. Nitrate Plant No. 2 during the war effort. TVA assumed custody and control of these facilities in 1933 when Congress directed its transfer to TVA from the U.S. War Department. TVA immediately began converting the nitrate facilities to produce fertilizers. From those days through the early 1940s, TVA developed and distributed fertilizers to help improve agriculture in the Tennessee Valley region. During World War II, TVA converted its fertilizer production facilities back to the manufacture of munitions as well as synthetic rubber (TVA 2011b).

These facilities supplied more than 60 percent of the elemental phosphorus needed for munitions and produced more than 200,000 tons of calcium carbide for the manufacture of synthetic rubber (Lord, Aeck, and Sargent Architecture 2009). During the Korean Conflict, TVA again produced munitions essential to that military effort.

In 1952, TVA began operation of two plants on the Muscle Shoals and Wilson Dam Reservation (reservation) for the U.S. Army: a chlorine plant and the Phosphate Development Works (PDW), which produced methyl phosphorous dichloride and methyl phosphoric dichloride, components used in the manufacturing of a nerve agent. In 1954, the chlorine plant was sold to a private company. In 1958, the PDW ceased operations and was placed on standby; in 1992, the PDW was demolished.

For over 50 years, TVA operated a fertilizer research and development facility at Muscle Shoals. It became internationally recognized for its fertilizer research, demonstrations, production, and patents. About 75 percent of fertilizers and fertilizer technology used around the world today were developed or improved during the 1950s to 1970s by scientists and engineers at TVA. An investment of \$41 million in fertilizer research through 1981 returned \$57 billion to U.S.

agriculture, excluding benefits of the technology to the rest of the world. Thus, a benefit-to-cost ratio of more than \$20 to \$1 was recognized (International Fertilizer Development Center 2008).

In the early 1960s, the Muscle Shoals fertilizer complex was named the National Fertilizer Development Center (NFDC). While TVA had long been involved in identifying and addressing environmental issues related to fertilizer development and use since NFDC's inception, by 1988 TVA's environmental thrust began to become the focal point of the NFDC's mission. In January 1990, to emphasize its environmental commitment, TVA changed the name of the NFDC to the National Fertilizer and Environmental Research Center (NFERC). In May 1990, TVA closed the large-scale fertilizer production facilities and transitioned them to small-scale prototype plants. Through 1993, these facilities were used in experimental production of more environmentally friendly fertilizer products or in production of fertilizers by utilizing industrial by-products. By February 1994, a major refocusing of the NFERC's activities to environmental research, development, and technology transfer was complete. At that time, the name of the Muscle Shoals facility was changed from NFERC to the TVA Environmental Research Center, as it remains today (TVA 2011b).

2.2 Wilson Reservoir and Present Shoreline

Approximately 3,030 acres surrounding the Wilson Dam Reservation and reservoir were acquired in fee simple; the remainder of the property surrounding the reservoir was secured via flowage easements to varying mean sea level (msl) contours. TVA assumed custody and control of the project in 1933. In terms of power generation, Wilson Dam is the largest conventional hydroelectric facility in the TVA system. Only Raccoon Mountain Pumped-Storage Plant near Chattanooga can generate more hydroelectric power. Wilson Dam has 21 generating units with a net dependable capacity of 653 megawatts. Net dependable capacity is the amount of power a dam can produce on an average day, minus the electricity used by the dam itself.

Wilson Dam is 137 feet high and stretches 4,541 feet across the Tennessee River at river mile 259.4. Wilson Reservoir provides 166 miles of shoreline and 15,500 acres of water surface for recreation and navigation. Designed to be a run-of-river project, the reservoir has a minimal flood-storage capacity of 50,500 acre-feet. The main lock at Wilson is 110 feet by 600 feet. With a maximum lift of 100 feet, it is the highest single lift lock east of the Rockies. An auxiliary lock has two 60-foot by 300-foot chambers that operate in tandem. On average, 3,700 vessels pass through Wilson's locks each year.

Present Shoreline

During the early 1990s, TVA received a variety of proposals for development and use of the approximately 3,030 acres of reservation property by nonfederal entities. Rather than try to accommodate the various requests, TVA decided to first determine how much of the reservation was needed for TVA use, and then identify portions of the reservation that could be made available to others to meet non-TVA needs (TVA 1996). From 1996 to 2012, TVA relied on allocations in the 1996 Muscle Shoals/Wilson Dam Reservation Land Use Plan to guide decision-making regarding the use of reservation lands. Approximately 1.7 acres of the reservation were sold consistent with the 1996 Reservation Land Use Plan.

In November 2011, TVA completed an EIS on the potential sale of 1,400 acres of the reservation and various types of future development affecting the area (TVA 2011b). The reservation is a unique piece of property in TVA's land holdings and was designated as non-reservoir property in the EIS. In November 2012, the TVA Board determined that TVA had no further need of the fee interest in approximately 1,000 acres of the reservation. The remaining 400 acres that was included in the EIS study area will remain in TVA's custody and control to support redevelopment efforts until otherwise directed by the TVA Board or its designee.

As part of this land planning effort, TVA evaluated the non-reservoir property designation and allocations from the 1996 Reservation Land Use Plan for the remaining approximate 1,630 acres of property. Approximately 280 acres were designated as TVA Power Property because the property supports infrastructure associated with the Power Service Shop and a substation. An additional 99 acres were designated as TVA Corporate Property because the property holds buildings and property supporting the future development of the reservation. Approximately 25.7 acres were included in the 2002 Pickwick RLMP and approximately 1.8 acres were included in the 2016 draft Wheeler RLMP. The remaining 1,223 acres were evaluated for either a reservoir or non-reservoir property designation. TVA has managed the property and allowed contractual agreements for actions within the parameters listed within Table 3-1. The 1,223 acres has geographical similarities to other reservoir properties throughout the Valley. TVA reviewed the previous land management techniques, geographical similarities along with governance associated with the Land Policy and determined the reservoir property designation better suited the property. Therefore, the approximate 1,223 acres of property are the scope of this RLMP.

2.2.1 Land Use and Prime Farmland

As described above, TVA owns and manages approximately 1,223 acres of land on Wilson Reservoir. A special land plan study was completed on a portion of Wilson near the dam in 1996 but TVA has never completed a RLMP for the entire reservoir. The shoreline of Wilson Reservoir is primarily composed of forested areas, with residential, commercial and recreation areas developed primarily in the vicinity of the surrounding cities of Muscle Shoals, Florence and Killen. Some agricultural land is found in rural areas along the reservoir. These uses are generally reflected in the land cover database for the parcels around the reservoir and the surrounding area which identifies land cover in these areas as primarily forested and developed areas with a relatively large amount of developed areas classified as developed open space and low intensity development. Developed open space includes single family housing units on large lots, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes. Land cover classified as developed, low intensity includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for less than 50 percent of the total land cover. A relatively high percentage of land cover within the vicinity of the reservoir is classified as some variation of agricultural land.

According to TVA's SMI EIS, TVA owns approximately 13 miles of the 166 miles of shoreline (8 percent) on Wilson Reservoir (see Volume I, Table 3-1). Approximately 92 percent of the shoreline miles on this reservoir is privately owned, and is available for shoreline access development (see Volume I, Table 3-2). In the SMI EIS, TVA estimated that of that 92 percent, approximately 57 percent of this privately owned shoreline is currently developed with residential subdivisions. TVA has holds flowage easement rights along portions of this private shoreline.

As identified in Section 2.2 most of the property surrounding the reservoir was secured via flowage easements. Some of this land had been sold or designated as non-reservoir property, however, any structures placed within existing flowage easements or within the 500-year floodplain are subject to Section 26a of the TVA Act. Section 26a of the TVA Act requires that TVA's approval be obtained prior to the construction, operation, or maintenance of any dam, appurtenant works, or other obstruction affecting navigation, flood control, or public lands or reservations along or in the Tennessee River or any of its tributaries.

TVA public land on the Wilson Reservoir contains 338.1 acres of prime farmland and 97.2 acres of farmland of state importance (Table 2-1). Prime farmland has soil with the best combination

of physical and chemical characteristics for producing food and fiber and is protected from conversion to industrial and nonagricultural uses by the United States Department of Agriculture (USDA). It is noted, however, that current soil mapping of prime farmland soils does not account for existing developed uses that may have previously disturbed and potentially converted prime farmland.

Table 2-1. Prime Farmland and Farmland of Statewide Importance on Wilson Reservoir

| Zone | Prime Farmland (acres) | Farmland of Statewide Importance (acres) |
|--|-------------------------------|---|
| Zone 2 – Project Operations | 262.1 | 75.8 |
| Zone 3 – Sensitive Resource Management | 0.0 | 0.0 |
| Zone 4 – Natural Resource Conservation | 0.0 | 0.0 |
| Zone 5 – Industrial | 0.0 | 0.0 |
| Zone 6 – Developed Recreation | 76.0 | 20.9 |
| Zone 7 – Shoreline Access | 0.0 | 0.6 |
| Total | 338.1 | 97.2 |

Source: USDA Natural Resources Conservation Service 2016

The majority (262.1 and 75.8 acres) of both prime farmland and farmland of statewide importance would be designated to Zone 2, where major soil disturbance could occur when TVA or other public facilities are constructed. However, most parcels that would be designated for Zone 2 already contain facilities that are not likely to require substantial modification. Of the 76.0 acres of prime farmland and 20.9 acres of farmland of statewide importance included in Zone 6, major soil disturbances could occur in specific locations, if recreation facilities are constructed. Conversely, large areas could remain unaffected for more dispersed recreation management. There is only 0.6 acre of farmland of statewide importance proposed for Zone 7. There is no prime farmland or farmland of statewide importance included in any lands that would be designated for Zones 3, 4, or 5.

For information on land use and prime farmland and potential impacts of the draft RLMP, see Volume I, Sections 3.2 and 3.3.

2.2.2 Recreation

TVA provides public lands for developed and dispersed recreational purposes through the reservoir lands planning process. Developed recreation include campgrounds, lodges, marinas, boat ramps, parks, swimming pools, beaches and golf courses. Dispersed recreation activities

include picnicking, primitive camping, hiking, bank fishing, hunting, kayaking and canoeing. In 2005, TVA developed a recreation strategic plan aimed at collaboratively enhancing recreational opportunities and addressing unmet recreational needs while managing the resources of the Tennessee River system (TVA 2005). This strategy laid out guiding principles for how to best design and develop recreation opportunities. During this reservoir lands planning effort, proposed uses of tracts of TVA-managed lands around Wilson Reservoir were categorized based upon a suitable use that is consistent with TVA policy and guidelines and applicable laws and regulations.

At the Wilson Reservoir, developed recreation provides modern facilities and amenities such as campgrounds, developed boat launches/ramps, parks and a myriad of day use facilities (picnic areas, swimming beaches, and fishing piers). These uses primarily occur on TVA lands that would be allocated to Zone 6 (Developed Recreation) and Zone 2 (Project Operations). TVA proposes to allocate approximately 12 percent (148.5 acres) of TVA land on Wilson Reservoir to Zone 6 and approximately 88 percent (1,072 acres) to Zone 2 (see Figure 3-1).

Wilson Reservoir is an outdoor recreation resource that attracts visitors from within and outside the region. Five recreation areas have been developed on the Wilson Reservoir including public parks and access areas and commercial recreation operations. Many of these recreation areas are located on properties that TVA transferred, leased or licensed for recreation development and use. Two public parks were developed on lands made available by TVA and include the River Heritage Park and the Veteran's Memorial Park. Recreation facilities at the Veteran's Memorial Park include athletic fields, picnic shelters, tennis courts and a disc golf (Frisbee golf) course (City of Florence 2016). The River Heritage Park includes trails and a splash pad for recreation. Other public agencies have also developed boat ramps on TVA lands. For a discussion of additional nearby recreational facilities, see Section 2.3.

Table 2-2 itemizes developed recreation area lands that are managed by TVA or another public agency for recreation purposes. Table 2-3 summarizes commercial, private, and semi-private developed recreation areas. Tables 2-2 and 2-3 do not itemize recreation areas on non-TVA shorelands (Zone 1) because these areas are beyond the scope of this RLMP. Wilson Reservoir parcel descriptions (see Chapter 4) further describe the management entity and management descriptions of recreation facilities on lands managed by either TVA or under contractual agreement.

Table 2-2. Developed Public Recreation Areas on TVA Lands on the Wilson Reservoir

| Recreation Area | Managing Entity | Parcel Location |
|-------------------------|------------------|-----------------|
| River Heritage Park | City of Florence | 2 |
| Veteran's Memorial Park | City of Florence | 4 |
| Boat Ramp | State of Alabama | 6 |
| Lock Six Boat Ramp | City of Killen | 7 |

Table 2-3. Developed Commercial, Private and Semi-Private (camps) Recreation Areas on TVA Lands on the Wilson Reservoir

| Recreation Area | Managing Entity | Parcel Location |
|-------------------------------|-----------------------------|-----------------|
| Marriott Shoals Hotel and Spa | Marriott Hotels and Resorts | 2 |

Some of the TVA lands around Wilson Reservoir provide excellent opportunities for dispersed or nature-based recreation activities. Dispersed recreation would occur on lands allocated to Zone 2 (Project Operations) and undeveloped areas allocated Zone 6 (Developed Recreation). For example, appropriate dispersed recreation activities on lands that would be allocated to Zone 2 include hiking, picnicking, wildlife observation, fishing and camping on undeveloped sites.

For more information on recreation resources and the potential impacts of the draft RLMP, see Volume I, Section 3.4.

2.2.3 Terrestrial Ecology

Wilson Reservoir lies within the Interior Plateau ecoregion (USEPA 2013). The Interior Plateau ecoregion is a series of grassland plateaus and forested uplands that are generally lower in elevation than the Appalachian Mountains to the east but higher than the plains to the south. The variety of landforms, soils, climate, and geology across the Interior Plateau ecoregion has allowed for an extremely diverse assemblage of animals, including migratory birds of conservation concern. Deciduous forests and mixed evergreen-deciduous forests provide wildlife habitat among the agriculture and more urbanized areas (USGS 2016). Land cover within and in the vicinity of Wilson Reservoir is summarized in Table 2-4.

Table 2-4. Land Cover on TVA Owned Parcels and within the Vicinity of Wilson Reservoir

| Land Cover Type | TVA Property | | Vicinity (5-mile radius) | |
|------------------------------|--------------------|-------------------|--------------------------|-------------------|
| | Acres ¹ | Percent Cover (%) | Acres ¹ | Percent Cover (%) |
| Barren Land | 0 | 0.0 | 152.0 | 0.1 |
| Developed | | | | |
| Developed, High Intensity | 3.7 | 0.3 | 1,610.6 | 0.6 |
| Developed, Medium Intensity | 47.5 | 3.9 | 4,123.9 | 1.6 |
| Developed, Low Intensity | 100.0 | 8.2 | 11,977.4 | 4.8 |
| Developed, Open Space | 192.1 | 15.7 | 21,325.9 | 8.5 |
| Forest | | | | |
| Deciduous Forest | 491.2 | 40.2 | 50,371.9 | 20.1 |
| Evergreen Forest | 92.4 | 7.6 | 5,750.8 | 2.3 |
| Mixed Forest | 150.3 | 12.3 | 6,757.6 | 2.7 |
| Shrubland | | | | |
| Shrub/Scrub | 46.9 | 3.8 | 12,618.5 | 5.0 |
| Herbaceous | | | | |
| Grassland/Herbaceous | 12.5 | 1.0 | 3,858.4 | 1.5 |
| Hay/Pasture | 31.9 | 2.6 | 69,821.1 | 27.8 |
| Planted/Cultivated | | | | |
| Cultivated Crops | 0 | 0.0 | 29,838.9 | 11.9 |
| Wetlands/Open Water | | | | |
| Woody Wetlands | 26.3 | 2.1 | 8,052.9 | 3.2 |
| Emergent Herbaceous Wetlands | 0 | 0.0 | 120.6 | 0.0 |
| Open Water | 28.6 | 2.3 | 24,584.5 | 9.8 |
| Total | 1,223.4 | 100.0 | 250,964.8 | 100.0 |

¹ Source: Homer et al 2015

Oak-hickory deciduous forest is the most abundant forest type in the eastern U.S. and is prevalent in the Wilson Reservoir region. Some mixed deciduous-evergreen and evergreen forests are also present in this region. Numerous bird species nest in deciduous forests. Typical species include wild turkey, whip-poor-will, ruby-throated hummingbird, red-eyed vireo, wood thrush, black-throated green warbler, black-and-white warbler, ovenbird, hooded warbler, and the scarlet tanager. Several additional migratory bird species of concern utilize these habitats in this area including chuck-will's widow, Kentucky warbler, red-headed woodpecker, wood thrush and worm-eating warbler (USFWS 2016a). Common mammal species of deciduous forests

include white-tailed deer, red bat, eastern chipmunk, eastern gray squirrel, southern flying squirrel, white-footed mouse, cotton deermouse, short-tailed shrew, gray fox, and bobcat.

Deciduous forests and mixed evergreen-deciduous forests account for 53 percent of the land cover within the Wilson Reservoir parcels (see Table 2-4). Evergreen forests make up an additional eight percent of the land cover. Seeps, streams, and temporary ponds in deciduous forests provide habitat for numerous amphibians including American and Fowler's toads, green frog, northern cricket frog, and other frogs, and a range of salamanders including spotted and mole salamanders. Reptiles commonly found in deciduous forests especially near water include eastern fence lizard, ground skink, five-lined skink, eastern box turtle, eastern worm snake, black racer, and ring-necked snake. The riparian zones along streams within deciduous forests provide nesting habitat for Acadian flycatchers, northern parula, and Louisiana waterthrush.

Evergreen and mixed evergreen-deciduous forests provide nesting for woodland birds including pine and yellow-throated warblers, and great crested flycatcher. Several additional migratory bird species of concern utilize these habitats in this area including chuck-will's widow, Kentucky warbler, fox sparrow, and prairie warbler (USFWS 2016a). Portions of this forest type have been damaged by southern pine beetles in recent years. Several stands of dead pines exist on TVA lands, and TVA has performed salvage harvests in some stands. Dead pines provide foraging sites for woodpeckers and roosting sites for silver-haired bats. Other animals that inhabit evergreen and evergreen-deciduous forests but are not restricted to them include white-tailed deer, wild turkey, black bear, eastern mole, eastern kingsnake, smooth earth snake, eastern fence lizard, six-lined racerunner, and a variety of salamanders, frogs, and toads, especially near wet areas.

Non-forested herbaceous community types in the Wilson Reservoir region are dominated by pasturelands and hayfields. Herbaceous habitats, including grasslands, barrens, hayfields, and pastures account for approximately four percent of the land cover on the reservoir parcels (see Table 2-4). Early successional habitats provide habitat for a variety of bird species including eastern bluebird, eastern meadowlark, American crow, and red-tailed hawk. Several additional migratory bird species of concern utilize these habitats in this area including American kestrel, dickcissel, sedge wren, and short-eared owl (USFWS 2016a). Amphibians and reptiles that use these habitats include spring peeper, chorus frog, and common garter snake.

Bird and mammal diversity greatly increases at edge habitats especially those between forested areas bordered by early successional habitats. Birds commonly found at these edge habitats include wild turkey, great crested flycatcher, white-eyed vireo, Carolina wren, blue-gray gnatcatcher, brown thrasher, blue-winged warbler, prairie warbler, common yellowthroat, yellow-breasted chat, indigo bunting, eastern towhee, field and song sparrow, and orchard oriole. Several additional migratory bird species of concern utilize these habitats in this area including Bachman's sparrow, blue-winged warbler, dickcissel, loggerhead shrike, and red-headed woodpecker (USFWS 2016a). Mammals typically inhabiting edges include eastern cottontail, eastern harvest mouse, red fox, coyote, and striped skunk.

The reservoir parcels provide wetlands and open water habitats and associated riparian zones that are used by a variety of wildlife. Common species include great blue heron, green heron, belted kingfisher, common yellowthroat, and northern parula. Many additional migratory bird species of concern utilize these habitats in this area including bald eagle, least bittern, prothonotary warbler, rusty blackbird, sedge wren, short-eared owl, and Swainson's warbler (USFWS 2016a). Two colonial nesting bird colonies/heronries have been observed on TVA parcels on Wilson Reservoir (TVA 2016b). Shallow embayments, especially those with emergent vegetation, provide foraging habitat for waterfowl. Common waterfowl include wood ducks, Canada geese, and mallards. Other waterfowl periodically present include American black duck, gadwall, green-winged teal, ring-necked duck, lesser scaup, common goldeneye, bufflehead, hooded merganser, and common merganser.

Shorebird use of the Wilson Reservoir is limited to shallow embayments and exposed mud flats. Species such as spotted sandpiper that forage along the margins of reservoirs and killdeer that are not restricted to foraging on mud flats are commonly observed. Common amphibians found in the riparian zones include green frog, eastern narrowmouth toad, and Fowler's toad. Reptiles include northern water snake, common snapping turtle, and painted turtles. Common mammals include mink, muskrat, raccoon, and American beaver.

A search of the TVA Natural Heritage database in May 2016 indicated that 22 caves are located within three miles of Wilson Reservoir. One cave is located on a TVA parcel (TVA 2016b).

For information on terrestrial ecology and potential impacts of the draft RLMP, see Volume I, Section 3.5.

2.2.3.1 Invasive Nonnative Species

Many of the planned TVA parcels around Wilson Reservoir contain a substantial amount of invasive nonnative species. Executive Order 13112 defines an invasive nonnative species as any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem; and whose introduction does or is likely to cause economic or environmental harm or harm to human health.

The Southeastern Exotic Plant Pest Council provides a list of nonnative invasive species that could pose potential threats to native ecosystems and human health for each southeastern state. In reviewing the Alabama exotic plant pest list (Alabama Invasive Plant Pest Council 2012), there were 19 species occurring in Alabama that pose a severe threat to native ecosystems observed in the Wilson Reservoir region (Table 2-5).

Table 2-5. Invasive Non-native Species that Pose a Severe Threat Known to Occur in Alabama

| Common Name | Scientific Name |
|-----------------------------|-------------------------------------|
| Alligatorweed | <i>Alternanthera philoxeroides</i> |
| Aquarium water-moss | <i>Salvinia molesta</i> |
| Chinese privet | <i>Ligustrum sinense</i> |
| Chinese wisteria | <i>Wisteria sinensis</i> |
| Cogongrass | <i>Imperata cylindrica</i> |
| Common water hyacinth | <i>Eichhornia crassipes</i> |
| English ivy | <i>Hedera helix</i> |
| Eurasian water milfoil | <i>Myriophyllum spicatum</i> |
| Hydrilla | <i>Hydrilla verticillata</i> |
| Japanese climbing fern | <i>Lygodium japonicum</i> |
| Japanese honeysuckle | <i>Lonicera japonica</i> |
| Japanese stiltgrass | <i>Microstegium vimineum</i> |
| Kudzu | <i>Pueraria montana var. lobata</i> |
| Mimosa | <i>Albizia julibrissin</i> |
| Multiflora rose | <i>Rosa multiflora</i> |
| Parrot feather watermilfoil | <i>Myriophyllum aquaticum</i> |
| Sericia lespedeza | <i>Lespedeza cuneata</i> |
| Tallowtree | <i>Triadica sebifera</i> |
| Water lettuce | <i>Pistia stratiotes</i> |

Source: Alabama Invasive Plant Pest Council 2012

All of these species have the potential to adversely impact the native plant communities because of their potential to spread rapidly and displace native vegetation. TVA considers all of these species a severe threat to local plant communities.

In addition to invasive or non-native plant species discussed above, there are several exotic, non-native, and/or pest insect species and plant diseases that are known to occur within the counties encompassing Wilson Reservoir. These insects and diseases can have devastating impacts on native plant communities and human crops/fruits. The insects include: Japanese beetle, (*Popillia japonica*), brown marmorated stink bug (*Halyomorpha halys*), kudzu bug (*Megacopta cribraria*), southern pine beetle (*Dendroctonus frontalis*), and sugarcane aphid (*Melanaphis sacchari*) (EDDMapS 2016). These species all have the potential to pose problems to native vegetation, wildlife, crops, landscaping and gardens, and/or overall ecosystems due to the lack of natural predators or diseases to help control their populations giving them the ability to out-compete native species.

The following plant diseases are also known to occur in the counties containing Wilson Reservoir: butternut canker (*Sirococcus clavigignenti-juglandacearum*), dogwood anthracnose (*Discula destructiva*), fusiform rust (*Cronartium quercuum* f.sp. *fusiforme*), and Heterobasidion root rots (*Heterobasidion* spp.). Many of these diseases target certain plant species or groups of species, and can have serious impacts to local populations of those plants and trees.

There are several exotic, non-native, and/or pest terrestrial wildlife and other insect species that are known to occur within the region. These include: Asian tiger mosquito (*Aedes albopictus*), cat (feral) (*Felis catus*), and European starling (*Sturnus vulgaris*) (EDDMapS 2016). These species have the potential to pose problems to native wildlife and ecosystems due to their ability to out-compete native species and spread quickly. Some of these species can pose threats to human health and safety. Asian tiger mosquitoes are known to transmit various diseases to humans.

2.2.4 Aquatic Ecology

Aquatic ecological conditions in streams and reservoirs are monitored under a number of TVA programs. Aquatic ecological conditions in the larger reservoirs have been monitored using the Reservoir Vital Signs Monitoring Program (RVSM), which focuses on (1) physical and chemical characteristics of waters; (2) physical and chemical characteristics of sediments; (3) sampling the benthic macroinvertebrate community; and (4) fish assemblage sampling. The

RVSMP data includes annual fish sampling on tributary reservoirs on a two-year rotation sampling cycle. Ratings are based primarily on fish community structure and function, using an analysis tool known as the Reservoir Fish Assemblage Index (RFAI) (McDonough and Hickman 1999).

Both RFAI and benthic community samples are taken in the forebay area (near the dam) and inflow of Wilson Reservoir (Table 2-6). Ratings for Wilson Reservoir have fluctuated in a pattern that generally follows reservoir flow conditions, primarily due to the influence of flows on dissolved oxygen in the forebay. Like most Tennessee River main-stem reservoirs, Wilson tends to rate better in years with higher flow and worse in dry years that result in extended periods of low flow.

Table 2-6. RFAI and Benthic Community Scores for Wilson Reservoir (2010-2014)

| Year | RFAI Scores | | Benthic Community Scores | |
|------|-------------|--------|--------------------------|--------|
| | Forebay | Inflow | Forebay | Inflow |
| 2010 | Fair | Fair | -- | -- |
| 2012 | Good | Fair | Poor | Good |
| 2014 | Good | Good | Poor | Fair |

Source: TVA 2016a

The fish assemblage has consistently scored at the upper end of the fair range to good at the forebay whereas scores at the inflow have fluctuated within the fair range except for a poor rating in 2000, which was a low flow year. The fish species collected during the RVSMP sampling efforts represent typical species found in large river and lentic habitats (Table 2-7). The benthic community has rated poor or at the low end of the fair range each year at the forebay, probably due to low oxygen levels near the reservoir bottom and lack of good habitat. The bottom life indicator typically rates good or high fair at the inflow location.

Table 2-7. Fish Species in Wilson Reservoir

| Common Name | Scientific Name |
|------------------|-------------------------------|
| Bigmouth buffalo | <i>Ictiobus cyprinellus</i> |
| Black crappie | <i>Pomoxis nigromaculatus</i> |
| Black redhorse | <i>Moxostoma duquesnei</i> |
| Blue catfish | <i>Ictalurus furcatus</i> |
| Bluegill | <i>Lepomis macrochirus</i> |
| Bowfin | <i>Amia calva</i> |

| Common Name | Scientific Name |
|-----------------------------|---------------------------------------|
| Brook silverside | <i>Labidesthes sicculus</i> |
| Brown bullhead | <i>Ameiurus nebulosus</i> |
| Channel catfish | <i>Ictalurus punctatus</i> |
| Common carp | <i>Cyprinus carpio</i> |
| Emerald shiner | <i>Notropis atherinoides</i> |
| Flathead catfish | <i>Pylodictis olivaris</i> |
| Freshwater drum | <i>Aplodinotus grunniens</i> |
| Gizzard shad | <i>Dorosoma cepedianum</i> |
| Golden redhorse | <i>Moxostoma erythrurum</i> |
| Golden shiner | <i>Notemigonus crysoleucas</i> |
| Grass carp | <i>Ctenopharyngodon idella</i> |
| Hybrid striped x white bass | <i>Hybrid morone (chrysops x sax)</i> |
| Largemouth bass | <i>Micropterus salmoides</i> |
| Largescale stoneroller | <i>Campostoma oligolepis</i> |
| Logperch | <i>Percina caprodes</i> |
| Longear sunfish | <i>Lepomis megalotis</i> |
| Longnose gar | <i>Lepisosteus osseus</i> |
| Mississippi silverside | <i>Menidia audens</i> |
| Northern hog sucker | <i>Hypentelium nigricans</i> |
| Redbreast sunfish | <i>Lepomis auritus</i> |
| Redear sunfish | <i>Lepomis microlophus</i> |
| River redhorse | <i>Moxostoma carinatum</i> |
| Rock bass | <i>Ambloplites rupestris</i> |
| Silver redhorse | <i>Moxostoma anisurum</i> |
| Skipjack herring | <i>Alosa chrysochloris</i> |
| Smallmouth bass | <i>Micropterus dolomieu</i> |
| Smallmouth buffalo | <i>Ictiobus bubalus</i> |
| Spotfin shiner | <i>Cyprinella spiloptera</i> |
| Spotted bass | <i>Micropterus punctulatus</i> |
| Spotted gar | <i>Lepisosteus oculatus</i> |
| Spotted sucker | <i>Minytrema melanops</i> |
| Striped shiner | <i>Luxilus chrysocephalus</i> |
| Threadfin shad | <i>Dorosoma petenense</i> |
| Warmouth | <i>Lepomis gulosus</i> |
| White bass | <i>Morone chrysops</i> |
| White crappie | <i>Pomoxis annularis</i> |
| Yellow bass | <i>Morone mississippiensis</i> |
| Yellow perch | <i>Perca flavescens</i> |

Source: TVA 2016c

2.2.4.1 Invasive Nonnative Aquatic Species

Although there are many exotic or introduced aquatic species within the region, there are a few species that are considered more detrimental due to their ability to have broad impacts to overall aquatic systems as well as direct impacts to humans. These include Asian carp, especially bighead carp (*Hypophthalmichthys nobilis*) and silver carp (*Hypophthalmichthys molitrix*) (EDDMapS 2016), and zebra mussels (*Dreissena polymorpha*).

Asian carp cause serious damage to the native fish populations in the lakes and rivers that they infest because they out-compete other fish for food and space. Carp are also thought to lower water quality, which can kill off sensitive organisms like native freshwater mussels. Asian carp have been known to dominate entire streams, effectively pushing out the native species. Asian carp are also known to pose danger to humans due to their habit of jumping out of the water and striking boaters and water skiers and damaging boats and equipment.

Zebra mussels are notorious for their biofouling capabilities by colonizing water supply pipes of hydroelectric and nuclear power plants, public water supply plants, and industrial facilities. They colonize pipes constricting flow, therefore reducing the intake in heat exchangers, condensers, firefighting equipment, and air conditioning and cooling systems. Navigational and recreational boating can be affected by increased drag due to attached mussels. Small mussels can get into engine cooling systems causing overheating and damage. Navigational buoys have been sunk under the weight of attached zebra mussels. Zebra mussels can have profound effects on the ecosystems they invade. They primarily consume phytoplankton, but other suspended material is filtered from the water column including bacteria, protozoans, zebra mussel veligers, other microzooplankton and silt (Benson et al. 2016).

For information on aquatic ecology and potential impacts of the draft RLMP, see Volume I, Section 3.6.

2.2.5 Threatened and Endangered Species

TVA biologists and natural resource specialists used the TVA Natural Heritage database to assess the endangered and threatened species within and around Wilson Reservoir. The TVA Natural Heritage database was created to ensure that environmental compliance activities are conducted in a consistent manner across the TVA Region and that these activities meet the requirements of the National Environmental Policy Act (NEPA) and the Endangered Species Act.

Federally listed and state-listed species identified from the TVA Natural Heritage database searches that are known to occur in the two Wilson Reservoir counties are listed in Table 2-8. For the purpose of this document state-listed species include those that are being tracked, in need of management, candidates, proposed for listing and of special concern. As noted below, there are seven listed plants species occurring on TVA parcels on Wilson Reservoir, all of which are only state-listed. There is only one terrestrial wildlife species known to occur on TVA parcels, however, suitable habitat is present for many of the other listed species. No listed aquatic species are known to occur within TVA parcels, however ten species are known to occur in the reservoir adjacent to the parcels.

Table 2-8. Federally and State-Listed Species in the Wilson Reservoir Counties

| Common Name | Scientific Name | Status | |
|---------------------------|-------------------------------------|---------|------------|
| | | Federal | State |
| Amphibians | | | |
| Green salamander | <i>Aneides aeneus</i> | -- | PROT (S3) |
| Hellbender | <i>Cryptobranchus alleganiensis</i> | PS | PROT (S2) |
| Birds | | | |
| Bald eagle | <i>Haliaeetus leucocephalus</i> | DM | PROT (S3) |
| Bewick's wren | <i>Thryomanes bewickii</i> | -- | PROT (SH) |
| Cerulean warbler | <i>Setophaga cerulea</i> | -- | NOST (S1) |
| Osprey | <i>Pandion haliaetus</i> | -- | PROT (S5) |
| Red-cockaded woodpecker | <i>Picoides borealis</i> | LE | PROT (S2) |
| Warbling vireo | <i>Vireo gilvus</i> | -- | TRKD (S1) |
| Crustaceans | | | |
| Alabama blind cave shrimp | <i>Palaemonias alabamae</i> | LE | SP (S1S2) |
| Troglobitic crayfish | <i>Cambarus jonesi</i> | -- | SPCO (S2) |
| Troglobitic crayfish | <i>Procambarus pecki</i> | -- | TRKD (S2?) |
| Fish | | | |
| Alabama cavefish | <i>Speoplatyrhinus poulsoni</i> | LE | PROT (S1) |
| Bigeye chub | <i>Hybopsis amblops</i> | -- | TRKD (S3) |
| Blotched chub | <i>Erimystax insignis</i> | -- | TRKD (S2) |
| Boulder darter | <i>Etheostoma wapiti</i> | LE | PROT (S1) |
| Crown darter | <i>Etheostoma corona</i> | -- | TRKD (S2) |
| Fantail darter | <i>Etheostoma flabellare</i> | -- | TRKD (S3) |
| Flame chub | <i>Hemitremia flammea</i> | -- | TRKD (S3) |
| Gilt darter | <i>Percina evides</i> | -- | TRKD (S2) |
| Greenside darter | <i>Etheostoma blennioides</i> | -- | TRKD (S3) |
| Lollipop darter | <i>Etheostoma neopterum</i> | -- | PROT (S1) |
| Mountain brook lamprey | <i>Ichthyomyzon greeleyi</i> | -- | TRKD (S1) |
| Redline darter | <i>Etheostoma rufilineatum</i> | -- | TRKD (S3) |
| Rosyface shiner | <i>Notropis micropteryx</i> | -- | TRKD (S2) |
| Sawfin shiner | <i>Notropis sp.</i> | -- | TRKD (S2) |
| Slackwater darter | <i>Etheostoma boschungii</i> | LT | PROT (S1) |
| Slender madtom | <i>Noturus exilis</i> | -- | TRKD (S3) |
| Southern cavefish | <i>Typhlichthys subterraneus</i> | -- | PROT (S3) |
| Southern redbelly dace | <i>Chrosomus erythrogaster</i> | -- | TRKD (S3) |
| Spotfin chub | <i>Erimonax monachus</i> | LT | PROT (SX) |
| Spring pygmy sunfish | <i>Elassoma alabamae</i> | LT | PROT (S1) |

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| Common Name | Scientific Name | Status | |
|----------------------------|---------------------------------|---------|-------------|
| | | Federal | State |
| Stargazing minnow | <i>Phenacobius uranops</i> | -- | TRKD (S1) |
| Stonecat | <i>Noturus flavus</i> | -- | TRKD (S1) |
| Tuscumbia darter | <i>Etheostoma tuscumbia</i> | -- | PROT (S2) |
| Gastropods | | | |
| Anthony's river snail | <i>Athearnia anthonyi</i> | LE | PROT (S1) |
| Armored rocksnail | <i>Lithasia armigera</i> | -- | TRKD (S1) |
| Atlas pebblesnail | <i>Somatogyrus humerosus</i> | -- | HIST (SH) |
| Corpulent hornsnail | <i>Pleurocera corpulenta</i> | -- | TRKD (S1) |
| Golden pebblesnail | <i>Somatogyrus aureus</i> | -- | HIST (SH) |
| Knob mudalia | <i>Leptoxis minor</i> | -- | EXTI (S?) |
| Muddy rocksnail | <i>Lithasia salebrosa</i> | -- | TRKD (S1) |
| Ornate rocksnail | <i>Lithasia geniculate</i> | -- | TRKD (S1) |
| Ovate pebblesnail | <i>Somatogyrus excavatus</i> | -- | HIST (SH) |
| Rolling pebblesnail | <i>Somatogyrus strengi</i> | -- | THR (SH) |
| Round-rib elimia | <i>Elimia nassula</i> | -- | TRKD (S1) |
| Rugged hornsnail | <i>Pleurocera alveare</i> | -- | TRKD (S2) |
| Shortspire hornsnail | <i>Pleurocera curta</i> | -- | TRKD (S1S2) |
| Slowwater elimia | <i>Elimia interveniens</i> | -- | TRKD (S2) |
| Spiral hornsnail | <i>Pleurocera brumbyi</i> | -- | TRKD (S2) |
| Telescope hornsnail | <i>Pleurocera walker</i> | -- | TRKD (S3) |
| Varicose rocksnail | <i>Lithasia verrucosa</i> | -- | TRKD (S3) |
| Warty rocksnail | <i>Lithasia lima</i> | -- | HIST (SH) |
| Insects | | | |
| A beetle | <i>Batrisodes specus</i> | -- | TRKD (S2) |
| A beetle | <i>Catops gratiosa</i> | -- | PROT (S2) |
| A beetle | <i>Batrisodes jonesi</i> | -- | TRKD (S2) |
| A beetle | <i>Batrisodes tumoris</i> | -- | TRKD (S1) |
| A beetle | <i>Batrisasymmodes spelaeus</i> | -- | TRKD (S3) |
| A caddisfly | <i>Rhyacophila fenestra</i> | -- | RARE (S1) |
| A caddisfly | <i>Hydropsyche rotosa</i> | -- | RARE (S1) |
| A caddisfly | <i>Chimarra socia</i> | -- | TRKD (S1) |
| A caddisfly | <i>Psilotreta labida</i> | -- | TRKD (S1) |
| A ground Beetle | <i>Rhadine caudata</i> | -- | TRKD (S2) |
| A springtail | <i>Folsomia candida</i> | -- | TRKD (S1) |
| A glossosomatid caddisfly | <i>Agapetus gelbae</i> | -- | RARE (S1) |
| Mammals | | | |
| Appalachian cottontail | <i>Sylvilagus obscurus</i> | -- | TRKD (S1) |
| Gray bat | <i>Myotis grisescens</i> | LE | PROT (S2) |
| Indiana bat | <i>Myotis sodalis</i> | LE | PROT (S2) |
| Long-tailed weasel | <i>Mustela frenata</i> | -- | PROT (S3) |
| Northern long-eared bat | <i>Myotis septentrionalis</i> | LT | PROT (S2) |
| Rafinesque's big-eared bat | <i>Corynorhinus rafinesquii</i> | -- | PROT (S2) |
| Southeastern bat | <i>Myotis austroriparius</i> | -- | PROT (S2) |
| Tricolored bat | <i>Perimyotis subflavus</i> | -- | NOST (S3) |
| Mussels | | | |
| Acornshell | <i>Epioblasma haysiana</i> | -- | EXTI (SH) |
| Alabama lampmussel | <i>Lampsilis virescens</i> | LE | PROT (S1) |
| Angled riffleshell | <i>Epioblasma biemarginata</i> | -- | EXTI (SX) |
| Birdwing pearl mussel | <i>Lemiox rimosus</i> | LE | PROT (SX) |
| Black sandshell | <i>Ligumia recta</i> | -- | TRKD (S2) |
| Butterfly | <i>Ellipsaria lineolata</i> | -- | TRKD (S3) |

| Common Name | Scientific Name | Status | |
|---------------------------|----------------------------------|---------|-----------|
| | | Federal | State |
| Clubshell | <i>Pleurobema clava</i> | LE | PROT (SX) |
| Cracking pearlymussel | <i>Hemistena lata</i> | LE | PROT (SX) |
| Creepers | <i>Strophitus undulatus</i> | -- | TRKD (S1) |
| Cumberland leafshell | <i>Epioblasma stewardsonii</i> | -- | EXTI (SX) |
| Cumberland moccasinshell | <i>Medionidus conradicus</i> | -- | PROT (S1) |
| Cumberland monkeyface | <i>Quadrula intermedia</i> | LE | PROT (S1) |
| Cumberlandian combshell | <i>Epioblasma brevidens</i> | LE | PROT (S1) |
| Deertoe | <i>Truncilla truncata</i> | -- | TRKD (S1) |
| Dromedary pearlymussel | <i>Dromus dromas</i> | LE | PROT (S1) |
| Elktoe | <i>Alasmidonta marginata</i> | -- | EXTI (SX) |
| Fanshell | <i>Cyprogenia stegaria</i> | LE | PROT (S1) |
| Fine-rayed pigtoe | <i>Fusconaia cuneolus</i> | LE | PROT (S1) |
| Fluted kidneyshell | <i>Ptychobranhus subtentum</i> | LE | PROT (SX) |
| Hickorynut | <i>Obovaria olivaria</i> | -- | EXTI (SX) |
| Kidneyshell | <i>Ptychobranhus fasciolaris</i> | -- | TRKD (S1) |
| Lilliput | <i>Toxolasma parvum</i> | -- | TRKD (S3) |
| Long-solid | <i>Fusconaia subrotunda</i> | -- | TRKD (S1) |
| Monkeyface | <i>Quadrula metanevra</i> | -- | TRKD (S3) |
| Mucket | <i>Actinonaias ligamentina</i> | -- | TRKD (S2) |
| Ohio pigtoe | <i>Pleurobema cordatum</i> | -- | TRKD (S2) |
| Orange-foot pimpleback | <i>Plethobasus cooperianus</i> | LE | PROT (S1) |
| Orange-nacre mucket | <i>Lampsilis perovalis</i> | LT | PROT (S2) |
| Oyster mussel | <i>Epioblasma capsaeformis</i> | LE | PROT (SX) |
| Painted creekshell | <i>Villosa taeniata</i> | -- | TRKD (S3) |
| Pale lilliput | <i>Toxolasma cylindrellus</i> | LE | PROT (S1) |
| Pheasantshell | <i>Actinonaias pectorosa</i> | -- | TRKD (S1) |
| Pink mucket | <i>Lampsilis abrupta</i> | LE | PROT (S1) |
| Pink papershell | <i>Potamilus ohioensis</i> | -- | TRKD (S3) |
| Purple catspaw | <i>Epioblasma obliquata</i> | LE | PROT (SX) |
| Purple lilliput | <i>Toxolasma lividus</i> | -- | TRKD (S2) |
| Pyramid pigtoe | <i>Pleurobema rubrum</i> | -- | PROT (S2) |
| Rayed bean | <i>Villosa fabalis</i> | LE | PROT (SX) |
| Ring pink | <i>Obovaria retusa</i> | LE | PROT (S1) |
| Rock pocketbook | <i>Arcidens confragosus</i> | -- | TRKD (S3) |
| Rough pigtoe | <i>Pleurobema plenum</i> | LE | PROT (S1) |
| Round combshell | <i>Epioblasma personata</i> | -- | EXTI (SX) |
| Round hickorynut | <i>Obovaria subrotunda</i> | -- | TRKD (S2) |
| Round pigtoe | <i>Pleurobema sintoxia</i> | -- | TRKD (S1) |
| Scaleshell | <i>Leptodea leptodon</i> | LE | PROT (SX) |
| Sheepnose | <i>Plethobasus cyphus</i> | LE | PROT (S1) |
| Shiny pigtoe pearlymussel | <i>Fusconaia cor</i> | LE | PROT (S1) |
| Slabside pearlymussel | <i>Pleuonaia dolabelloides</i> | LE | PROT (S1) |
| Slippershell mussel | <i>Alasmidonta viridis</i> | -- | PROT (S1) |
| Smooth rabbitsfoot | <i>Quadrula cylindrica</i> | LT | PROT (S1) |
| Snuffbox | <i>Epioblasma triquetra</i> | LE | TRKD (S1) |
| Spectaclecase | <i>Cumberlandia monodonta</i> | LE | PROT (S1) |
| Spike | <i>Elliptio dilatata</i> | -- | TRKD (S1) |
| Sugarspoon | <i>Epioblasma arcaeformis</i> | -- | EXTI (SX) |
| Tennessee clubshell | <i>Pleurobema oviforme</i> | -- | TRKD (S1) |
| Tennessee pigtoe | <i>Fusconaia barnesiana</i> | -- | TRKD (S1) |
| Tennessee riffleshell | <i>Epioblasma propinqua</i> | -- | EXTI (SX) |

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| Common Name | Scientific Name | Status | |
|--------------------------------|---|---------|-------------|
| | | Federal | State |
| Tubercled blossom pearlymussel | <i>Epioblasma torulosa</i> | LE | PROT (SX) |
| Turgid blossom pearlymussel | <i>Epioblasma turgidula</i> | LE | EXTI (SX) |
| Wavy-rayed lampmussel | <i>Lampsilis fasciola</i> | -- | TRKD (S1S2) |
| White heelsplitter | <i>Lasmigona complanata</i> | -- | TRKD (S2S3) |
| White wartyback | <i>Plethobasus cicatricosus</i> | LE | PROT (S1) |
| Yellow-blossom pearlymussel | <i>Epioblasma florentina</i> | LE | PROT (SX) |
| Reptiles | | | |
| Alligator snapping turtle | <i>Macrochelys temminckii</i> | -- | PROT (S3) |
| Coal skink | <i>Plestiodon anthracinus</i> | -- | TRKD (S3) |
| Plants | | | |
| Alabama glade-cress | <i>Leavenworthia alabamica</i> | -- | SLNS (S2) |
| Alabama jamesianthus | <i>Jamesianthus alabamensis</i> | -- | SLNS (S3) |
| Allegheny-spurge | <i>Pachysandra procumbens</i> | -- | SLNS (S2S3) |
| American columbo | <i>Frasera caroliniensis</i> | -- | SLNS (S2) |
| Bastard toad-flax | <i>Comandra umbellata</i> | -- | SLNS (S1) |
| Blue-eyed Mary | <i>Collinsia verna</i> | -- | SLNS (S1) |
| Dutchman's breeches | <i>Dicentra cucullaria</i> | -- | SLNS (S2) |
| False Rue-anemone | <i>Enemion biternatum</i> | -- | SLNS (S2) |
| Fleshy-fruit glade-cress | <i>Leavenworthia crassa</i> | LE | SLNS (S2) |
| French's shootingstar | <i>Dodecatheon frenchii</i> | -- | SLNS (S1) |
| Gattinger prairie-clover | <i>Dalea gattingeri</i> | -- | SLNS (S3) |
| Georgia rock-cress | <i>Arabis georgiana</i> | LT | SLNS (S1) |
| Harper's grooved-yellow flax | <i>Linum sulcatum var. harperi</i> | -- | SLNS (S1) |
| Harper's umbrella-plant | <i>Eriogonum longifolium var. harperi</i> | -- | SLNS (S1) |
| Heartleaved plantain | <i>Plantago cordata</i> | -- | SLNS (S2) |
| Horse-gentian | <i>Triosteum angustifolium</i> | -- | SLNS (S1) |
| Horsemint | <i>Monarda clinopodia</i> | -- | SLNS (S2) |
| Leafy prairie-clover | <i>Dalea foliosa</i> | LE | SLNS (S1) |
| Little mountain meadow-rue | <i>Thalictrum mirabile</i> | -- | SLNS (S2) |
| Lyre-leaf bladderpod | <i>Lesquerella lyrata</i> | LT | SLNS (S1) |
| Muhly grass | <i>Muhlenbergia sobolifera</i> | -- | SLNS (S1) |
| Prairie trillium | <i>Trillium recurvatum</i> | -- | SLNS (S2) |
| Southern meadow-rue | <i>Thalictrum debile</i> | -- | SLNS (S2) |
| Sunnybell | <i>Schoenolirion croceum</i> | -- | SLNS (S2) |
| Three-flowered hawthorn | <i>Crataegus triflora</i> | -- | SLNS (S2) |
| Tuberous scurfpea | <i>Pedimelum subacaule</i> | -- | SLNS (S2) |
| Wall-rue spleenwort | <i>Asplenium ruta-muraria</i> | -- | SLNS (S1) |
| White lady-slipper | <i>Cypripedium candidum</i> | -- | SLNS (S1) |
| White trout-lily | <i>Erythronium albidum</i> | -- | SLNS (S1S2) |

*Federal status abbreviations: LE = Listed endangered, LT = Listed threatened; PS = Partial status;

C = Candidate; DM = Recovered, delisted, and being monitored

State status abbreviations: END = Endangered; THR = Threatened; NMGT = In need of management; SLNS = Listed by the State of Alabama, but not assigned a status; NOST = No status;

PROT= Protected; SPCO= Special concern; TRKD = Tracked by state natural heritage program; S-CE = Special Concern - Commercially Exploited

State rank abbreviations: S1 = Critically imperiled, often with five or fewer occurrences, S2 =Imperiled, often with <20 occurrences; S3 = Rare or uncommon, often with <80 occurrences; S4 = Widespread, abundant, and apparently secure within the state, but with cause for long-term concern; SX = Believed to be extirpated from the state; SH = Of historical occurrence in Tennessee, e.g. formally part of the established biota, with the expectation that it may be rediscovered; S#S# = Denotes a range of ranks because the exact rarity of the element is uncertain (e.g., S1S2) ; S? = Unranked at this time or rank uncertain

Source: TVA 2016b

In order to determine which of the species listed in each county are known to occur in the general vicinity of the reservoir, a more refined database search was conducted. Database searches are based on the following criteria: (1) distance, (2) element occurrence rank values, and (3) species or type of element present. Accordingly, plants are assessed within a 5-mile radius, aquatic species within 10-mile radius, and terrestrial species within a 3-mile radius.

For information on threatened and endangered species and the potential impacts of the draft RLMP, see Volume I, Section 3.7.

2.2.5.1 Plants

Reviews of the TVA Natural Heritage database indicated within the Wilson Reservoir counties, there are two federally listed endangered plant species and two federally listed threatened plant species (see Table 2-8). Of these species none are known to occur within 5 miles of Wilson Reservoir. There are 29 state-listed plant species within the Wilson Reservoir counties, of which seven exist within 5 miles of the reservoir, however only Dutchman's breeches has been recorded on TVA-owned parcels. These species and their habitat requirements are discussed in Table 2-9.

In addition to the listed species, three records of Alabama champion trees, the American yellowwood, paper mulberry, and September elm are located within the same parcel allocated to Zone 2 (Project Operations) as the Dutchman's breeches. However, Dutchman's breeches have not been recorded in this locality since 1978.

For information on plant communities and potential impacts of the draft RLMP, see Volume I, Section 3.5.3.

Table 2-9. Habitat Requirements for Plant Species of Conservation Concern within 5 Miles of Wilson Reservoir

| Common Name | Habitat Requirements | Suitable Habitat Present |
|----------------------|--|--|
| Allegheny-spurge | Rich woods with limestone substrate ² | Likely |
| Blue-eyed Mary | Rich wet-mesic woods ³ | Likely |
| Climbing bittersweet | Woodlands, bluffs, stream banks, rocky hillsides, thickets, fence rows, roadsides ² | Likely |
| Dutchman's breeches | Mesic woodlands, slopes/ravines, ledges along streams ⁴ | Yes Recorded on a TVA Zone 2 parcel |

| Common Name | Habitat Requirements | Suitable Habitat Present |
|--------------------------|--|--------------------------|
| False rue-anemone | Moist deciduous forests, floodplains, ravine bottoms, occasionally pastures ¹ | Likely |
| Fleshy-fruit glade-creep | Limestone cedar glades, pastures/fields, roadsides. Near limestone glades ¹ | Somewhat likely |
| Lake-creep | Open water of natural lakes, sloughs, ponds, canals, ditches, and swamps ⁵ | Likely |

¹ Source: Flora of North America 1993

² Source: Lady Bird Johnson Wildflower Center 2013

³ Source: TDEC 2014

⁴ Source: Hilty 2015

⁵ Source: NatureServe 2016

2.2.5.2 Terrestrial Wildlife

Reviews of the TVA Natural Heritage database indicate that there are 4 federally listed terrestrial wildlife species and 22 state-listed species in the Wilson Reservoir counties (see Table 2-8). Within 3 miles of the reservoir, only five federally listed species and an additional four state-listed species have been recorded (Table 2-10). Only one of these species, the gray bat, has been recorded on a TVA parcel. These species and their habitat requirements are described in Table 2-10.

Table 2-10. Habitat Requirements for Terrestrial Species of Conservation Concern within 3 Miles of Wilson Reservoir

| Common Name | Habitat Requirements | Suitable Habitat Present |
|------------------------------------|---|--|
| Amphibians | | |
| Hellbender | Creeks and rivers ¹ | Likely |
| Birds | | |
| Bald eagle | Forested areas near open water ¹ | Likely |
| Insects | | |
| A beetle (<i>Batrachium sp.</i>) | Terrestrial cave obligate ² | Somewhat likely |
| Mammals | | |
| Gray bat | Roosts in caves ¹ and forages in streams, rivers and reservoirs | Yes Recorded on a TVA Zone 2 parcel |
| Indiana bat | In winter, hibernacula are found in caves. During summer, roosts are found in wooded or semi wooded areas that have suitable trees with loose bark ¹ | Likely |
| Northern long-eared bat | In winter, hibernacula are found in caves. During summer, roosts are found in wooded or semi wooded areas that have suitable trees with loose bark ¹ | Likely |

| Common Name | Habitat Requirements | Suitable Habitat Present |
|----------------------------|---|--------------------------|
| Rafinesque's big-eared bat | A woodland bat. Hibernation occurs in caves. Summer roosting occurs in hollow trees, buildings, under bridges or in culverts ¹ | Likely |
| Tricolored bat | Winter roosts are in caves or cave like areas. Summer roosts are usually found in dead or live tree foliage, caves, and mines. Occasionally found in man-made structures, or tree cavities. Tolerates open areas ¹ | Likely |
| Reptiles | | |
| Alligator snapping turtle | Slow moving, deep water of rivers, sloughs, oxbows, swamps, and lakes; middle and west Tennessee; obscure ² | Likely |

¹ Source: NatureServe 2016

² Source: TDEC 2014

For information on terrestrial wildlife and potential impacts of the draft RLMP, see Volume I, Section 3.5.4.

2.2.5.2.1 Amphibians

There are no records of the hellbender on TVA parcels. Occurrences of hellbender in Wilson Reservoir are unlikely since the implementation of the dams on the Tennessee River; however, there is a potential for tributaries of the reservoir to contain suitable habitat to support this species within Wilson Reservoir watershed.

2.2.5.2.2 Birds

There are no records of bald eagles within TVA parcels, however a bald eagle nest that has been active since 2011 does exist within 660 feet of Parcel 11 (proposed for Zone 2 – Project Operations). Actions within 660 feet of this nest could impact this nest. Additionally, the lake and its tributaries provide suitable habitat for additional nesting and foraging bald eagles as there are many records of sitings along the reservoir and its tributaries.

There is one cave that may provide suitable habitat for the beetle, however none have been recorded in this cave.

2.2.5.2.3 Mammals

One gray bat was caught on a TVA parcel allocated to Zone 2 (Project Operations). There are two caves within 3 miles of the reservoir that are known maternity roosts for large numbers of gray bats. One cave present on a TVA parcel around this reservoir is not a known hibernacula for any bat species. The gray bat capture mentioned above as well as two additional gray bat capture locations on the adjacent Muscle Shoals Reservation Redevelopment document the use of streams and wetlands on these parcels by foraging gray bats. Tricolored bats, Rafinesque, Indiana and northern long-eared bats use caves to roost in winter and use forested habitat for foraging and roost in summer. A radio tagged Indiana bat was tracked to the Muscle Shoals Reservation Redevelopment area in the spring of 2016. However the location of the roost tree could not be determined because the transmitter used the track the bat fell off the bat before the roost tree was located. Acoustic detectors subsequently operated by TVA staff near the presumed roosting area for several days did not record any Indiana bat (or northern long-eared bat) calls. Due to the high proportion of forested cover it is likely that these state and federally listed bat species may use the TVA parcels during some portion of their life.

2.2.5.2.4 Reptiles

There are records of alligator snapping turtles both above and below the reservoir dam. There have been no new records since 1983, however suitable habitat may still be present.

2.2.5.3 Aquatic Species

In the Wilson Reservoir counties, there are 38 federally listed aquatic animal species, 33 of which are listed as endangered. There are 112 state-listed species (see Table 2-8). Within 10 miles of the reservoir, there are 34 federally listed species and 67 state-listed species (Table 2-11). There are no records of any listed species on TVA parcels, however there are records of 13 listed species within the reservoir. Both the boulder darter and the turgid blossom pearl mussel are federally listed as endangered, however both are presumed to be extirpated. The remaining 10 species are state-listed and only the purple illiput mussel has been recorded recently within the reservoir. The three state-listed caddisflies may be present due to the abundance of small streams and tributaries, however none have been collected since 1990.

Table 2-11. Habitat Requirements for Aquatic Species of Conservation Concern within 10 Miles of Wilson Reservoir

| Common Name | Habitat Requirement | Suitable Habitat Present |
|---|--|------------------------------|
| Insects | | |
| A caddisfly (<i>Hydropsyche rotosa</i>) | Streams ¹ | Likely |
| A caddisfly (<i>Rhyacophila fenestra</i>) | Streams ¹ | Likely |
| A caddisfly (<i>Chimarra socia</i>) | Streams ¹ | Likely |
| Fish | | |
| Alabama cavefish | Subterranean water in caves ¹ | Unlikely |
| Bigeye chub | Small to medium tributaries with gravel substrate. Does not tolerate siltation ¹ | Likely |
| Blotched chub | Shallow water of medium streams to small rivers with gravel, rubble, or bedrock substrate ¹ | Somewhat likely |
| Blotchside logperch | Riffles and gravel runs of clear, small to medium rivers ¹ | Somewhat likely |
| Boulder darter ³ | Riffles of small to medium rivers ¹ | Historic record |
| Crown darter | Rocky pools and adjacent riffles of headwaters, creeks, and small rivers ² | Unlikely |
| Fantail darter | Riffles with gravel/rubble in creeks to medium rivers ¹ | Somewhat likely |
| Flame chub | Springs and spring fed streams ¹ | Unlikely |
| Gilt darter | Small-medium rivers with clean water and strong flow ¹ | Somewhat likely |
| Greenside darter | Medium to large creeks and small to medium rivers. Riffles with gravel substrate, bedrock pools, quiet lakeshores ¹ | Likely |
| Lollipop darter | Small to medium sized, gravelly, cool, spring-fed streams; Shoal Creek watershed ² | Likely |
| Mountain brook lamprey | Clean high gradient creeks, Runs and riffles ¹ | Somewhat likely |
| Northern studfish | Margins, pools, backwaters of creeks and small to medium rivers ¹ | Likely |
| Redline darter | Riffles of clear creeks and small to medium rivers ¹ | Somewhat likely |
| Rosyface shiner <i>Notropis micropteryx</i> | Large creeks and small rivers with gravel and rubble. Sometimes in lakes near creeks ¹ | Likely |
| Rosyface shiner <i>Notropis rubellus</i> | Swift large creeks and small rivers with clean gravel and rubble ¹ | Likely |
| Sawfin shiner | Warm clear flowing pools, backwaters, gentle runs of creeks ¹ | Somewhat likely |
| Slackwater darter | Gravel bottomed pools in slow areas of creeks and small rivers ¹ | Likely |
| Slender madtom | Riffles, rocky pools ¹ | Likely |
| Southern cavefish | Aquatic cave obligate; cave | Unlikely, cave on TVA parcel |

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| Common Name | Habitat Requirement | Suitable Habitat Present |
|-------------------------------|---|--------------------------|
| | streams, karst waters, and water supply wells; reported from all karst regions excluding Valley and Ridge and Blue Ridge ² | |
| Southern redbelly dace | Headwaters and upland creeks ¹ | Unlikely |
| Spotfin chub | Large creeks in upland and montane areas ¹ | Unlikely |
| Stargazing minnow | Creeks and small to medium rivers in rocky/gravel runs and riffles. Requires warm clear water ¹ | Likely |
| Stonecat | Runs, riffles, rapids in creeks and rivers ¹ | Likely |
| Streamline chub | Small to large rivers, clear water with gravel bottoms ¹ | Likely |
| Tuscumbia darter | Ponded spring-fed habitats of valley floor springs; lower Tennessee River; probably extirpated from Tennessee ² | Unlikely |
| Gastropods | | |
| Anthony's river snail | Cobble rubble substrate of large rivers ¹ | Likely |
| Armored rocksnail | Partially buried logs, gravel, and preferably submerged rock outcrops; lower Cumberland River and larger tributaries; Obey River ² | Unlikely |
| Corpulent hornsnail | Extremely limited distribution in Tennessee River from Battle Creek at Ketchall (Kimball), Marion County, Tennessee, downstream ² | Somewhat likely |
| Muddy rocksnail ³ | Formerly occurred in portions of lower Cumberland and lower Tennessee systems; may be limited to dam tailwaters currently | Historic record |
| Ornate rocksnail | Large rivers, does not readily adapt to reservoirs ¹ | Unlikely |
| Rugged hornsnail ³ | Flowing water on gravel/cobble/boulder substrate. Small-large rivers ¹ | Historic record |
| Shortspire hornsnail | Freshwater ¹ | Somewhat likely |
| Spiral hornsnail | Creeks, medium rivers. Endemic to tributaries of the Tennessee River in northern Alabama ¹ | Likely |
| Telescope hornsnail | Tennessee river and major tributaries ¹ | Likely |
| Varicose rocksnail | Rocky shoals and riffles in shallow water of medium to large rivers ¹ | Likely |
| Warty rocksnail | Rocky substrates in riffle systems; Elk River and larger tributaries (Tennessee River watershed) ² | Unlikely |

| Common Name | Habitat Requirement | Suitable Habitat Present |
|---------------------------------------|--|--------------------------|
| Mussels | | |
| Acornshell | Medium to large rivers in riffle beds ¹ | Likely |
| Alabama lampmussel | Shoals of small to medium streams ¹ | Somewhat likely |
| Angled riffleshell | Shallow fast moving water in medium to large rivers ¹ | Likely |
| Birdwing pearlymussel | Small to medium rivers in riffles with sand/gravel substrate and moderate to fast current ¹ | Likely |
| Black sandshell ³ | Medium-large rivers in areas with strong currents over rocky substrates ¹ | Historic record, likely |
| Butterfly ³ | Large rivers. Adapts to impoundments ¹ | Historic record, likely |
| Clubshell | Small/med-sized rivers and streams; deeply buried in sand/fine gravel or in clean, coarse sand/gravel runs; lower Cumberland and Tennessee rivers ² | Likely |
| Cracking pearlymussel | Creeks to large rivers. In fast currents it is found in sand/gravel/cobble substrate. In slow current, mud/sand substrates ¹ | Likely |
| Cumberland leafshell | Medium to large rivers ¹ | Likely |
| Cumberland moccasinshell ³ | Small streams and headwaters in sand/gravel substrate ¹ | Historic record, likely |
| Cumberland monkeyface | Riffle and shoal areas of headwater streams and mid rivers. Requires clean fast flowing water ¹ | Unlikely |
| Cumberlandian combshell | Shallow water of large creeks to large rivers ¹ | Likely |
| Deertoe | Medium rivers and lakes ¹ | Likely |
| Dromedary pearlymussel | Riffles at sand and gravel shoals of moderate current rivers. In Tennessee, it is also found in deeper slower moving water ¹ | Likely |
| Elktoe ³ | Typical in small streams in riffles with swift currents and sand or gravel substrate ¹ | Historic record, likely |
| Fanshell | Medium to large streams, sometimes found in rivers with gravel substrate and strong current ¹ | Somewhat likely |
| Fine-rayed pigtoe | High gradient clear streams with firm cobble/gravel substrate ¹ | Unlikely |
| Fluted kidneyshell | Small-medium rivers in swift currents ¹ | Somewhat likely |
| Hickorynut | Sand/gravel substrate in deep water ¹ | Likely |
| Kidneyshell | Small to medium rivers, sometime in shallow areas of impoundments with moving water ¹ | Likely |

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| Common Name | Habitat Requirement | Suitable Habitat Present |
|------------------------------|---|--------------------------|
| Knob mudalia | Shoal habitat ¹ | Somewhat likely |
| Lilliput | Shallows of lakes, ponds, reservoirs, and rivers ¹ | Likely |
| Long-solid | Medium to large rivers with strong currents ¹ | Likely |
| Monkeyface ³ | Medium to large rivers in gravel/sand substrate ¹ | Historic record |
| Mountain creekshell | Most often encountered in small headwater creeks and streams in gravel and sand substrate ¹ | Unlikely |
| Ohio pigtoe ³ | Medium to large rivers. In reservoirs, usually found in tailwaters ¹ | Historic record, likely |
| Orange-foot pimpleback | Riffles and shoals in medium to large rivers ¹ | Likely |
| Oyster mussel | Sand/Gravel substrates in swift currents of large creeks and rivers. Sometimes associated with <i>Justicia americana</i> beds ² | Likely |
| Painted creekshell | Mixed sand and gravel with good current in less than 3 feet water ¹ | Likely |
| Pheasantshell | Shallow sand/gravel riffles with fast currents ¹ | Likely |
| Pink mucket | Large river species associated with swift currents. May be able to reproduce in impoundments with flowing water ¹ | Likely |
| Pocketbook ³ | Generalized habitat, adapts to both deep impoundments and shallow rivers ¹ | Historic record, likely |
| Purple catspaw | Medium-large rivers, in sand and gravel substrates in runs and riffles; Tennessee and Cumberland river systems ² | Likely |
| Purple lilliput ³ | Small-medium sized rivers and large creeks, in mud, sand, and gravel substrates; Tennessee and Cumberland river systems in headwater areas ² | 1998 record, likely |
| Pyramid pigtoe | Rivers with strong current and firm sand/gravel substrates; Tennessee and Cumberland river systems including KY Reservoir ² | Likely |
| Rayed bean | Riffles of medium-small rivers and creeks, in gravel and sand substrates associated with <i>Justicia americana</i> ; Tennessee River watershed ² | Somewhat likely |
| Ring pink | Gravel and sandbars of large rivers ¹ | Likely |
| Rock pocketbook | Mud and sand bottom pools in medium-large rivers in standing or | Likely |

| Common Name | Habitat Requirement | Suitable Habitat Present |
|-------------------------------|--|--|
| | slow flowing water ¹ | |
| Rough pigtoe | Rivers with strong current and firm sand/gravel substrates; Tennessee and Cumberland river systems including KY Reservoir; W Uplands and W Highland Rim ² | Likely |
| Round combshell | Riverine, presumed extinct ¹ | Unlikely |
| Round hickorynut | Medium-large rivers in sand and gravel substrate with moderate flow ² | Likely |
| Round pigtoe | Medium to large rivers in sand, gravel, and cobble substrates of shoals; Tennessee and Cumberland river systems ² | Likely |
| Round-rib elimia | Springs and spring branches ¹ | Unlikely |
| Scaleshell | Variety of substrates, restricted to rivers with relatively good water quality ¹ | Somewhat likely |
| Sheepnose | Generally found in deep water mud/sand/gravel bottoms in large rivers with swift currents ¹ | Likely |
| Shiny pigtoe pearlymussel | Shoals and riffles of small to medium rivers. Does not tolerate deep water or reservoirs ¹ | Unlikely |
| Slabside pearlymussel | Large creeks to medium rivers, in riffles/shoals of sand, fine gravel, and cobble substrates with medium current; Tennessee River watershed ² | Likely |
| Slowwater elimia | Flowing water ¹ | Somewhat likely, little known about suitable habitat |
| Smooth rabbitsfoot | Small to medium rivers with moderate to swift current ¹ | Somewhat likely |
| Snuffbox | Riffles of medium-large rivers with stony or sandy bottoms, in swift currents, usually deeply buried; Tennessee and Cumberland river systems ² | Likely |
| Spectaclecase | In sheltered areas of large rivers. | Likely |
| Spike | Medium to large rivers in shoals, occasional found in tail waters of dams ¹ | Likely |
| Sugarspoon | Flowing water conditions in a medium river, presumed extinct ¹ | Unlikely |
| Tennessee clubshell | Creeks and rivers in shallow riffles and shoals composed of gravel or sand. Occasionally found in deep water habitat south of Watts Bar Dam ² | Somewhat likely |
| Tennessee pigtoe ³ | Riffle sand shoals over rocky substrate in shallow water of creeks and rivers ² | Historic record, likely |

| Common Name | Habitat Requirement | Suitable Habitat Present |
|--|--|--------------------------|
| Tuberculed blossom pearl mussel | Shallow riffles and shoals with sand/gravel substrate in creeks and medium rivers ¹ | Likely |
| Turgid blossom pearl mussel ³ | Clear unpolluted water of fast flowing streams ¹ | Historic record |
| Wavy-rayed lamp mussel | Small to medium streams and rivers in riffles over rocky substrate ¹ | Somewhat likely |
| White heelsplitter | Rivers, sloughs, backwaters, lakes, reservoirs ¹ | Likely |
| White wartyback | Presumed to inhabit shoals and riffles in large rivers; Tennessee and Cumberland river systems. Very rare and possibly extirpated in TN ² | Somewhat likely |
| Yellow-blossom pearl mussel | Riffle and shoal areas in medium streams ¹ | Somewhat likely |

¹ Source: NatureServe 2016

²: Source: TDEC 2014

* Records within the Reservoir

For information on aquatic species and potential impacts of the draft RLMP, see Volume I, Section 3.6.

2.2.6 Water Quality

Wilson Reservoir is a moderate size reservoir with a relatively short average hydraulic residence time of 6 days but a large mean depth of 41 feet. In the state of Alabama, water use classifications apply water quality criteria adopted for particular uses based on existing utilization, uses reasonably expected in the future, and those uses not now possible because of correctable pollution but which could be made if the effects of pollution were controlled or eliminated. The seven designated uses for interstate and intrastate waters are defined by the Alabama Department of Environmental Management (ADEM), Chapter 335-6-11 and include: Outstanding Alabama Water, Public Water Supply, Swimming and Other Whole Body Water-Contact Sports, Shellfish Harvesting, Fish and Wildlife, Limited Warmwater Fishery, and Agricultural and Industrial Water Supply. Waterbodies in Alabama that do not fully support their designated uses based on a review of water quality data and information are considered to be impaired and included in the 303(d) list. ADEM has added Wilson Reservoir to the draft 2016 303(d) list of impaired water based on nutrients with a source or cause being agriculture non-point sources (ADEM 2016). ADEM's designated uses for Wilson Reservoir include public water supply, swimming, and fish and wildlife.

The most recent ratings for dissolved oxygen, chlorophyll, and sediment for Wilson Reservoir from TVA's Reservoir Ecological Health Ratings program are presented in Table 2-12. Similar to several other reservoirs, dissolved oxygen levels near Wilson Dam have been rated as poor due to low concentrations in deeper water from May through August; DO varies with streamflow, with low concentrations during low flow periods. Chlorophyll has typically rated poor due to high concentrations during summer.

Table 2-12. Ecological Health Indicators at Wilson Reservoir – 2012

| Monitoring Location | Dissolved Oxygen | Chlorophyll | Sediment |
|---------------------|------------------|-------------|----------|
| Forebay | Poor | Poor | Fair |

Source: TVA 2016a

Sediment quality typically rates good, although chlordane, a pesticide previously used to control termites and crop pests, was detected in the sediment sample from the forebay in 1998 and 2004, resulting in fair ratings. Sediment quality rated fair because low levels of polychlorinated biphenyls (PCBs) were detected in samples collected at the forebay. No pesticides were detected, and all metals concentrations were within the expected range.

While water supply intakes and waste water discharges are regulated by the states under the National Pollutant Discharge Elimination System, TVA permits the actual intake and outfall structures under Section 26a of the TVA Act. The most recent state permit/water withdrawal registration data for water supply withdrawals and waste water discharges directly from or to the reservoirs is provided in Table 2-13. This information does not include withdrawals or discharges in the watersheds.

Table 2-13. Direct Reservoir Average Daily Water Supply Withdrawals and Wastewater Discharges – 2016

| 2010 Water Withdrawal Volume (MGD) | | | 2010 Wastewater Discharge Volume (MGD) | | |
|------------------------------------|------------|-----------------|--|------------|-----------------|
| Municipal | Industrial | Thermo-electric | Municipal | Industrial | Thermo-electric |
| 8.95 | 21.92 | 0 | 0 | 0 | 0 |

Source: Pers. Comm., Gary Springston, TVA, August 2016

For information on water quality and potential impacts of the draft RLMP, see Volume I, Section 3.8.

2.2.7 Wetlands

Wetlands are transitional ecosystems between terrestrial and aquatic communities, where saturation with water is the dominant factor in determining the types of plants and animals present. Wetlands are ecologically important because of their beneficial effect on water quality, their moderation of flow regimes by retaining and gradually releasing water, their value as wildlife habitat, and as areas of botanical diversity. Wetlands exist within and adjacent to TVA reservoirs and are influenced by surface water and groundwater connections to the water levels in these reservoirs. The presence of wetlands immediately on or adjacent to TVA reservoirs is related to the land use characteristics and development status of the shoreline. Lands supporting more intense shoreline development are typically noted as having a decrease in wetland features.

Emergent wetlands typically occur in a narrow elevation zone centered on the summer pool elevation and contain water for much of the growing season. Vegetation typically includes cattail, bulrush, arrowhead, and water plantain. Scrub-shrub wetlands are typically associated with reservoir shorelines and coves and are often transition zones between emergent and forested wetlands. The vegetation can include hardwood trees less than 15 feet tall, but are dominated by shrubs such as silky dogwood, red osier dogwood, buttonbush, alder, willow, and elderberry. Forested wetlands occur on lower-lying, undisturbed areas and along tributary streams on power generation sites. These areas are dominated by flood tolerant hardwood species such as oaks, maples, and ash.

Vegetated wetlands occur with greater frequency and size along the mainstem reservoirs and tailwaters, such as Wilson, than along the tributary reservoirs and tailwaters. This is due in part to the larger-sized watersheds of mainstem reservoirs resulting in a greater volume of water; greater predictability of the annual hydrologic regime; shoreline and drawdown zone topography (wider and flatter floodplains, riparian zones, and drawdown zones and large areas of shallow water); and larger sections of relatively still, shallow-water areas. Wetlands tend to be smaller and do not occur as frequently on tributary reservoirs because of the relatively steep drawdown zones, the rolling to steep topography of adjacent lands, shoreline disturbance caused by wave action, and the lower predictability and shorter duration of summer pool levels. Within mainstem reservoirs, wetlands occur on flats between summer and winter pool elevations, on islands, along reservoir shorelines, in dewatering areas, in floodplains, on river terraces, along connecting rivers and streams, around springs and seeps, in natural depressions, in areas

dammed by beaver, in and around constructed reservoirs and ponds (diked and/or excavated), and in additional areas that are isolated from other surface waters.

The information presented in this document is derived from the National Wetland Inventory database and supplemented with previous on-the-ground surveys done by TVA, including for the SMI EIS. Field surveys were not performed for this RLMP to gather more up-to-date information regarding the types and locations of wetlands within the Wilson Reservoir. The only types of non-open water wetlands mapped within the Wilson Reservoir are forested and emergent (Table 2-14).

Table 2-14. Wetland Types within the Wilson Reservoir

| Wetland Type | Acres |
|--------------|-------------|
| Emergent | 7.9 |
| Open Water | 19.1 |
| Forested | 32.5 |
| Total | 59.5 |

Source: USFWS 2016b

Some of the wetland areas within the reservoir are present in local, state, and federally managed areas—including wildlife refuges, wildlife management areas, national forests, parks, and recreation areas—and TVA-designated sites, including small wild areas, habitat protection areas, and ecological study areas (see Section 2.2.11).

For information on wetlands and the potential impacts of the draft RLMP, see Volume I, Section 3.9.

2.2.8 Floodplains

The area encompassed by the RLMP extends from the lower limit of TVA's property, just below the Wilson Dam at approximate Tennessee River Mile (TRM) 256.72, upstream to about TRM 274.9 at Wheeler Dam. Wilson Dam is located at TRM 259.4. The 100-year floodplain is the area that would be inundated by the 100-year flood (base flood).

In Wilson Reservoir, the 100-year flood elevations for the Tennessee River vary from 508.0 feet msl at the Wilson Dam at TRM 259.4 to elevation 510.6 feet msl at TRM 274.9 just below Wheeler Dam. The 500-year flood elevations vary from 508.0 feet msl at TRM 259.4 to 511.2 feet msl at TRM 274.9. Tabulations of the 100- and 500-year flood elevations are included

in Volume I, Appendix D. For information on the potential impacts of the draft RLMP on floodplains, see Volume I, Section 3.10.

2.2.9 Air Quality

In accordance with the Clean Air Act Amendments of 1990, all counties that include parts of the Wilson Reservoir are designated with respect to compliance, or degree of noncompliance, with the National Ambient Air Quality Standards (NAAQS). The NAAQS have been established to protect the public health and welfare with respect to six pollutants: particulate matter, sulfur dioxide, carbon monoxide, ozone, nitrogen dioxide, and lead. An area with air quality better than the NAAQS is designated as “attainment;” while an area with air quality worse than the NAAQS is designated as “non-attainment.” Colbert and Lauderdale counties in Alabama are considered in attainment for all NAAQS. No wilderness areas or parks designated Prevention of Significant Deterioration Class I air quality area occur near the Wilson Reservoir. General information about air emissions and climate change are identified in Volume I.

Sources of air emissions within TVA lands along the Wilson Reservoir occur at the dam and Muscle Shoals Reservation facilities, navigation locks and from truck and vehicle transportation. Within Wilson Reservoir, lands that would be allocated to Zone 2 (Project Operations) have the greatest potential to support uses that produce higher levels of air emissions.

Air emissions generated at Wilson Reservoir varies with type of activity/development. Currently, air emissions from uses on TVA lands on the Wilson Reservoir are low. Future projects that have the potential to affect ambient air quality would be planned in detail to minimize air emission impacts and would comply with Clean Air Act regulations.

For information on air quality and the potential impacts of the draft RLMP, see Volume I, Section 3.11.

2.2.10 Cultural and Historic Resources

Cultural resources include prehistoric and historic archaeological sites, districts, buildings, structures, and objects, as well as locations of important historic events that lack material evidence of those events. Cultural resources that are listed, or considered eligible for listing, on the National Register of Historic Places (NRHP) are called historic properties. To be considered an historic property, a cultural resource must possess both integrity and significance. A historic property’s integrity is based on its location, design, setting, materials, workmanship, feeling, and

association. The significance is established when historic properties meet at least one of the following criteria: (a) are associated with important historical events or are associated with the lives of significant historic persons; (b) embody distinctive characteristics of a type, period, or method of construction; (c) represent the work of a master, or have high artistic value; or (d) have yielded or may yield information important in history or prehistory (36 CFR Part 60.4).

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their proposed undertakings on historic properties and provide the Advisory Council on Historic Preservation an opportunity to comment on those effects. TVA determined that the draft RLMP (Alternative B of the EIS) is an “undertaking” as defined by the regulations under NHPA. Once an action is determined to be an undertaking, the regulations require agencies to consider whether the proposed activity has the potential to impact historic properties. If the undertaking is such an activity, then the agency must follow the following steps: (1) involve the appropriate consulting parties; (2) define the area of potential effects (APE); (3) identify historic properties in the area of potential effects (APE); (4) evaluate possible effects of the undertaking on historic properties in the APE; and (5) resolve adverse effects. (36 CFR § 800.4 through 800.13). An APE is defined as the “geographic area or areas within which the undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. (36 CFR § 800.16.). Concerning cultural resources, the APE is taken as the affected environment for purposes of this EIS.

Section 106 of the NHPA requires federal agencies to consult with the respective State Historic Preservation Officer and Indian tribes when proposed federal actions could affect historic and cultural resources, including archaeological resources, which are also protected under the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act, in addition to the NHPA.

2.2.10.1 Archaeological Resources

The Wilson Reservoir region has been an area of human occupation for the last 12,000 years. This includes five broad cultural periods: Paleo-Indian (>12,000-8,000 BC), Archaic (8000-1600 BC), Woodland (1600 BC-AD 1000), Mississippian (AD 1000-1700), and Historic (AD 1700-present). These divisions are based on stylistic changes in artifact types and technological and cultural adaptations. Prehistoric land use and settlement patterns vary during each period, but short- and long-term habitation sites are generally located on flood plains and alluvial terraces along rivers and tributaries. Specialized campsites tend to be located on older alluvial

terraces and in the uplands. During the later Protohistoric/Historic period (sixteenth century) the area contained a small number of aboriginal settlements. The Chickasaws granted a parcel at the mouth of Bear Creek, the western boundary of present-day Colbert County, for a trading post in 1786. When the Mississippi Territory was organized in 1798, the need for a road to the area from the east was recognized, and the Natchez Trace, an Indian trail that crossed the Tennessee River west of the shoals, was expanded to a wagon road in 1802. The road increased the traffic of whites in the area. Continued pressure on American Indian tribes to cede their land east of the Mississippi resulted in the gradual loss of their territory through illegal treaties. The influx of European settlers into the region forced cession of Cherokee and Chickasaw lands in the Treaty of 1816. The Tennessee River served as a primary travel route in the region and Tuscumbia, the seat of Colbert County, became one of the agricultural and commercial centers of northern Alabama. The creation of the Tuscumbia Railway Company solidified Tuscumbia's role as a major commercial center. The First World War brought another role to the area, that of the country's leading ammunitions manufacture with the construction of two nitrate plants (U.S. Nitrate Plant No. 1 and 2) and a massive hydroelectric dam (Wilson Dam) to provide power to the facilities. Wilson was operated and managed by the United States Corps of Engineers until 1933 when ownership was transferred over to the TVA.

No archaeological surveys were conducted at Wilson prior to inundation. A systematic archaeological survey has been conducted for the majority (80 percent) of Wilson Reservoir fee-owned land in association with the survey of the Muscle Shoals Reservation (Pietak et al., 2002). The survey identified 30 archaeological sites that ranged from prehistoric habitations, Civil War earthworks and sites associated with the construction of Wilson Dam and the Nitrate Plant. Many of these sites have been determined eligible for the NRHP and the sites were previously recommended as contributing elements to the proposed Muscle Shoals Historic District.

2.2.10.2 Historic Structures

Several properties of historic value are located on Wilson Reservoir property. These include the Wilson Dam, which has been designated a National Historic Landmark, and the TVA Lock Operations Building. Several structures associated with the Civilian Conservation Corps (CCC) including the NRHP eligible CCC Pavilion and structures associated with the early development of TVA, including the TVA Animal House, are also located on Wilson Reservoir property. The presence of historic structures on Wilson Reservoir cannot be ruled out until a historic structure

inventory has been conducted as part of a project-specific environmental review (all projects that would occur on TVA land receive such a review as part of the NEPA and Section 106 processes). However, the majority of the eligible structures associated with the early development of TVA and the U.S. Nitrate Plant are located outside the zoned parcels but within the visual line of site that may be indirectly impacted by activities on TVA land.

2.2.11 Natural Areas and Ecologically Significant Sites

Natural areas include managed areas, ecologically significant sites, and Nationwide Rivers Inventory (NRI) streams. Managed areas include lands held in public ownership that are managed by an entity (e.g., TVA, State of Alabama, Colbert County) to protect and maintain certain ecological and/or recreational features. A management plan or similar document defines what types of activities are compatible with the intended use of the managed area. Ecologically significant sites are tracts of privately owned land either that are recognized by resource biologists as having significant environmental resources or identified tracts on TVA lands that are ecologically significant, but not specifically managed by TVA's Natural Areas Program. NRI streams are free-flowing segments of rivers recognized by the U.S. National Park Service (USNPS) as possessing outstandingly remarkable natural or cultural values that may potentially qualify them as part of the National Wild and Scenic Rivers System.

The TVA Natural Heritage database indicates that there are four natural areas on or within TVA parcels along Wilson Reservoir; one of which is managed by the TVA Natural Areas Program. An additional five natural areas lie within 3 miles of Wilson Reservoir. The natural areas along Wilson Reservoir include Tennessee Wildlife Resource Agency lands and local parks. For more information on managed areas and sensitive ecological sites, see Volume I, Section 3.13 and Appendix D.

2.2.12 Aesthetics and Visual Resources

The overall visual character of the Wilson Reservoir is predominantly park-like. It contains a mix of wooded and open greenspace which provides welcome respite to the citizens of Muscle Shoals, Florence, and Sheffield. The visual and recreational opportunities the reservoir provides are unique to the Muscle Shoals area because of their convenience, accessibility, and park-like character. Visual buffers are essential to preserving the visual characteristics of the reservoir.

2.2.13 Noise

Sources of noise within lands along the Wilson Reservoir include those associated with developed recreation sites and uses related to TVA project operations and various public works projects. Characteristics of noise emissions associated with common land uses are identified in Volume I of the EIS.

Lands that TVA proposes to allocate to Zone 5 (Industrial) have the greatest potential to support uses that produce high levels of noise. The most common measurement of sound and environmental noise is the A-weighted decibel scale (dBA). This is a logarithmic scale that ranges from 0 dBA to about 140 dBA and approximates the range of human hearing. Common sources of noise from industrial uses include: heavy trucks; rail and barge operations; and industrial workplaces. Noise emission levels for these sources can range from 85 dBA to 100 dBA (U.S. Department of the Interior [USDOI] 2008) and are dependent on the distance from the noise source. Lands that TVA would be allocated to Zone 2 (Project Operations) and Zone 6 (Developed Recreation) also have the potential to generate noise, but typically to a lesser degree than industrial development. The primary source of noise from land that would be allocated to Zone 2 are the Wilson Dam and Muscle Shoals Reservation, navigation locks and associated barge operations, access roads, boat ramps, and parking areas. Noise emission levels for these sources can range from 70 dBA to 90 dBA (USDOI 2008) and are dependent on the distance from the noise source. The primary source of noise from land that would be allocated to Zone 6 would be commercial marinas and motorized watercraft (motor boats, jet skis), and road traffic. Noise emission levels for land uses that would be allocated to this zone can range from 40 dBA (very quiet) to 90 dBA (jet ski). Noise levels for motor boats and jet skis may also exhibit short elevated bursts of noise as a result of speed of the watercraft and other operational factors.

Approximately 99.8 percent of land along the reservoir would be allocated to zones that would support land uses with the potential for noise emissions (Zones 2 and 6). TVA land that would be allocated to Zone 7 (Shoreline Access) accounts for only 0.2 percent of land uses at Wilson Reservoir. This land use generally does not create noise emissions that would have an effect on the ambient noise environment and reflects a general environment consisting of low noise levels.

Noise from land uses varies with the type of development and will attenuate with distance from the source and as such, the noise level around the reservoir is relatively low. However, because

approximately 99 percent of the TVA-managed land would either be allocated to Zones 2 or 6, the noise level could be marginally higher in certain locations depending on the type and location of the development. Any future projects on parcels that have the potential to affect noise emissions would be planned in detail and may be expected to consist of both water-dependent facilities and other common actions as well as new developments as allowed per each land use zone.

For information on noise and the potential impacts of the draft RLMP, see Volume I, Section 3.15.

2.2.14 Socioeconomics and Environmental Justice

2.2.14.1 Population and Economy

The population of the Wilson Reservoir area, which is comprised of two counties, is described in Table 2-15. Lauderdale County has the largest population with 92,596; however from 2010 to 2015, the total population within the county decreased by 0.1 percent. Colbert County has a population of 54,354 and its population also declined by 0.1 percent over the same time period. Both of the area counties are projected to experience minor (less than one percent) declines in population from 2015 to 2020 while the population of the state of Alabama is expected to increase by 2 percent. Both of the area counties have a higher percent rural population than the state of Alabama at 49.3 and 43.9 percent, respectively.

Table 2-15. Population and Percent Growth – Wilson Reservoir

| Population | County | | State |
|--------------------------------|------------|---------|-----------|
| | Lauderdale | Colbert | Alabama |
| Population (2020 - Projection) | 92,221 | 54,021 | 4,958,548 |
| Population (2015 – Estimate) | 92,596 | 54,354 | 4,858,979 |
| Population (2014 - Estimate) | 92,780 | 54,491 | 4,817,678 |
| Population (2010) | 92,709 | 54,428 | 4,779,736 |
| Projected Growth (2015-2020) | -0.4% | -0.6% | 2.0% |
| Percent Change (2010-2015) | -0.1% | -0.1% | 1.6% |
| Percent Change (2010-2014) | 0.1% | 0.1% | 0.8% |
| Percent Rural (2010) | 49.3% | 43.9% | 41.0% |

Sources: U.S. Census Bureau (USCB) 2010a and USCB 2015

As presented in Table 2-16, from 2010 to 2014, an average of 4.8 percent of the population within the Wilson Reservoir area was unemployed. The state of Alabama during that same time period had an unemployment rate of 6 percent. Management, Business Science, and Arts was

the largest employment sector among all counties within the area. At \$43,511, the state of Alabama has a higher median household income than both Lauderdale County at \$42,703 and Colbert County at \$39,914.

Table 2-16. Employment and Income, 2010-2014 – Wilson Reservoir

| Employment and Income | County | | State |
|--|------------|----------|-----------|
| | Lauderdale | Colbert | Alabama |
| Civilian Employed Population 16 Years and Over | 40,047 | 21,271 | 2,010,453 |
| Management and Business Science and Arts | 29.9% | 27% | 33% |
| Service Occupations | 19.5% | 15% | 17% |
| Sales and Office | 24.7% | 26% | 24% |
| Natural Resources, Construction, and Maintenance | 11.2% | 11% | 10% |
| Production, Transportation and Material Moving | 14.7% | 21% | 16% |
| Percent of Population > 16 years Unemployed | 4.6% | 5% | 6% |
| Median Household Income | \$42,703 | \$39,914 | \$43,511 |

Source: USCB 2010b

2.2.14.2 Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” formally requires federal agencies to incorporate Environmental Justice as part of NEPA. Specifically, it directs them to address, as appropriate, any disproportionately high and adverse human health or environmental effects of their actions, programs, or policies on minority and low-income. Although TVA is not one of the agencies subject to this order, TVA routinely considers Environmental Justice impacts as part of the project decision-making process.

The minority population within the Wilson Reservoir area ranges from 15.0 percent in Lauderdale County to 21.4 percent in Colbert County; both of which are lower than the 33.7 percent minority population in the state of Alabama (Table 2-17). The percent of the population below the poverty level for 2010 to 2014 was relatively similar for both counties and the state. Colbert County has the lowest poverty rate of 18.3 percent while Lauderdale County has the highest with 18.7 percent. Comparatively, the state of Alabama has an 18.9 percent poverty rate.

Table 2-17. Minority Population and Poverty, 2010-2014 – Wilson Reservoir

| Minority Population and Poverty | County | | State |
|---|------------|---------|-----------|
| | Lauderdale | Colbert | Alabama |
| Total Population | 92,780 | 54,491 | 4,817,678 |
| White Alone ¹ | 80,695 | 43,356 | 3,327,891 |
| Black or African American Alone ¹ | 9,228 | 8,712 | 1,269,808 |
| American Indian and Alaska Native Alone ¹ | 436 | 360 | 25,181 |
| Asian Alone ¹ | 743 | 190 | 58,322 |
| Native Hawaiian and Other Pacific Islander Alone ¹ | 194 | 38 | 1,430 |
| Two or More Races | 1,433 | 1,091 | 76,428 |
| Hispanic or Latino ² | 2,174 | 1,276 | 191,838 |
| Percent Minority | 15.0% | 21.4% | 33.7% |
| Percent of Population Below Poverty Level | 18.7% | 18.3% | 18.9% |

¹ Includes persons reporting only one race

² Hispanics may be of any race, so also are included in applicable race categories.

Source: USCB 2010b

For information on socioeconomics and the potential impacts of the draft RLMP, see Volume I, Section 3.16.

2.3 Major Features of Muscle Shoals and Wilson Dam Reservation and Wilson Reservoir

2.3.1 Muscle Shoals National Recreational Trail

The Muscle Shoals National Recreational Trail (Reservation Road Trail) and an associated trail complex border Reservation Road (Figure 2-1). The Reservation Road Trail Complex, designated as a National Recreation Trail by the Secretary of the Department of the Interior, includes a total of approximately 15 miles of trails. Major elements of the complex include an 8-mile long paved trail, designed to accommodate walking, jogging, and bicycling, and approximately 7 miles of unpaved foot trails. Unpaved foot trails include the Rockpile Hiking Trail that parallels the Tennessee River (Wilson Dam tailwater), the Southport Historical Trail, the Old First Quarters Small Wild Area (SWA) Trail, and an exercise trail.

Both the Rockpile and Old First Quarters SWA trails were originally built by the CCC in the 1930s. A central parking area and restrooms have been built at the trailhead by TVA to accommodate users of the trail complex. Although the trail complex on the reservation carries the National Recreation Trail designation, its continuing management and maintenance are the responsibility of TVA. It is estimated that the trail complex receives 35,000 visits annually (National Recreation Trails Program 2009).

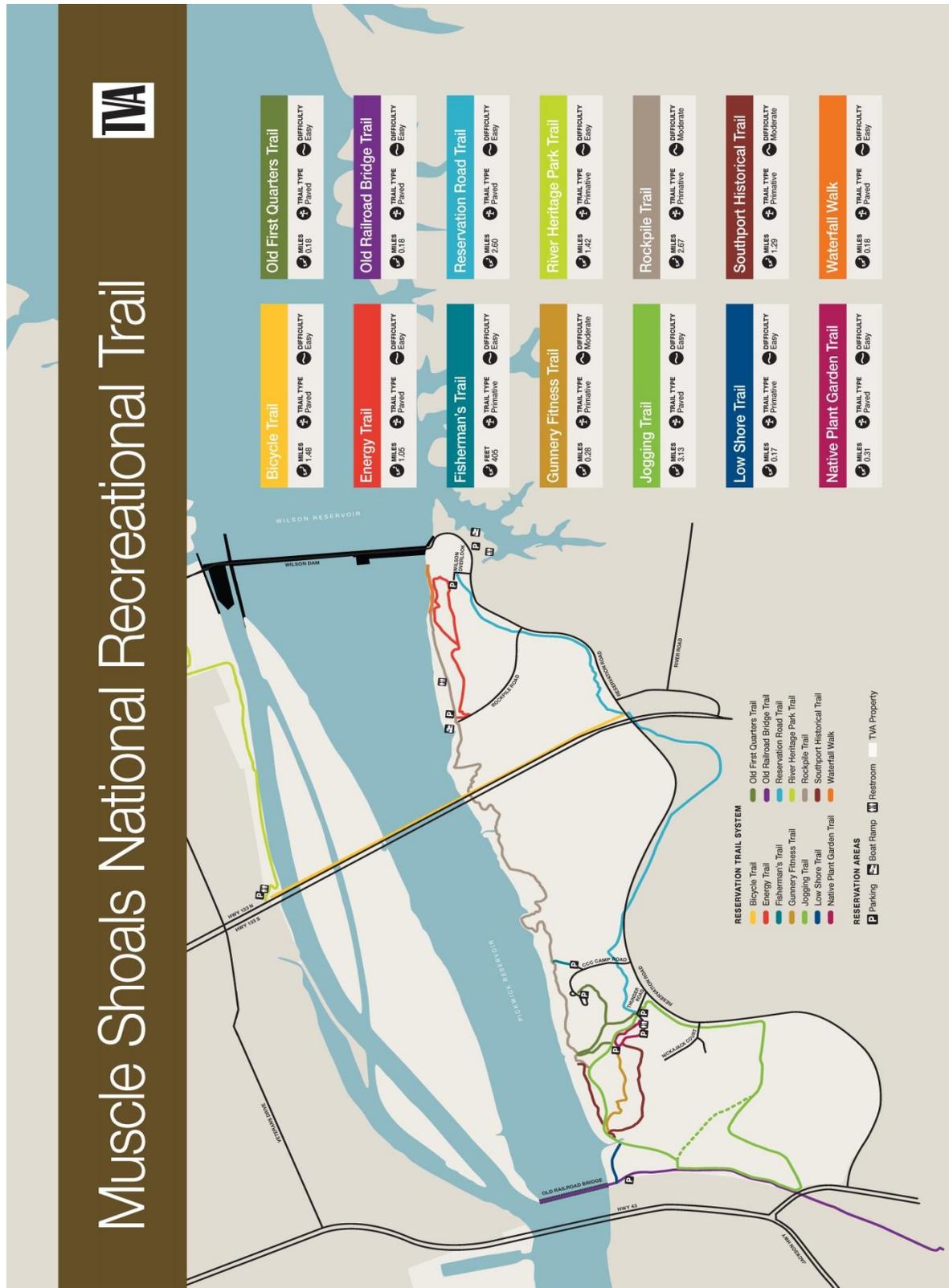


Figure 2-1. Muscle Shoals National Recreation Trail Complex

The Muscle Shoals Trail Complex also connects to a network of off-reservation trails. It connects and enhances the City of Sheffield's Rails to Trails project on the south side of the Tennessee River and the City of Florence's River Heritage Trails on the north side. These trails are linked by a pedestrian/bikeway crossing of the river via the Patton Island Bridge (also known as Singing River Bridge). Combined, these trails make it possible to travel by non-motorized means to and from several locations in the Florence, Muscle Shoals, and Sheffield communities. The importance of the trail system as a recreation resource is likely to increase in the future. Based on public surveys conducted as part of the 2008-2012 Alabama Statewide Comprehensive Outdoor Recreation Plan, walking for pleasure is the most popular outdoor recreation activity among Alabama residents.

The Rockpile Recreation Area provides for overnight camping and day use activities, including bank fishing. A boat launching ramp provides access to the river (Wilson Dam tailwater). There is also a boat launching ramp in Fleet Hollow on the eastern edge of Wilson Dam that provides access to the waters above Wilson Dam.

2.3.2 Tennessee River/Wilson Dam Nonessential Experimental Population

The Tennessee River/Wilson Dam Nonessential Experimental Population is a specific reach (or stream segment) of the Tennessee River extending from the base of Wilson Dam at TRM 259.4 to the backwaters of Pickwick Reservoir at TRM 246. It includes the lower 5 river miles of all tributary streams that enter the Wilson Dam tailwater. This segment of the river, located in both Lauderdale and Colbert counties, has been designated by the USFWS as historical habitat for reintroduction of 16 mussels which are federally listed as endangered, and one aquatic snail which is federally listed as endangered (TVA 2011b).

2.3.3 Wilson Dam Tailwater Restricted Mussel Harvest Area

Wilson Dam Tailwater Restricted Mussel Harvest Area is a section of Pickwick Reservoir that is designated and managed by the Alabama Department of Conservation and Natural Resources Division of Game and Fish. The taking, catching, killing, or any attempt to take, catch, or kill freshwater mussels is prohibited in this area. This restricted area is located in Lauderdale and Colbert counties in Alabama and extends from Wilson Dam downstream to the upper end or head of Seven Mile Island (TVA 2011b).

2.3.4 Trail of Tears National Historic Trail

Trail of Tears National Historic Trail was designated by the USNPS to commemorate the 1838 historic passage of thousands of removed Indians from their homelands in the Southeast to Indian Territory in the West to what is now Oklahoma. Many people perished during this journey. There are land and water components of the trail crossing through north Alabama in Colbert and Lauderdale counties. The water component of the trail is located on Pickwick Reservoir/Tennessee River and adjacent to the TVA reservation. The land component of the trail is located approximately a mile north of Muscle Shoals/Wilson Dam Reservation across Pickwick Reservoir (TVA 2011b).

2.3.5 Old First Quarters Small Wild Area and Potential National Natural Landmark

Old First Quarters SWA and Potential National Natural Landmark (PNNL) is an area with exceptional natural, scenic, and aesthetic qualities featuring a trail for public use that is part of the trail complex located on the reservation north of Reservation Road. This 25 acre SWA and PNNL features spring wildflower displays, foot trails, an intermittent stream, wooden bridges, and scenic bluffs overlooking Pickwick Reservoir, and historic stone stairs and check dams built by the CCC in the 1930s. This area is under consideration by the USNPS for designation as a National Natural Landmark to recognize the national importance of this natural area (TVA 2011b).

2.3.6 Muscle Shoals National Heritage Area

Muscle Shoals National Heritage Area (NHA) includes six counties in northwestern Alabama designated in 2009 as an NHA. This NHA includes Colbert and Lauderdale counties. NHAs are designated by Congress for natural, cultural, historic, and recreational resources and intended to encourage historic preservation and appreciation of the history and heritage of the area. There are currently 49 NHAs throughout the United States. The local coordinating entity for the NHA is the Muscle Shoals Regional Center, located at the University of North Alabama in Florence.

2.3.7 Wildlife Habitat Council Certification

In 1998, TVA established a formal relationship with the Wildlife Habitat Council (WHC), a Maryland-based nonprofit organization that encourages corporations to enhance wildlife habitats on their properties. WHC biologists work with member companies to inventory wildlife populations, identify wildlife enhancement projects, and form teams of employees to administer

them. Wildlife projects vary from site to site, but typically include maintaining wildlife food plots and providing artificial nesting structures for bluebirds, tree swallows, wood ducks, and other species. Native grass and wildflower meadows have also been established at several locations. TVA projects currently certified by the WHC include Colbert Fossil Plant, Raccoon Mountain Pumped Storage Plant, and the Muscle Shoals Reservation.

Certifying sustainably managed forests is another option for forest landowners. Other third-party programs include certification standards for environmental protection and for the conservation of biological values such as species diversity and wildlife habitat. Compliance with standards is determined through third-party verification by independent, accredited auditors. The largest such program in North America is the Sustainable Forestry Initiative. This initiative has enrolled more than 136 million acres of forestland. Certifications to the standards of the Forest Stewardship Council, another major program, have been attained on 20.9 million acres in North America. In recognizing wildlife needs in forest and other program management, third-party certification would ensure that TVA fully considers wildlife objectives and habitat relationships in all forest planning and management activities. Additionally, third-party certification ensures support for old-growth forest protection and vegetation management programs that provide for the full diversity of habitats and species.

2.4 The Future Management of Reservoir Lands

Varying types of land management along with development could occur along Wilson Reservoir. The NRP would be implemented on TVA lands set aside for project operations on an interim basis, as appropriate. With very little TVA land existing along Wilson Reservoir, private property owners making available lands for certain uses would impact the types of developments occurring along the reservoir. Business opportunity, overall economy, local incentives, and community planning practices are factors that impact the types of industry locating or expanding along the reservoir. Recreation demand is driven by population levels, recreation participation rates, changing preferences for different types of recreation, and innovations in recreation equipment. Lands set aside for residential shoreline access are based on the types of property rights conveyed by TVA upon sale of the property and lands managed by other federal, state, or local agencies would most likely continue to do so in a similar manner.

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CHAPTER 3. LAND PLANNING PROCESS

3.1 Process for Planning Land

The reservoir land management planning process involves allocation of reservoir land to seven defined land use zones, six of which are comprised of property owned by TVA in fee. The term “land use zone” refers to a descriptive set of criteria given to distinct areas of land based on location, features, and characteristics. The land use zone definitions listed in Table 3-1 are identical to those listed in the NRP. The definition of a land use zone provides a clear statement of how TVA will manage public land, and allocation of a parcel to a particular land use zone identifies that land for specific uses. Implementation of an RLMP minimizes conflicting land uses and makes it easier to handle requests for use of public land.

This draft RLMP was developed by a team of land managers and technical experts from TVA, knowledgeable about the reservoir and its resources. The planning team proposed land use allocations by integrating public needs, environmental conditions, economic benefits, state and federal policies, and the original congressional intent of the Wilson Reservoir project. The process includes information from resource data, computer analysis, the public, other agencies, and knowledgeable TVA staff. This draft RLMP would be consistent with the strategic direction of the NRP and objectives of the CVLP. Furthermore, the categorization and management of TVA-owned shoreline access land along Wilson Reservoir tiers from the SMI EIS (TVA 1999).

The planning process is completed once TVA conducts an environmental review of the draft RLMP as well as reasonable alternatives, in compliance with the National Environmental Policy Act. This process allows the public and intergovernmental partners to review TVA’s proposed allocations and provide input.

Table 3-1. Land Use Zone Definitions

| Zone | Definition |
|-------------------------------------|--|
| <p>Zone 1 Non-TVA Shoreland</p> | <p>Shoreland that TVA does not own in fee. This land may be privately owned or owned by a governmental entity other than TVA. Uses of this non-TVA land may include residential, industrial, commercial, and/or agricultural. In many instances, TVA may have purchased the right to flood and/or limit structures on this non-TVA land (i.e., flowage easement). TVA’s permitting authority under Section 26a of the TVA Act applies to construction of structures on non-TVA shoreland.</p> <p>Non-TVA shoreland allocations are based on deeded rights and, therefore, will not change as a result of the lands planning process. This category is provided to assist in comprehensive evaluation of potential environmental impacts of</p> |

| Zone | Definition |
|---|---|
| <p>Zone 2 Project Operations</p> | <p>TVA's allocation decision.</p> <p>Land currently used, or planned for future use, for TVA operations and public works projects, including:</p> <ul style="list-style-type: none"> • Land adjacent to established navigation operations — Locks, lock operations and maintenance facilities, and the navigation work boat dock and bases. • Land used for TVA power projects operations — Generation facilities, switchyards, and transmission facilities and rights-of-way. • Dam reservation land — Areas acquired and managed for the primary purpose of supporting the operation and maintenance of TVA dams and associated infrastructure; secondary uses may also include developed and dispersed recreation, maintenance facilities, miscellaneous TVA field offices, research areas, and visitor centers. • Navigation safety harbors/landings — Areas used for tying off commercial barge tows and recreational boats during adverse weather conditions or equipment malfunctions. • Navigation dayboards and beacons — Areas with structures placed on the shoreline to facilitate navigation. • Public works projects — Includes rights-of-way for public utility infrastructure, such as sewer lines, water lines, transmission lines, and major highway projects. |
| <p>Zone 3 Sensitive Resource Management</p> | <p>Land managed for protection and enhancement of sensitive resources. Sensitive resources, as defined by TVA, include resources protected by state or federal law or executive order and other land features/natural resources TVA considers important to the area viewscape or natural environment.</p> <p>Recreational natural resource activities, such as hunting, wildlife observation, and camping on undeveloped sites, may occur in this zone, but the overriding focus is protecting and enhancing the sensitive resource the site supports.</p> <p>Areas included are:</p> <ul style="list-style-type: none"> • TVA-designated sites with potentially significant archaeological resources. • TVA public land with sites/structures listed in or eligible for listing in the National Register of Historic Places. • Wetlands – Aquatic bed, emergent, forested, and scrub-shrub wetlands as defined by TVA. • TVA public land under easement, lease, or license to other agencies/individuals for resource protection purposes. • TVA public land fronting land owned by other agencies/individuals for resource protection purposes. • Habitat protection areas – These TVA natural areas are managed to protect populations of species identified as threatened or endangered by the U.S. Fish and Wildlife Service, state-listed species, and any unusual or exemplary biological communities/geological features. • Ecological study areas – These TVA natural areas are designated as suitable for ecological research and environmental education by a recognized authority or agency. They typically contain plant or animal populations of scientific interest or are of interest to an educational institution that would utilize the area. • Small wild areas – These TVA natural areas are managed by TVA or in cooperation with other public agencies or private conservation organizations to protect exceptional natural, scenic, or aesthetic qualities that can also support dispersed, low-impact types of outdoor |

| Zone | Definition |
|---|---|
| | <p>recreation.</p> <ul style="list-style-type: none"> • River corridor with sensitive resources present – A river corridor is a segment of a river and the adjacent land along the banks. River corridors often consist of a linear green space of TVA land serving as a buffer to tributary rivers entering a reservoir. These areas will be included in Zone 3 when identified sensitive resources are present. • Significant scenic areas – Areas designated for visual protection because of their unique vistas or particularly scenic qualities. • Champion tree site – Areas designated by TVA as sites that contain the largest known individual tree of its species in that state. The state forestry agency “Champion Tree Program” designates the tree, while TVA designates the area of the sites for those located on TVA public land. • Other sensitive ecological areas – Examples of these areas include heron rookeries, uncommon plant and animal communities, and unique cave or karst formations. |
| <p>Zone 4 Natural Resource Conservation</p> | <p>Land managed for the enhancement of natural resources for human use and appreciation. Management of resources is the primary focus of this zone. Appropriate activities in this zone include hunting, timber management to promote forest health, wildlife observation, and camping on undeveloped sites. Areas included are:</p> <ul style="list-style-type: none"> • TVA public land managed for wildlife or forest management projects. • TVA public land under easement, lease, or license to other agencies for wildlife or forest management purposes. • TVA public land fronting land owned by other agencies for wildlife or forest management purposes. • Dispersed recreation areas maintained for passive, dispersed recreation activities, such as hunting, hiking, bird watching, photography, primitive camping, bank fishing, and picnicking. • Shoreline conservation areas — Narrow riparian strips of vegetation between the water’s edge and TVA’s back-lying property that are managed for wildlife, water quality, or visual qualities. • Wildlife observation areas — TVA natural areas with unique concentrations of easily observed wildlife that are managed as public wildlife observation areas. • River corridor without known sensitive resources present — A river corridor is a linear green space along both stream banks of selected tributaries entering a reservoir managed for light boat access at specific sites, riverside trails, and interpretive activities. River corridors will be included in Zone 4 unless sensitive resources are known to be present (see Zone 3). • Islands where sensitive resources are not known to be present or that support existing development. |
| <p>Zone 5 Industrial</p> | <p>Land currently used, or planned for future use, for economic development, including businesses in distribution/processing/assembly and manufacturing. Preference will be given for businesses requiring water access. There are two primary types of uses for TVA land allocated for Industrial: (1) access for water supply or structures associated with navigation such as barge terminals, mooring cells, etc., or (2) land-based development potential.</p> <p>Areas included are:</p> <ul style="list-style-type: none"> • TVA public land under easement, lease, or license to other agencies/individuals/ entities for industrial purposes. |

| Zone | Definition |
|--|--|
| | <ul style="list-style-type: none"> • TVA public land fronting land owned by other agencies/individuals/entities for industrial purposes. <p>In some cases, TVA land allocated to industrial use would be declared surplus and sold at public auction.</p> <p>Types of development that can occur on this land are:</p> <ul style="list-style-type: none"> • Industry — Manufacturing, fabrication, and distribution/processing/assembly involving chemical, electronics, metalworking, plastics, telecommunications, transportation, and other industries. Industry does not include retail or service-based businesses. • Industrial access — Access to the waterfront by back-lying property owners across TVA property for water intakes, wastewater discharge, or conveyance of commodities (i.e., pipelines, rail, or road). Barge terminals are associated with industrial access corridors. • Barge terminal sites — Public or private facilities used for the transfer, loading, and unloading of commodities between barges and trucks, trains, storage areas, or industrial plants. • Fleeting areas — Sites used by the towing industry to switch barges between tows or barge terminals that have both offshore and onshore facilities. • Minor commercial landing — A temporary or intermittent activity that takes place without permanent improvements to the property. These sites can be used for transferring pulpwood, sand, gravel, and other natural resource commodities between barges and trucks. |
| <p>Zone 6 Developed Recreation</p> | <p>Land currently used, or planned for future use, for concentrated, active recreational activities that require capital improvement and maintenance of developed infrastructure, including:</p> <ul style="list-style-type: none"> • TVA public land developed for recreational purposes, such as campgrounds, day use areas, etc. • TVA public land under easement, lease, or license to other agencies/individuals/entities for developed recreational purposes. • TVA public land fronting land owned by other agencies/individuals/entities for developed recreational purposes. <p>Residential use, long-term accommodations, and/or individually owned units are not permitted on land allocated for developed recreation. Types of development that can occur on this land are:</p> <ul style="list-style-type: none"> • Public recreation — Recreation amenities developed and owned by a public agency that are open to the public. Public recreation areas may have varying levels of development, ranging from a water access site (e.g., launching ramp) to a marina facility. Facilities at public recreation areas could include playgrounds/play structures, picnic facilities, tennis courts, horseshoe areas, play courts, recreation centers, trails, greenways, natural areas, amphitheaters, food concessions (vending, snack bar), access to water for fishing and boating, swimming areas and swimming pools, launching ramps, courtesy piers, canoe access, marina facilities owned by the public entity, parking, and campgrounds. Cabins or other overnight accommodations (other than campgrounds) are only permitted if the public recreation area is operated by a state or state agency as a component of a state park system. |

| Zone | Definition |
|------------------------------------|---|
| | <ul style="list-style-type: none"> • Public recreation areas and facilities are typically owned and operated by the federal, state, county, or local government. However, private entities may operate recreation facilities on public recreation land as concessionaires under agreement with the public entity controlling the property. The use of the facilities may be offered free or for a fee. Time-forward, public-private partnerships where facilities are owned by private investors will not be approved on public recreation land. All structures and facilities should be owned by the public entity. • Commercial recreation — Recreation amenities that are provided for a fee to the public intending to produce a profit for the private owner/operator. These primarily water-based facilities typically include marinas and affiliated support facilities such as stores, restaurants, campgrounds, and cabins and lodges. Where applicable, TVA will require appropriate compensation for the commercial use of the property. |
| <p>Zone 7 Shoreline Access</p> | <p>TVA-owned land where Section 26a applications and other land use approvals for residential shoreline alterations are considered in accordance with TVA's Shoreline Management Policy. Types of development/management that may be permitted on this land are:</p> <ul style="list-style-type: none"> • Residential water use facilities, e.g., docks, piers, launching ramps/driveways, marine railways, boathouses, enclosed storage space, and nonpotable water intakes. • Shoreline access corridors, e.g., pathways, wooden steps, walkways, or mulched paths that can include portable picnic tables and utility lines. • Shoreline stabilization, e.g., bioengineering, riprap, gabions, and retaining walls. • Shoreline vegetation management. |

Prior to proposing parcel allocations, the TVA planning team reviewed the characteristics of each parcel (i.e., location and existing conditions). TVA also reviewed deeds of selected land previously acquired by the U.S. War Department to identify existing shoreline access rights. In addition, the planning team reviewed existing commitments associated with long-term contractual agreements—that is, existing leases and easements. The planning team utilized the recent field studies documented within the Muscle Shoals Reservation Redevelopment EIS (TVA 2011b). During the process, the planning team used the zone definitions listed above to reach consensus on the proposed allocations of the reservoir land.

In developing RLMPs, TVA proposes to allocate lands currently committed to a specific use to a zone compatible with that use unless there is an overriding need to change the use. Some committed land uses are determined by the covenants and provisions of easement agreements. Committed lands include properties where TVA has granted land rights (easements, leases, etc.) for specific uses, properties where TVA has previously identified resources in need of

protection, and Project Operations lands (transmission lines, dam reservations, public infrastructure, etc.).

Approximately 1,238.4 acres (99 percent) of the TVA land surrounding Wilson Reservoir are committed due to existing agreements, TVA operations or other public infrastructure projects. Approximately 7.7 acres (1 percent) of the TVA land surrounding Wilson Reservoir are uncommitted.

3.2 Wilson Reservoir Goals and Objectives

The NRP established long-term land planning goals and objectives. While these goals and objectives were established to guide planning decisions across the Valley, these same goals and objectives can be applied when planning specific reservoirs.

Goal

TVA will strive to continue to balance shoreline development, recreational use, sensitive and natural resource management, industrial use and other land uses in a way that maintains the quality of life and other important values across the region.

Objectives

Apply a systematic method of evaluating and identifying the most suitable uses of TVA public lands using resource data, stakeholder input, suitability and capability analyses, and TVA staff input.

- Identify land use zone allocations to optimize public benefit and balance competing demands for the use of public lands.
- Identify land use zone allocations to support TVA's broad regional resource development mission. TVA reservoir properties are managed to provide multiple public benefits, including recreation, conservation, and economic development.
- Provide a clear process by which TVA will respond to requests for use of TVA public land.
- Comply with federal regulations and executive orders.

- Enhance the protection of significant resources, including threatened and endangered species, cultural resources, wetlands, unique habitats, natural areas, water quality, and the visual character of the reservoir.
- Provide a mechanism that allows local, state, and federal infrastructure projects when the use is compatible with the zone allocation.

3.3 Parcel Allocations

TVA's land planning process (Section 3.1) along with the goals and objectives specific to Wilson Reservoir (Section 3.2) were used to develop this draft RLMP. Through this process, TVA proposes allocations for each reservoir parcel to one of the seven planning zones as indicated in Table 3-2.

Table 3-2. Summary of Proposed Land Use Allocations for Wilson Reservoir Land Management Plan (Alternative B)

| Allocation Designation | | Number of Parcels | Acres |
|------------------------|-------------------------------|-------------------|----------------|
| Zone 2 | Project Operations | 8 | 1,072.1 |
| Zone 3 | Sensitive Resource Management | 0 | 0 |
| Zone 4 | Natural Resource Conservation | 0 | 0 |
| Zone 5 | Industrial | 0 | 0 |
| Zone 6 | Developed Recreation | 5 | 148.5 |
| Zone 7 | Shoreline Access | 1 | 2.8 |
| Total | | 14 | 1,223.4 |

Figure 3-1 represents the percent of land acreage on Wilson Reservoir that would be allocated to each land use zone under the draft RLMP (Alternative B of the EIS). Most of the TVA-owned land on this reservoir is allocated to Zone 2 (Project Operations). Smaller amounts of land are allocated to Zone 6 (Developed Recreation) and Zone 7 (Shoreline Access). A detailed description of each zone and the identification of the land zoned by each category is presented below.

- Zone 2 (Project Operations). Under the draft RLMP (Alternative B), Zone 2 would encompass all TVA land currently used for TVA operations and public works projects. There would be 1,072.1 acres allocated to Zone 2. The largest parcel allocated as Zone 2 is a 930.8 acre parcel which consists of the Muscle Shoals Reservation and a portion of the Wilson Dam Reservation (Parcel 13). This parcel would be allocated to Zone 2 to

maintain the integrity of various TVA operations occurring on the property including cultural resource management, developed recreation management, dispersed recreation improvements, hydroelectric operations, natural resource management, navigational protection, trails management, and transmission line construction and maintenance. Parcel 1 includes a portion of the Wilson Dam Reservation which is on the NRHP.

- Zone 6 (Developed Recreation). Lands designated for Zone 6 under the draft RLMP are currently used or planned for recreational purposes, such as public boat launching ramps or parks. For example, the majority of Parcel 4 is included in Veteran's Memorial Park which is managed by the City of Florence, Alabama, for public recreation. Approximately 12 percent (148.5 acres) of TVA-owned land around Wilson Reservoir is allocated to Developed Recreation.
- Zone 7 (Shoreline Access). Under the draft RLMP, a very small amount of TVA land on this reservoir would be allocated to Zone 7, which are TVA-owned lands where Section 26a applications and other land use approvals for private shoreline alterations are considered, were previously considered, and/or where the back-lying landowner possesses deeded rights of access, and where the proposed use would not conflict with the interests of the public.

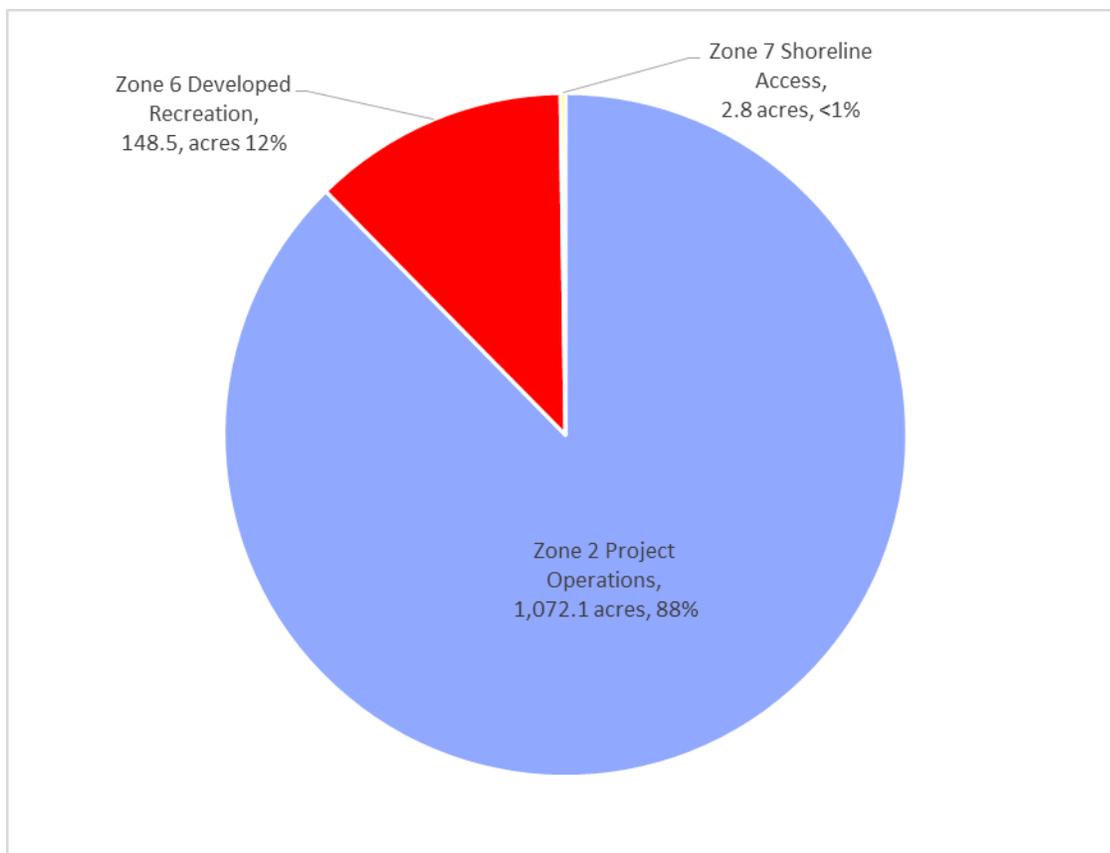


Figure 3-1. Percent of Wilson Reservoir Acreage Proposed by Zone (Alternative B)

These results vary from the estimates for Wilson Reservoir contained in the CVLP, as the previous CVLP did not allocate all of the dam reservation property as Zone 2 (Project Operations) where there were existing land use agreements. In addition, the CVLP anticipated that some parcels of land may be better allocated to different land use zones than those initially identified. As discussed in Volume I of the EIS, TVA proposes to update the target allocations of the CVLP based on the eight draft RLMPs and to recalibrate the CVLP with the periodic updates to the NRP. The preliminary results of the Wilson Reservoir land planning effort were included in the proposed changes to the CVLP. Table 3–3 compares the draft RLMP and the 2011 CVLP estimates for Wilson Reservoir.

Table 3-3. Draft Wilson Reservoir Land Management Plan (Alternative B) and 2011 Comprehensive Valleywide Land Plan Comparison

| Allocation Designation | | Draft Wilson Reservoir Land Management Plan | 2011 Comprehensive Valleywide Land Plan |
|------------------------|-------------------------------|---|---|
| Zone 2 | Project Operations | 88% | 0% |
| Zone 3 | Sensitive Resource Management | 0% | 0% |
| Zone 4 | Natural Resource Conservation | 0% | 7% |
| Zone 5 | Industrial | 0% | 0% |
| Zone 6 | Developed Recreation | 12% | 63% |
| Zone 7 | Shoreline Access | <1% | 30% |

Under the draft RLMP, TVA would allocate most of the property to Zone 2 (Project Operations). A fewer number of acres would be allocated to Zone 4 (Natural Resource Conservation) and Zone 6 (Developed Recreation) than estimated in the 2011 CVLP. These lands were placed into the more appropriate designations, as discussed below:

Zone 2 (Project Operations)

This draft RLMP encompasses the Muscle Shoals and Wilson Dam reservations. There are transmission lines and existing utility easements traversing the reservation in sporadic patterns. The remaining property located on or adjacent to the reservation can either be used to support future upgrades to existing transmission lines, utilized for staging areas for maintenance and upgrades to Wilson Dam, or facilitate navigation in and around Wilson Lock and Fleet Harbor. Therefore, the most appropriate designation for these properties would be Zone 2 (Project Operations).

Zone 4 (Natural Resource Conservation)

The small amount of reservation property included in the 2011 CVLP was allocated to Zone 4 (Natural Resource Conservation). When reviewing the land use of the reservation in its entirety, the more appropriate designation for the property would be Zone 2 (Project Operations) which is consistent with its current use.

Zone 6 (Developed Recreation)

The change in acreage of land allocated to Zone 6 (Developed Recreation) from the 2011 CVLP to this draft RLMP is minor though the percentage in the table above is about 50 percent. The

largest acreage change is the property that is located immediately upstream of the Wilson Lock that is proposed as Zone 2 (Project Operations) in the draft RLMP to maintain the navigational integrity of the approach to the Wilson Lock. However, land-based recreational opportunities would still be considered a secondary use of the property.

Zone 7 (Shoreline Access)

Under the draft RLMP, acres allocated to Zone 7 would decrease slightly. The 2011 CVLP incorrectly identify approximately 3.0 acres as Zone 7 (Shoreline Access).

Of the 1,223.4 acres on Wilson Reservoir, there are no proposed allocation changes to any of the parcels. See Appendix B for Parcel Allocation Description Tables.

3.4 Property Administration

As stewards of public land, TVA uses the RLMP, along with TVA policies and guidelines, to manage resources and to respond to requests for the use of TVA land. All inquiries about or requests for the use of TVA land should be made to the TVA Public Land Information Center at 800-TVA-LAND or 800-882-5263 between 8 a.m. and 6 p.m. Eastern time Monday through Friday.

Pursuant to the TVA Land Policy, TVA would consider changing a land use designation outside of the normal planning process only for the purpose of water access for industrial or commercial recreational operations on privately owned back-lying land or to implement TVA's SMP.

Consistent with the TVA Land Policy, those parcels or portions of parcels that have become fragmented from the reservoir may be declared surplus and sold at public auction. Public works/utility projects, such as easements for pipelines, power or communication wires, roads, or other public infrastructure, proposed on TVA land that would not substantially change the zoned land use or adversely impact sensitive resources would not require an allocation change as long as such projects would be compatible with the use of the allocated zone. Proposed public works/utility projects would be subject to a project-specific environmental review. Any other requests involving a departure from the planned uses would require appropriate approval. Proposals consistent with TVA's policies and the allocated use, and otherwise acceptable to TVA, will be reviewed in accordance with NEPA and must conform to the requirements of other applicable environmental regulations and other legal authorities.

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CHAPTER 4. PARCEL DESCRIPTIONS

This chapter describes the proposed land use determined to be most suitable for each parcel of TVA land as shown on the plan maps (Appendix A, Panels 1-4). The parcel descriptions include the acreage rounded to the nearest tenth and the proposed land use. Relevant data regarding the planned use are provided for each tract and include existing land uses, physical characteristics of the land, presence of existing private water use facilities, and any special considerations related to the future use. All existing private water use facilities with TVA permits are grandfathered, provided they are constructed in accordance with the plans approved by TVA.

Parcel 1 – (42.5 acres)

Proposed RLMP Allocation: Zone 2, Project Operations

This parcel includes a portion of the Wilson Dam Reservation. Wilson Dam is on the National Register of Historic Places, and it has been officially recognized by the U.S. government for its historical significance. The dam was designated a National Historic Landmark on November 13, 1966. The largest mass concrete lock and dam of its day in the U.S., it was the first federal hydroelectric project as well as the first U.S. Army Corps of Engineers (USACE) multipurpose effort. TVA acquired possession of the dam when the agency was created in 1933 (TVA 2008).

This parcel also includes the property associated with the navigational locks which are managed by the USACE. To maintain the navigational integrity of the approach to the Wilson Lock, the adjacent property was included in this parcel. A portion of this parcel is under a revocable license to the City of Florence, Alabama, for public recreation, and Veteran's Memorial Park has been developed on the adjacent land (Parcel 4). Although this parcel would not be allocated for Developed Recreation, land-based public recreational opportunities and associated facilities would be considered as a secondary use of this property. No federally or state-listed species are known to occur on this parcel and Veteran's Memorial Park has not been adequately surveyed for cultural resources; this parcel has a moderate probability for the presence of cultural resources (an environmental review would be conducted prior to any ground disturbing activities). Public water use facilities to facilitate safe passage through the Wilson Lock would be considered an appropriate use of the waterfront. However, requests for public recreational and private water use facilities would not be considered.

Table 4-1. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|--|
| County, State | Lauderdale, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44-SW |
| TVA D-Stage Map Numbers | 1 and 55 |
| Stream Mile and Bank | TRM 259.4R |
| Land Use / Land Cover | Maintained lawn, roads, and water control structures |
| Known Dispersed Recreation Opportunities | Disc Golf, hiking, picnicking, and wildlife observation |
| Current Agreements/Commitments | <ul style="list-style-type: none"> • Permanent easement to the State of Alabama for a roadway • Revocable license to the City of Florence, Alabama for Veteran’s Memorial Park |
| Potential Projects | <ul style="list-style-type: none"> • Potential land-based upgrades to Veteran’s Memorial Park • Wildlife Habitat Council projects |
| Potential Partners | <ul style="list-style-type: none"> • City of Florence, Alabama • U.S. Army Corps of Engineers |

Parcel 2 – (41.0 acres)

Proposed RLMP Allocation: Zone 6, Developed Recreation

This parcel is located along the right descending bank of the Tennessee River and immediately adjacent to the Wilson Dam reservation. The parcel can be easily accessed by South Cox Creek Parkway and U.S. Highway 133. A permanent easement to the Public Park Authority of the Shoals for a hotel and a term easement to the City of Florence for a hiking trail are encumbrances present on the parcel. The Marriott Shoals Hotel and Spa, Florence Conference Center, River Heritage Park, and associated roads and parking are located on the parcel. Information about the amenities available at River Heritage Park can be found on the City of Florence’s Web site, <http://www.fpard.com/Parks/index.html>. No federally or state-listed species are known to occur on this parcel and this area has been disturbed by development and has a low probability for cultural resources (an environmental review would be conducted prior to any ground disturbing activities). Requests for use of TVA lands to support developed recreation purposes would be considered. Requests for use of TVA lands to support developed recreation purposes would be considered.

Table 4-2. Parcel Information

| Location Component | Parcel Specific Information |
|-------------------------|-----------------------------|
| County, State | Lauderdale, Alabama |
| TVA D-Stage Map Numbers | 1 and 55 |
| Stream Mile and Bank | TRM 259.4R |

Parcel 3 – (48.5 acres)*Proposed RLMP Allocation: Zone 2, Project Operations*

This parcel includes road rights-of-way and the water treatment plant for the City of Florence. Portions of U.S. Highway 133, South Cox Creek Parkway, and South Wilson Dam Road are located on the parcel. No federally or state-listed species are known to occur on this parcel and developed portions of this parcel have a low probability for the presence of cultural resources, but structures within and adjacent to this parcel have not been surveyed or evaluated for their National Register status (an environmental review would be conducted prior to any ground disturbing activities). Requests for private water use facilities would not be considered.

Table 4-3. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|--|
| County, State | Lauderdale, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44-SW |
| TVA D-Stage Map Numbers | 1 and 55 |
| Stream Mile and Bank | TRM 259.4R |
| Land Use / Land Cover | Athletic fields, maintained lawn, roads, and water treatment plant |
| Known Dispersed Recreation Opportunities | Baseball, soccer, tennis, and wildlife observation |
| Current Agreements/Commitments | <ul style="list-style-type: none"> • Permanent easement to the State of Alabama for a roadway • Permanent easements to the City of Florence, Alabama, for water treatment purposes |
| Potential Projects | None identified |
| Potential Partners | <ul style="list-style-type: none"> • City of Florence, Alabama • State of Alabama |

Parcel 4 – (85.4 acres)

Proposed RLMP Allocation: Zone 6, Developed Recreation

This parcel is located along the right descending bank of the Tennessee River and immediately upstream of Wilson Dam. The majority of the parcel is locally known as Veteran’s Memorial Park and is encumbered with a permanent easement to the City of Florence for public recreation. Amenities available at Veteran’s Memorial Park include lighted tennis courts, softball complex, picnic pavilions, an eighteen-hole disc golf course, youth baseball fields, and a Veteran’s memorial. Additional information about the park can be found on the City of Florence’s Web site, <http://www.fpard.com/Parks/index.html>. No federally or state-listed species are known to occur on this parcel and there is a medium probability for the presence of cultural resources; Veteran’s Memorial park has not been adequately surveyed for cultural resources. An environmental review would be conducted prior to any ground disturbing activities). Requests for use of TVA lands and associated water-based structures to support developed recreation purposes would be considered.

Table 4–4. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|--|------------------------------------|
| County, State | Lauderdale, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44–SE and 44–SW |
| TVA D–Stage Map Numbers | 1 |
| Stream Mile and Bank | TRMs 259.4–260R |

Parcel 5 – (7.7 acres)

Proposed RLMP Allocation: Zone 2, Project Operations

This parcel was acquired by the U.S. War Department and is located entirely below the 509.34-foot msl contour. Rights to construct private water use facilities were not reserved by the backlying property owners. This shoreline parcel is located adjacent to the navigational sailing line, and often commercial barge traffic awaits use of the Wilson Dam lock in this area. The sloughs provide a safe haven for personal watercraft awaiting use of the Wilson Dam lock or during adverse weather conditions. No federally or state-listed species are known to occur on this parcel. There is a moderate probability for the presence of cultural resources; however, an

archaeological survey has not been conducted (an environmental review would be conducted prior to any ground disturbing activities). Requests for private water use facilities would not be considered.

Table 4-5. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|--|
| County, State | Lauderdale, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44-SE |
| TVA D-Stage Map Numbers | 1 and 2 |
| Stream Mile and Bank | TRMs 260-260.9R |
| Land Use / Land Cover | Mixed forest and maintained lawn |
| Known Dispersed Recreation Opportunities | None identified |
| Current Agreements/Commitments | None identified |
| Potential Projects | <ul style="list-style-type: none"> • Placement of TVA property and public lands signs along the parcel boundary and shoreline • Refresh the existing paint denoting TVA's property boundaries • Systematic survey for historic properties |
| Potential Partners | None identified |

Parcel 6 – (0.02 acres)

Proposed RLMP Allocation: Zone 6, Developed Recreation

This small parcel is located along the right descending bank of Shoal Creek and encumbered by a permanent easement to the State of Alabama for public recreation. Amenities include a boat ramp along with associated parking on the backlying property. The parcel is located between two commercial recreation operations. No federally or state-listed species are known to occur on this parcel. There is a low probability for the presence of cultural resources. Requests for use of TVA lands and associated water-based structures to support developed recreation purposes would be considered.

Table 4-6. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|---|
| County, State | Lauderdale, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44-SE |
| TVA D-Stage Map Numbers | 3 |
| Stream Mile and Bank | <ul style="list-style-type: none"> • Shoal Creek Mile 1.2R • TRM 264.4R |

Parcel 7 – (4.9 acres)

Proposed RLMP Allocation: Zone 6, Developed Recreation

This parcel is located along the right descending bank of the Tennessee River at mile 265.3 and is locally known at Lock Six boat ramp. The area is encumbered by a revocable license agreement to the City of Killen, Alabama, for public recreation. Amenities include a boat ramp, courtesy pier, and associated parking. No federally or state-listed species are known to occur on this parcel. There is a moderate probability for the presence of cultural resources; however, an archaeological survey has not been conducted (an environmental review would be conducted prior to any ground disturbing activities). Requests for use of TVA lands and associated water-based structures to support developed recreation purposes would be considered.

Table 4-7. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|--|------------------------------------|
| County, State | Lauderdale, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44-SE |
| TVA D-Stage Map Numbers | 5 |
| Stream Mile and Bank | TRM 265.3R |

Parcel 8 – (2.6 acres)

Proposed RLMP Allocation: Zone 2, Project Operations

This small parcel is located along the right descending bank of the Tennessee River at 269.3 and is surrounded by private property. The property is not encumbered with a contractual agreement, and could be used as a staging location for maintaining or upgrading navigational aids along the reservoir. No federally or state-listed species are known to occur on this parcel. This parcel has a moderate probability for the presence of cultural resources; however, a cultural resources survey has not been conducted (an environmental review would be conducted prior to any ground disturbing activities). No existing shoreline improvements are currently present, and future requests for private shoreline alterations would not be considered.

Table 4–8. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|--|
| County, State | Lauderdale, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 53–SW |
| TVA D–Stage Map Numbers | 7 |
| Stream Mile and Bank | TRM 269.3R |
| Land Use / Land Cover | Hardwood forest |
| Known Dispersed Recreation Opportunities | None identified |
| Current Agreements/Commitments | None identified |
| Potential Projects | <ul style="list-style-type: none"> • Placement of TVA property and public lands signs along the parcel boundary and shoreline • Refresh the existing paint denoting TVA’s property boundaries • Systematic survey for historic properties |
| Potential Partners | None identified |

Parcel 9 – (17.2 acres)

Proposed RLMP Allocation: Zone 6, Developed Recreation

This parcel is located along the left descending bank of Town Creek at mile 0.9 and is encumbered by a permanent easement to the State of Alabama for public recreation. The land cover is primarily wetlands. No federally or state-listed species are known to occur on this parcel. This parcel has a high probability for the presence of cultural resources, but it has not been surveyed for historic properties (an environmental review would be conducted prior to any ground disturbing activities). Requests for use of TVA lands and associated water-based structures to support developed recreation purposes would be considered.

Table 4–9. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|--|
| County, State | Colbert, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 53–SW |
| TVA D–Stage Map Numbers | 9 |
| Stream Mile and Bank | <ul style="list-style-type: none"> • Town Creek Mile 0.9L • TRM 2272.2LR |

Parcel 10 – (2.8 acres)

Proposed RLMP Allocation: Zone 7, Shoreline Access

This parcel is located along the left descending bank of the Tennessee River at mile 262. Lying entirely below the 509.34-foot msl, the current land use is maintained lawns and wetlands. Wilson Lake Shores subdivision is located on the backlying private property. No federally or state-listed species are known to occur on this parcel. This area has a moderate probability for the presence of cultural resources, but it has not been surveyed for historic properties (an environmental review would be conducted prior to any ground disturbing activities). Water use facilities have been constructed along the shoreline, and future requests for private water use facilities would be considered.

Table 4–10. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|--|------------------------------------|
| County, State | Colbert, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44-SE |
| TVA D-Stage Map Numbers | 2 |
| Stream Mile and Bank | TRM 262L |
| Land Use / Land Cover | Maintained lawns and wetlands |
| Structure Profile | 509.34-foot mean sea level |
| Current Agreements/Commitments | Approved water use facilities |

Parcel 11 – (5.6 acres)

Proposed RLMP Allocation: Zone 2, Project Operations

This parcel consists of two noncontiguous tracts of land located along the left descending bank of the Tennessee River and immediately upstream of Wilson Dam. This parcel provides a visual buffer for the historic Wilson Dam. The property can also be used as a staging area when conducting maintenance operations to the dam or other supporting structures. A bald eagle nest that has been active since 2011 is known within 660 feet of this parcel. This parcel has a moderate probability for the presence of cultural resources, but it has not been surveyed (an environmental review would be conducted prior to any ground disturbing activities). No existing shoreline improvements are currently present, and future requests for private shoreline alterations would not be considered.

Table 4–11. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|--|
| County, State | Colbert, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44–SE |
| TVA D–Stage Map Numbers | 1 |
| Stream Mile and Bank | TRM 259.4L |
| Land Use / Land Cover | Hardwood forest |
| Known Dispersed Recreation Opportunities | Bank fishing and primitive camping |
| Current Agreements/Commitments | None identified |
| Potential Projects | <ul style="list-style-type: none"> • Placement of TVA property and public lands signs along the parcel boundary and shoreline • Refresh the existing paint denoting TVA’s property boundaries • Systematic survey for historic properties |
| Potential Partners | None identified |

Parcel 12 – (15.3 acres)*Proposed RLMP Allocation: Zone 2, Project Operations*

This parcel consists is located along the right descending bank in Fleet Hollow and immediately upstream of Wilson Dam. Transmission lines dissect the parcel, and the shoreline is used as a fleeting area for TVA’s Power Service Shop. The property can also be used as a staging area when conducting maintenance operations to the dam or other supporting structures. No federally or state-listed species are known to occur on this parcel. This parcel has a moderate probability for the presence of cultural resources, but it has not been surveyed (an environmental review would be conducted prior to any ground disturbing activities). No existing shoreline improvements are currently present, and future requests for private shoreline alterations would not be considered.

Table 4–12. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|-----------------------------|
| County, State | Colbert, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44–SE |
| TVA D–Stage Map Numbers | 1 |
| Stream Mile and Bank | TRM 259.4L |
| Land Use / Land Cover | Hardwood forest |
| Known Dispersed Recreation Opportunities | None identified |

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|--|
| Current Agreements/Commitments | None identified |
| Potential Projects | <ul style="list-style-type: none"> • Placement of TVA property and public lands signs along the parcel boundary and shoreline • Refresh the existing paint denoting TVA's property boundaries • Systematic survey for historic properties |
| Potential Partners | None identified |

Parcel 13 – (930.8 acres)

Proposed RLMP Allocation: Zone 2, Project Operations

This parcel consists of the Muscle Shoals Reservation and a portion of the Wilson Dam Reservation. The property stretches from Wilson Dam to the old Southern Railroad Bridge and is bordered by the left descending bank of the Tennessee River and by Reservation Road. Numerous transmission lines are located throughout, and U.S. Highway 133 dissects the parcel.

This parcel was allocated to Zone 2 (Project Operations) to maintain the integrity of various TVA operations occurring on the property. Cultural resource management, developed recreation management, dispersed recreation improvements, hydroelectric operations, natural resource management, navigational protection, trails management, and transmission line construction and maintenance are just a few TVA operations occurring on the property. In addition, a small portion of this parcel was formerly used by TVA police as a pistol range. The pistol range is now nonoperational and gated to prohibit unauthorized entrance. Signs have also been placed at the entrance communicating the pistol range has been closed.

Along the powerline ROW, federally endangered gray bats (*Myotis grisescens*) have been recorded utilizing this parcel as foraging habitat. One cave is known to occur on this parcel but it is not known to provide habitat for any threatened or endangered species. Gray bats, eastern red bats, evening bats, and tricolored bats have been captured during mist net surveys on the adjacent Muscle Shoals Redevelopment Site. In addition, a radio tagged Indiana bat was tracked to the Muscle Shoals Reservation Redevelopment area in the spring of 2016. However the location of the roost tree could not be determined because the transmitter used the track the bat fell off the bat before the roost tree was located. Acoustic detectors subsequently operated by TVA staff near the presumed roosting area for several days did not record any Indiana bat

(or northern long-eared bat) calls. In 1976, a population of the state listed plant Dutchman’s breeches (*Dicentra cucullaria*) was recorded in the First Quarters Natural Area. Additionally, the Alabama state champion paper mulberry tree is located within this parcel.

Sections 2.3 and 2.4 discuss the abundance of public recreation occurring on the parcel, and the construction, maintenance, and operations of land-based public recreational opportunities and associated facilities would continue to be considered as a secondary use of this property.

There is a high probability for the presence of cultural resources. Some portions of the parcel have been surveyed for cultural resources, and some sites have been found eligible for listing on the National Register of Historic Places. No existing shoreline improvements are currently present, and future requests for private shoreline alterations would not be considered.

Table 4–13. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|--|
| County, State | Colbert, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44–SE and 44–SW |
| TVA D–Stage Map Numbers | 1 and 54 |
| Stream Mile and Bank | TRMs 256.4–259.4L |
| Land Use / Land Cover | Deciduous forest and transmission line rights-of-way |
| Known Dispersed Recreation Opportunities | Bank fishing, camping, hiking, picnicking, walk/jog/run, and wildlife observation |
| Current Agreements/Commitments | <ul style="list-style-type: none"> • Permanent easements to the Alabama Department of Transportation for a road and vehicular bridge • Permanent easement to Colbert County, Alabama for a road • Revocable licenses to the Muscle Shoals Electric Board for a transmission line • Term easement to Muscle Shoals Laboratory Associates, Ltd. for an office building |
| Potential Projects | <ul style="list-style-type: none"> • Maintain Wildlife Habitat Council Certification • Placement of TVA property and public lands signs along the parcel boundary and shoreline • Promotion of wildflowers • Refresh the existing paint denoting TVA’s property boundaries • Removal of non-native invasive plants • Systematic survey for historic properties |
| Potential Partners | <ul style="list-style-type: none"> • Florence Gardening Club • Northwest Shoals Community College • Shoals Environmental Alliance • University of North Alabama |

Parcel 14 – (19.2 acres)

Proposed RLMP Allocation: Zone 2, Project Operations

This parcel consists of three noncontiguous tracts of land located adjacent to the reservation. However, this parcel is not located adjacent to the reservoir. Rights-of-way for U.S. Highway 43 (Hatch Boulevard) and Birmingham Street are present on the parcel. An Alabama State Trooper’s office building is also present on the parcel. No federally or state-listed species are known to occur on this parcel. Since most of the parcel has been disturbed, there is a low probability for the presence of cultural resources. Future requests for private shoreline alterations would not be considered.

Table 4–14. Parcel Information

| Location Component and Public Involvement Opportunities | Parcel Specific Information |
|---|---|
| County, State | Colbert, Alabama |
| Topographic Map (Sheet No. and Quadrant) | 44–SW |
| TVA D–Stage Map Numbers | 54 |
| Stream Mile and Bank | Not located adjacent to the reservoir |
| Land Use / Land Cover | Hardwood forest, maintained lawns, and road rights–of–way |
| Known Dispersed Recreation Opportunities | None identified |
| Current Agreements/Commitments | <ul style="list-style-type: none"> • Permanent easement to the City of Sheffield, Alabama, for commercial development and a road • Permanent easement to the Alabama Department of Transportation for a road • Permanent easement to the State of Alabama for an office building |
| Potential Projects | <ul style="list-style-type: none"> • Refresh the existing paint denoting TVA’s property boundaries • Systematic survey for historic properties |
| Potential Partners | None identified |

CHAPTER 5. PLANNING TEAM

J. Kenley Austin

Position: Program Manager, Reservoir Land Use and Permitting
Education: B.S., Biology and Geography
Experience: 12 years in Planning and Managing Land; 8 years in Natural Resource Management
Involvement: Planning Team and Deed interpretation

Chellye L. Campbell

Position: Senior Specialist, Land Policy
Education: B.S., Biology
Experience: 14 years in Planning and Managing Land
Involvement: Deed interpretation and Land Policy guidance

Jerry G. Fouse

Position: Recreation Specialist
Education: M.B.A.; B.S., Forestry and Wildlife
Experience: 38 years in Natural Resources – Recreation Planning and Economic Development
Involvement: Planning Team and Recreation Management

Thomas O. Maher

Position: Senior Archaeologist
Education: Ph.D., Anthropology
Experience: 32 years in the field of Archaeology
Involvement: Planning Team

Leonard L. McCurdy, Jr.

Position: Senior Specialist, Reservoir Land Use and Permitting
Education: B.S., Environmental Studies–Chemistry; J.D., Law
Experience: 25 years in the field of Law including 18 years in TVA real property rights
Involvement: Deed interpretation and Land Policy guidance

Susan D. McDaniel

Position: Process Integration Specialist
Experience: 30 years in Geographic Information Systems and Planning and Managing Land
Involvement: Planning Team and preparation of geographic information system

Heather L. Montgomery

Position: Senior Program Manager, Reservoir Lands Planning
Education: B.S., Environmental Biology
Experience: 13 years in Planning and Managing Land and Environmental Impacts Evaluation
Involvement: Project Manager

Draft Wilson Reservoir Land Management Plan

Mark T. Morrissey

Position: Geographic Analyst
Education: B.S., Geography
Experience: 2 year in Planning and Managing Land; 5 years in Industrial Safety and Compliance
Involvement: Document Preparation; Planning Team; and Preparation of Geographic information Systems

Karen A. Rylant

Position: Senior Specialist, Section 26a Policy and Process
Education: Ph.D., Agronomy (Soil Chemistry); M.S., Soil Fertility; B.A., Chemistry, B.A., Geology
Experience: 8 years in Environmental Research; 5 years in Land and Shoreline Management
Involvement: Deed interpretation and Section 26a guidance

Damien J. Simbeck

Position: Watershed Representative
Education: M.S., Zoology; B.S., Professional Biology
Experience: 23 years in aquatic, land, and natural resource management
Involvement: Planning Team

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GLOSSARY

| | |
|--------------------------------|---|
| acre | A unit measure of land area equal to 43,560 square feet |
| cultural resources | Archaeological, historic, and architectural resources |
| dam reservation | Lands generally maintained in a park-like setting by TVA to protect the integrity of the dam structure, hydroelectric facilities, and navigation locks. The reservation also provides for public visitor access to the TVA dam facilities and recreation opportunities, such as public boat access, bank fishing, camping, picnicking, etc. Hunting is not typically allowed on dam reservations. |
| deciduous | Vegetation that sheds leaves in autumn and produces new leaves in the spring. |
| dispersed recreation | Recreation of an informal nature such as hunting, hiking, biking, bird watching, photography, primitive camping, bank fishing, and picnicking, etc. that occur on TVA land. These activities are not associated with developed facilities although some improvements may occur for access, health and safety, or to protect the environment. |
| embayment | A bay or arm of the reservoir |
| endangered species | A species in danger of extinction throughout all or a significant part of its range. Endangered species recognized by the Endangered Species Act or similar state legislation have special legal status for their protection and recovery. |
| Environmental Policy | A TVA Board-approved policy that communicates guiding principles to lead TVA successfully in the reduction of its environmental impact while continuing to provide reliable and competitively priced power to the Valley |
| forest | Vegetation having tree crowns overlapping, generally forming 60 to 100 percent cover. |
| Land Policy | A TVA Board-approved policy that guides retention, disposal, and planning interests in real property |
| natural areas | Ecologically significant sites, lands set aside for particular management objectives, and lands that contain sensitive biological, cultural or scenic resources. The TVA natural area program includes small wild areas, habitat protection areas, wildlife observation areas, and ecological study areas. |
| plan tract | A numbered parcel of TVA fee-owned land that has been assigned, through the reservoir land planning process, an allocation to guide future land use decisions. |
| riparian | Related to or located on the banks of a river or stream |
| shoreland | The surface of land lying between the minimum pool elevation of a TVA reservoir and the maximum shoreline contour or TVA back-lying property (whichever is further) |
| shoreline | The line where the water of a TVA reservoir meets the shore when the water level is at the normal summer pool elevation. |
| shoreline access rights | TVA land encumbered with deeded or implied rights held by adjacent property owners. The deeded or implied rights allow individuals to construct water use facilities upon receipt of TVA's written approval of plans. |
| threatened species | A species threatened with extinction throughout all or a significant portion of its range or territory. Threatened species recognized by the Endangered Species Act or similar state legislation have special legal status for their protection and recovery. |

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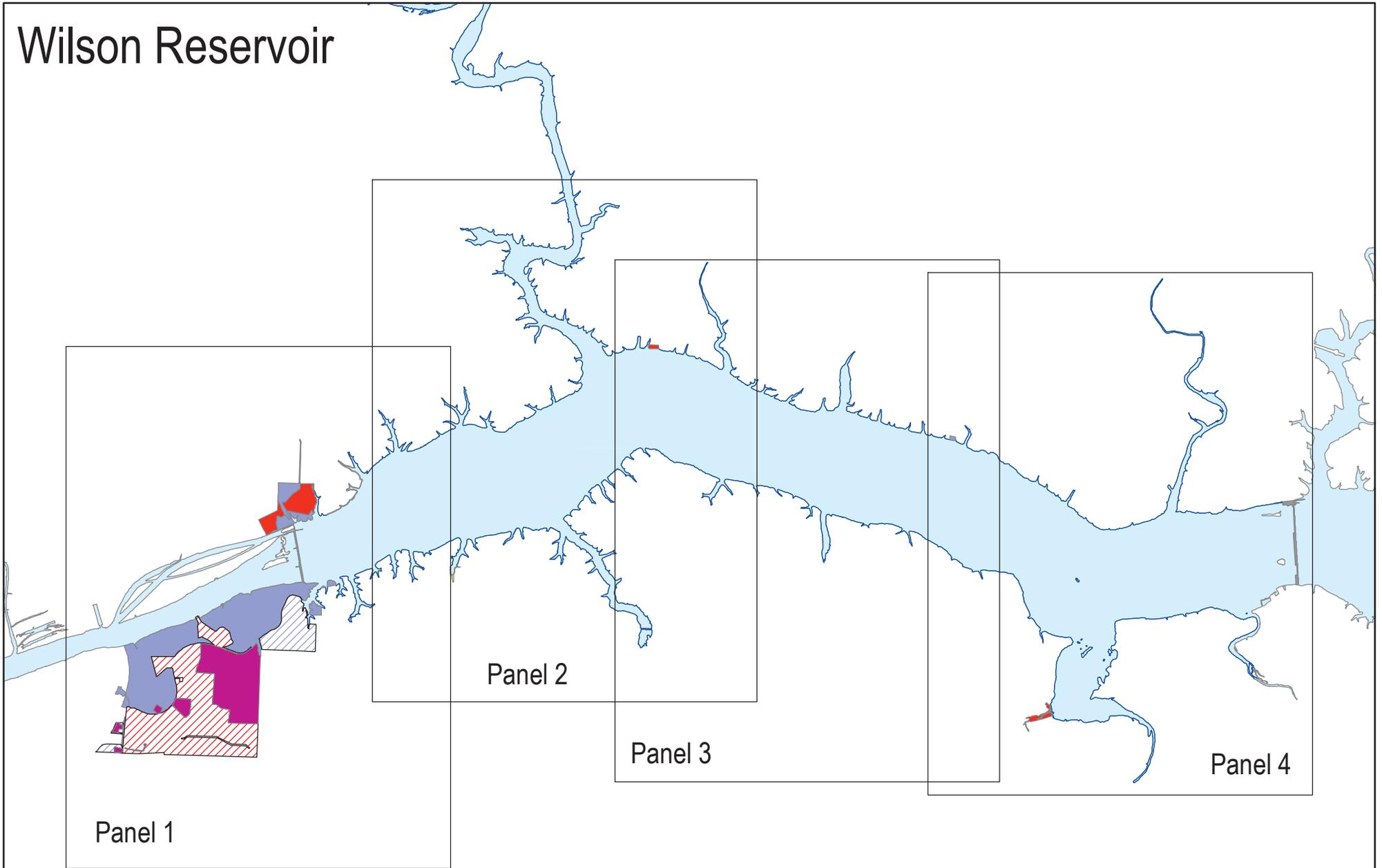
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Appendix A – Land Management Plan Maps – Panels 1 through 4

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Wilson Reservoir



[Click Panel to View PDF Map](#)

Appendix B Comparison of Parcel Allocations by Alternative

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APPENDIX B

Comparison of Parcel Allocations by Alternative

WILSON RESERVOIR

Of the 1,223.4 acres on Wilson Reservoir, there are no proposed allocation changes to any of the parcels.

See Table 1 below:

| Table 1. No Proposed Allocation Changes | | | |
|--|---|--|-----------------------------|
| Number of Parcels Per Zone Allocation | | | |
| Zone 2 | 8 | Zone 5 | 0 |
| Zone 3 | 0 | Zone 6 | 5 |
| Zone 4 | 0 | Zone 7 | 1 |
| Parcel | No Action Allocation (Alternative A) | Proposed Allocation (Alternative B) | Acres per Allocation |
| 1 | 2 | 2 | 42.5 |
| 2 | 6 | 6 | 41.0 |
| 3 | 2 | 2 | 48.5 |
| 4 | 6 | 6 | 85.4 |
| 5 | 2 | 2 | 7.7 |
| 6 | 6 | 6 | 0.02 |
| 7 | 6 | 6 | 4.9 |
| 8 | 2 | 2 | 2.6 |
| 9 | 6 | 6 | 17.2 |
| 10 | 7 | 7 | 2.8 |
| 11 | 2 | 2 | 5.6 |
| 12 | 2 | 2 | 15.3 |
| 13 | 2 | 2 | 930.8 |
| 14 | 2 | 2 | 19.2 |
| Total = 14 Parcels | | Total = 1,223.4 Acres | |

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