US Army Corps of Engineers

HUNTINGTON DISTRICT, GREAT LAKES & OHIO RIVER DIVISION

Dewey Lake Master Plan Project

Draft Programmatic Environmental Assessment

March 2018

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Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
AMSL	above mean sea level
BMP	best management practice
CFR	Code of Federal Regulations
dB	decibel
DNL	Day-Night Average Sound Level
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
FERC	Federal Energy Regulatory Commission
FY	fiscal year
HPMP	Historic Properties Management Plan
KPDES	Kentucky Pollutant Discharge Elimination System
KSNPC	Kentucky State Nature Preserves Commission
KYDFWR	Kentucky Department of Fish and Wildlife Resources
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
PEA	Programmatic Environmental Assessment
PL	Public Law
Project	Yatesville Lake Project
RV	recreational vehicle
spp.	*species pluralis* (multiple species)
SR	State Route
State Park	Dewey Lake State Park
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WMA	Wildlife Management Area

1.0 INTRODUCTION

The Dewey Lake project was authorized by the Flood Control Act of 1938 (Public Law 75-761) as a unit of the comprehensive flood control plan for the Ohio River Basin. Purposes initially authorized for project construction included: flood control (flood risk management), low flow augmentation, and recreation. Since then, laws authorizing additional project purposes have been adopted. As a result, the Dewey reservoir is also authorized to operate fish and wildlife enhancement and forest resources conservation.

The 1949 Dewey Lake Master Plan is the strategic land use management document that currently guides the comprehensive management, development, and use for recreation, natural resources, and cultural resources. Primary goals of a master plan are to prescribe an overall land use management plan, resource objectives, and associated design and management concepts. The U.S. Army Corps of Engineers (Corps) is updating the Dewey Lake Master Plan and proposes to implement measures that are recommended in the Master Plan update. The implementation of these measures are being evaluated as the Proposed Action in this Programmatic Environmental Assessment (PEA).

This PEA is being prepared in part to fulfill the requirements of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. §§ 4321–4327). The PEA identifies and assesses the potential impacts associated with the Proposed Action. As required under NEPA, the draft PEA also contains an assessment of the No Action Alternative in which the Proposed Action would not be implemented. The PEA is being prepared in coordination with federal and state agencies and will support Corps decision-making regarding implementation of the measures recommended in the updated Master Plan.

1.1 Scope of the Programmatic Environmental Assessment

NEPA documents are allowed to cover broad actions, such as agency programs and related or similar actions under the Council on Environmental Quality's (CEQ's) NEPA implementing regulations (40 CFR § 1502.4). These NEPA documents are referred to as "Programmatic," are often broad in scope, and may be followed by supplemental NEPA documentation that incorporates the Programmatic documents by reference. The supplemental NEPA documentation would address specific actions.

Because the designs, specifications, footprints, and implementation schedules of the Proposed Action have not been finalized, this draft PEA contains a general evaluation of potential environmental impacts. Supplemental NEPA documents will be required for implementation of

specific measures or actions within this PEA. The Corps will determine the appropriate level of NEPA documentation for each individual action/measure and incorporate this PEA by reference into supplemental NEPA documentation as appropriate.

1.2 Dewey Lake Project Background

The Corps manages approximately 13,602 acres in Floyd and Pike County, Kentucky, which includes Dewey Lake Dam, Dewey Lake, and adjacent lands (Figure 1-1). Project lands are classified as operational/administrative areas, recreational lands, environmentally sensitive areas, and multiple resource management lands. Table 1-1 lists the acreage of the federal recreational areas and outgrants along with the managing agency and major facilities and activities.

Table 1-1: Federal Areas and Outgrant Recreation Areas

Name of Area	Acreage	Managing Agency/Lessee	Major Facilities/Activities
Land Acquired in Fee	12,437	Corps	Picnic Hollow, Below Dam Recreation Area, Shoreline-1 Campsites, Big Sandy Training Center, Project Offices and Maintenance Facilities, Hiking Trails
Flowage Easement	1,165	Corps	N/A
Independent Order of the Odd Fellows	51.58	Independent Order of the Odd Fellows	Youth Camp with Cabins, Camping Areas, and Bathroom Facilities
Christian Appalachian Project	309.74	Christian Appalachian Project	Youth Camp with Cabins and Pool
German Branch Campground	61.52	Floyd County Fiscal Court	Camping, Horse Stables, Trail Head, Boat Launch, Restroom
Jenny Wiley State Resort Park	1,438.75	Kentucky State Parks	Lodge, Camping, Golf, Theater, Marina, Boat Launch
German Branch Campground	197.46	Kentucky Division of Forestry	Camping, Equestrian Trails and Facilities, Boat Launch, Restroom
Wildlife Management Area Office	6.90	Kentucky Department of Fish and Wildlife Resources (KYDFWR)	Field Office
Wildlife Management Area	8,922.93	Kentucky Department of Fish and Wildlife Resources	Hunting, Fishing, Multi-purpose Trails (horse, hike)

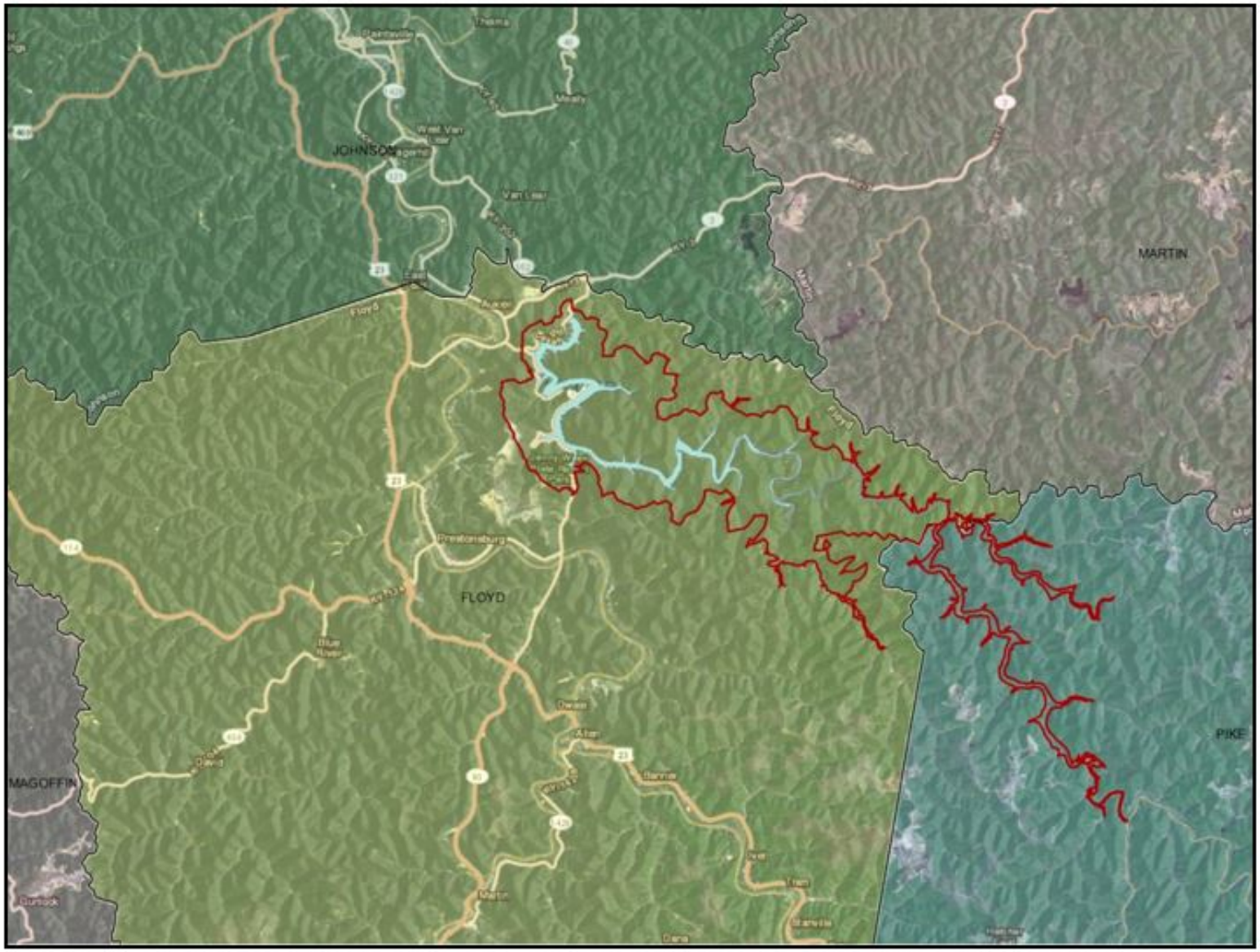

Figure 1-1: Dewey Lake Location Map

1.3 Dewey Lake Project Authority

The Dewey Lake project was authorized by the Flood Control Act of 1938 (PL 75-761) as a unit of the comprehensive flood control plan for the Ohio River Basin. As mentioned above, current authorized project purposes include flood control (flood risk management), low flow augmentation, fish and wildlife enhancement, forest resources conservation, and recreation.

1.4 Purpose and Need

The purpose of the PEA is to evaluate the impacts of the measures proposed in the 2016 Dewey Lake Master Plan Update (USACE, 2016). Master Plans are updated periodically to maintain focus on four primary components: regional and ecosystem needs, resource capabilities and sustainability, expressed public interests compatible with authorized purposes, and environmental sustainability elements. An updated Dewey Lake Master Plan is essential in fostering efficient and cost-effective projects for natural resources, cultural management, and recreational programs by ensuring that current environmental mandates and considerations are incorporated. The Master Plan Update also includes recommendations for accommodating increased or new demands that may affect project resources.

The Dewey Lake Master Plan Update addresses resources in the project area, which include but are not limited to fish and wildlife, vegetation, cultural, aesthetic, interpretive, recreational, mineral, commercial and outgrant lands, easements, and water resources. Through implementation of an updated Master Plan, project managers can provide responsible and timely protection, preservation, restoration, conservation, and enhancement of the resources. The PEA is needed to assist the Corps in their decision-making process regarding implementation of the Dewey Lake Master Plan Update measures and to comply with NEPA.

2.0 NO ACTION AND PROPOSED ACTION ALTERNATIVES

This section provides a description of the two alternatives considered in this PEA—the No Action Alternative (NAA) and the Preferred Action Alternative (PAA).

2.1 NAA

Under the No Action Alternative, the measures described in the Dewey Lake Master Plan Update would not be implemented. Operation and management of the project would continue as described in the 1949 Master Plan. Existing facility maintenance, wildlife and vegetation enhancement, trail development, erosion control, flood risk management, and management of recreational areas and activities would continue. New facilities and/or activities not identified in the 1949 Master Plan could be constructed or implemented on a case-by-case basis and evaluated for environmental impacts.

2.2 PAA

Under the PAA, the measures and actions described in the Master Plan Update would be implemented fully. The measures are divided into three categories: (1) modifying resource management based on updated resource status and guidance, (2) recreational development based on resource capability, regional demand, and expressed public interests, and (3) develop comprehensive plan for improving Corps sites and facilities for accessibility, environmental sustainability, and modernization. These measures will be consistent with Dewey Lakes' authorized purposes and conducted to enhance visitor experience to the area.

Implementation of the Master Plan Update would allow an update of the Dewey Lake Project lands and waters that reflects environmental stewardship and conservation while meeting current and future public, social, and economic demands.

The PAA consists of the measures and actions that are listed in Table 2-1. Supplemental NEPA documents will be required for implementation of specific measures or actions listed in the table below. The PAA would address the projected demands that are identified in the Master Plan Update. More information about the elements of PAA is provided in Sections 3.0 and 8.0 of the Dewey Lake Project Master Plan, which is provided as Appendix A of this document.

Table 2-1: Dewey Lake Project Master Plan Proposed Action Elements

Proposed Action	Description
Lease the portion of former Girl Scout lease area, currently managed by the Corps, for the purpose of providing high density recreation.	• Classify remaining acreage from former Girl Scout lease area for high intensity recreation • Complete infrastructure expansion evaluation to determine most efficient means for providing municipal sanitary service • Upgrade water service • Based on infrastructure expansion evaluation, expand municipal sanitary sewer and water service • Consider the inclusion of Picnic Hollow as part of a comprehensive recreation plan for the leasing and development of the former Girl Scout lease area
Improve the efficiency of the Picnic Hollow Recreation Area	• Improve Picnic Hollow's recreational facility conditions • Upgrade Picnic Hollow's utility infrastructure • Increase ABA accessibility • Provide recreational diversity • Support Corps initiatives including recreation diversification and modernization • Consider the integration of the completed spray ground at Picnic Hollow as part of a larger comprehensive effort to develop and outgrant for its intended recreational purpose.
Re-locate volunteer campsites in preparation for leasing the remaining Corps managed portion of former Girl Scout lease area for high density recreation.	• Relocate to Picnic Hollow. However in the event of redevelopment, other potential sites have been identified including the area adjacent to Route-3 and the Corps lake project office/facility maintenance areas

Table 2-1: Dewey Lake Project Master Plan Proposed Action Elements

Proposed Action	Description
Improve aesthetics of the Corps operated maintenance garage and storage area.	• Enhancement of the facility elements including pavement, fencing, building facades, and landscaping. • Relocation of equipment and materials currently being stored within view of the visiting public. • Additional landscaping, pavement removal/repair, and perimeter fencing upgrades are needed to further improve the aesthetics of the area. • As an alternative to the existing storage site, a portion of the former Girl Scout lease and Big Sandy Training Center could be temporary utilized for storage of equipment and materials. • Existing maintenance shop could also accommodate relocation of equipment and materials. This would require the maintenance contactor to find alternative locations to store any materials and equipment.
Repurpose the area previously intended for use as a material spoil site, to accommodate Corps needs for equipment and/or material storage.	• Upgrade storage yard as required.
Modernize utility infrastructure to Project areas classified and intended for high density recreation use.	• Complete infrastructure expansion evaluation to determine most efficient means for providing municipal sanitary service and upgraded water service to the former Girl Scout lease area (Big Sandy Training Center) and Picnic Hollow.
Outgrant Shoreline-2 Campsites and Shoreline Picnic Areas for continued operation and use as overnight boat-in camping and day use picnic facilities.	• Continue to maintain, operate and make facility improvements in support of the outgranting effort. • Consideration should be given to the State Park as the preferred lease partner for the continued operation of these areas.
Implement an effective means for tournament fishing notification that balances the needs of recreational anglers/boaters and tournament participants alike.	• Promote the benefits of the KYDFW online tournament fishing scheduling page to the general public and club/tournament directors. • Execute an MOU or MOA between the Corps and KYDFW to help define opportunities for shared coordination and responsibilities.

Table 2-1: Dewey Lake Project Master Plan Proposed Action Elements

Proposed Action	Description
Work with Floyd County, the KYDFW, and KY State Park to maintain social and environmental balance in the use and development of land and water resources.	• Encourage collaboration among all stakeholders for achievement of win-win solutions to situations regarding the future use and development of project resources. • Require that any future horse trail expansion submissions include alternative trail alignments focused on avoiding negative impacts to other leased/licensed areas outside the current German Bridge lease area. Additionally, require that submittals demonstrate/evaluate the potential for alternative trail alignments located mostly outside of Federal property limits.
Maintain social and environmental balance of land and water resources usage as it relates to the future planning of equestrian trails.	• Thorough evaluation of alternative trail alignments and the potential social, cultural, environmental, recreational, and managerial impacts need to be carefully weighed and addressed prior to a Corps decision being made.
Work with KY State Park to minimize boating impacts associated with the State Parks plans for marina expansion.	• Work with the KY State Park to minimize potential impacts of concern to the boating public. • Provide forum for public input in the evaluation of a proposal for marina expansion.
Enhance lake access for the purpose of reducing user conflict, improving winter launch capabilities, and for launching of smaller non-motorized water craft.	• Continue maintenance dredging to sustain winter launch capabilities. • Add signage to the German Bridge launch. • There are easily accessed areas within the upper reaches of the project that could be utilized for non-motorized small craft parking/launching.
Minimize potential visitor/boating impacts associated with the State Parks plans for marina expansion.	• Work with the State Park to minimize potential impacts and visitor inconveniences associated with proposed expansion plans. • Public input should be solicited and considered in determining an appropriate course of action.
Implement a native tree planting program designed to offset impacts from, and protect against future infestation of, the southern pine beetle; and other destructive pests.	• Incorporate preventative measures to reduce the potential severity of future outbreaks. • Prepare and implement a plan for future monitoring, detection, evaluation, and suppression of the southern pine beetle.

Table 2-1: Dewey Lake Project Master Plan Proposed Action Elements

Proposed Action	Description
Repurpose the below dam area north of the baseball/softball field for use as an outdoor classroom promoting public awareness of Corps programs	• The grassy area located adjacent to the baseball/softball field presents an opportunity for the Corps to directly support environmental stewardship initiatives through the implementation of measures that both reduce the expenditure of maintenance and operation resources, while encouraging the formation of wetland environments. • Provide hands-on education and interpretation opportunities to increase public awareness about the environmental issues and the various Corps programs being implemented to address them.
Improve visitor safety and security within the Corps managed public use areas.	• Replace any broken or insufficient site elements such as lighting, steps, handrails, walkways, benches, play equipment, etc. • Comply with ABA standards in the design and development of site improvements.
Enhance visitor experience within existing Corps managed public use areas.	• Providing restrooms, water, and protection from the weather. • Create a socially comfortable environment. • Diversity of opportunities, aesthetically pleasing environments, facility conditions, and the chance for discovery will always be factors impacting the enjoyment of spaces.
Improve site functionality and effectiveness of Corps managed public use areas and facilities	• The Corps has the responsibility to efficiently and effectively utilize public dollars to operate and maintain project areas for their authorized project purposes, and related operating purposes.
Improve overall site aesthetics within Corps managed areas	• Improve overall site aesthetics as site aesthetics, character, and identity are significant factors in a visitor perception of public spaces. Each provides visitors with clues to the experience expected upon entering a space.
Develop a comprehensive plan for improving site and facility accessibility	• Create a comprehensive plan as the Corps has the responsibility to provide accessibility per the Architectural Barriers Act (ABA) to ensure non-discrimination on the basis of disability

3.0 ENVIRONMENTAL SETTING

This section describes the current (baseline) condition of the environment that could be affected by the NAA and the PAA.

3.1 Physical Environment

This section contains a description of the topography, geology, and soils in the Project area.

3.1.1 Topography

The project area lies within the Appalachian Plateau physiographic province, Kanawha Section, which can be described as a mature plateau of fine texture with moderate to strong relief. Elevation in the project area varies from approximately 600' above mean sea level (msl) below the dam to approximately 1,400' above msl on the ridge tops surrounding the lake. Topography is a major limitation to development of facilities at the Lake. However, the large relief does provide some visual variety for visitors. Most manageable lands within the project area have already been developed. Lands on the north side of the lake have little or no access except by boat due to topographic constraints.

3.1.2 Geology

The project area is characterized by the Middle Pennsylvanian Breathitt Formation which is approximately 320 million years old. The primary geological unit, the Breathitt Formation, occurs within the project area. This unit is further divided into the lower, middle, and upper parts. The Breathitt Formation, located in the Appalachian Basin, contains the eastern Kentucky coalfield and most of the economic deposits of coal in eastern Kentucky. The formation consists of heterogeneous and discontinuous sequences of sandstone, siltstone and shale with minor amounts of limestone, chert, underclay and bituminous coal. Magoffin and Kendrick Shale are the most common members of the formation, as are cliff-forming sandstones (Rice, 2001).

The geology of the project area has resulted in the formation of steep slopes, rock outcrops, and cliffs. The lower Breathitt Formation accounts for only 93 acres or 1-percent of the project, middle Breathitt Formation accounts for 4,349 acres or 35 percent of the project, and upper Breathitt Formation accounts for 7,898 acres or 64 percent of the project. A geologic map has been included as Figure 3-1.

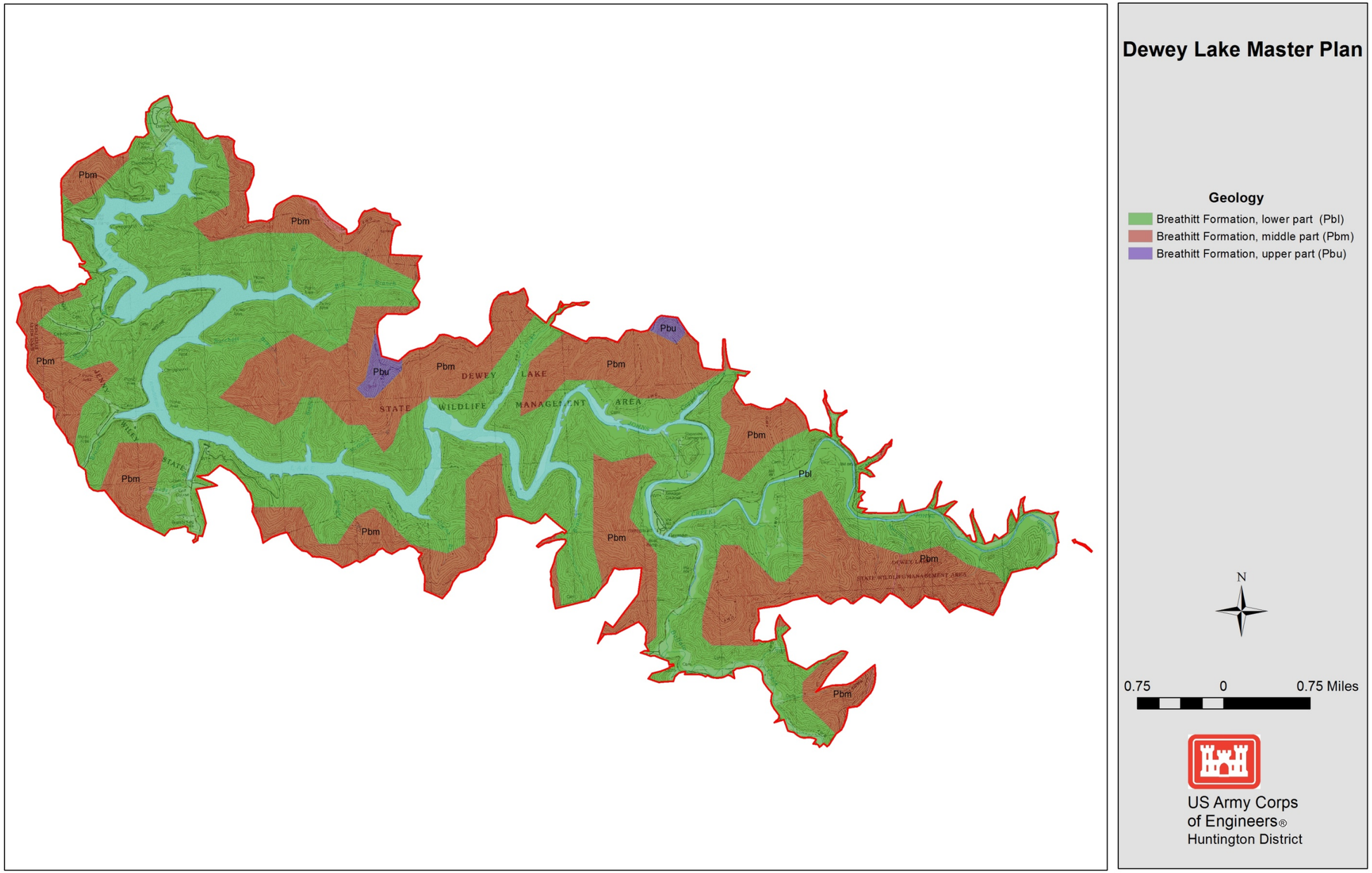

Figure 3-1: Topography Suitability for Project Development

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3.1.3 Soils

The soil types that occur in the project area are primarily the result of variability in the geologic parent material and positions on the landscape. Soils in the Project area were formed primarily from weathered sandstone, siltstone, shale, or from sediments deposited by running water. The soils on steep mountainside slopes are typically characterized by rock fragments throughout the soil.

The various soil types are grouped based on associations across the landscape. According to the *Soil Survey of Floyd and Johnson Counties, Kentucky* (USDA, 1990), 20 groups (called soil map units and shown on Figure 3-2) occur together at the project. The soil map units are listed in Table 3-1 and shown on Figure 3-2 and are divided into the following four groups based on their suitability and limitations for recreational development: (1) most suitable for development, (2) limited development potential, and (3) least suitable for development.

The Farmland Protection Policy Act of 1981 (7 U.S.C. §§ 4201–4209) designates soils that are suitable to farming as prime or unique farmlands and is intended to minimize irreversible conversion of farmland to nonagricultural uses. Although prime farmland occurs within the project area, it covers less than 0.5 percent. Prime farmland soils generally occur within valley bottoms along streams.

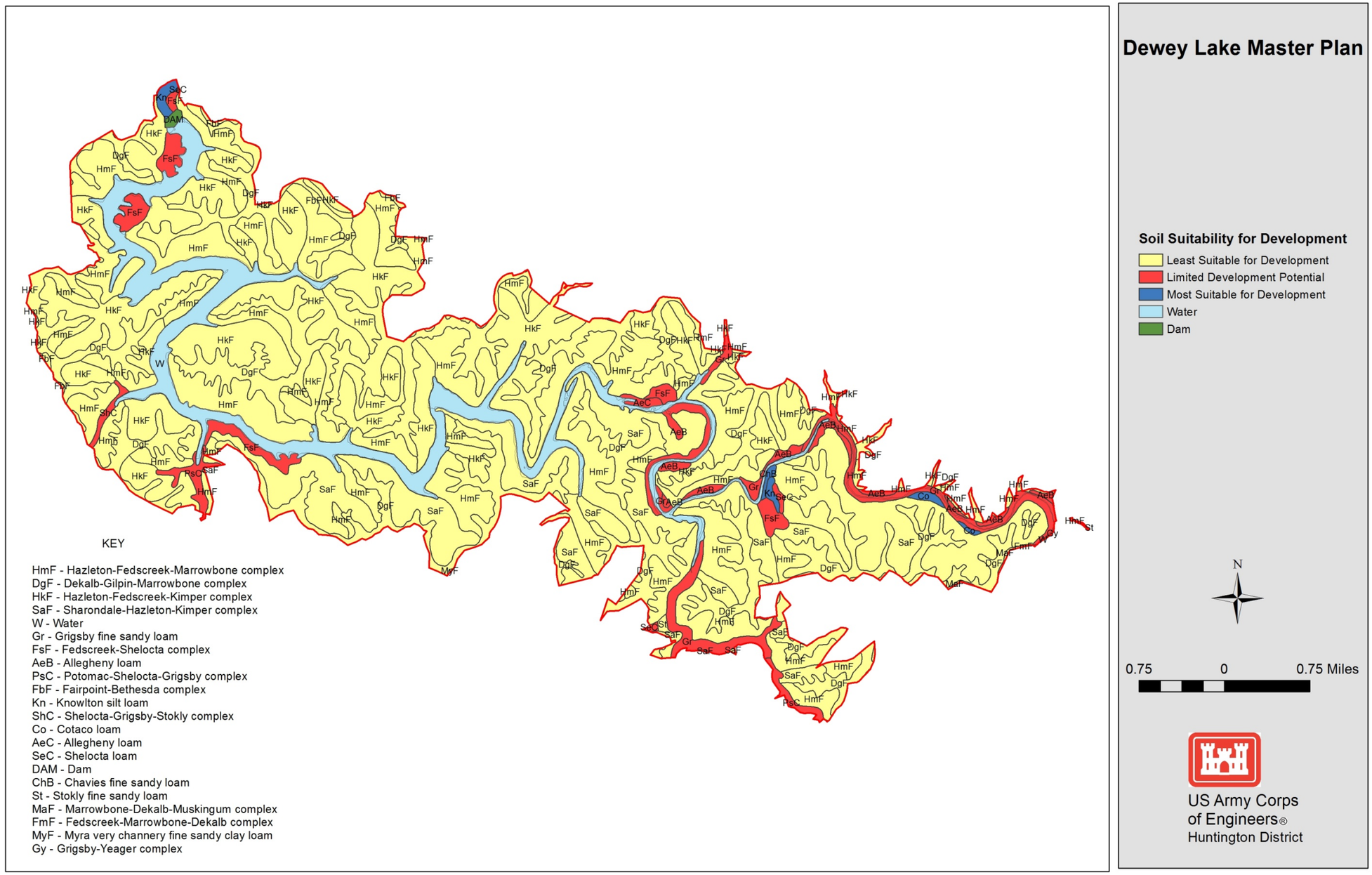
Table 3-1: Soils Covering Project Area in Order of Predominance

Soil Map Unit Symbol	Soil Type	Typical Slope	Acres	%	Suitability Based on Slope and Soil Type
HmF(e)	Hazleton-Fedscreek-Marrowbone complex, very stony	30–80%	3635.96	29.47	**Least Suitable for Project Development**
DgF (e)	Dekalb-Gilpin-Marrowbone complex, very stony	20–80%	2850.3	23.1	**Least Suitable for Project Development**
HkF (e)	Hazleton-Fedscreek-Kimper complex, very stony	30–80%	2207.56	17.89	**Least Suitable for Project Development**
SaF (e)	Sharondale-Hazleton-Kimper complex, extremely stony	30–80%	1741.87	14.12	**Least Suitable for Project Development**
Gr* (e)	Grigsby fine sandy loam, occasionally flooded	—	271.51	2.2	**Limited Potential for Project Development**

Table 3-1: Soils Covering Project Area in Order of Predominance

Soil Map Unit Symbol	Soil Type	Typical Slope	Acres	%	Suitability Based on Slope and Soil Type
FsF (e)	Fedscreek-Shelocta complex	20-50%	**192.98**	**1.56**	**Limited Potential for Project Development**
AeB* (e)	Allegheny loam	2-6%	145.52	1.18	**Limited Potential for Project Development**
PsC(s,e,w)	Potomac-Shelocta-Grigsby complex	2-15%	74.88	0.61	**Limited Potential for Project Development**
FbF (e)	Fairpoint-Bethesda complex	30-70%	32.18	0.26	**Least Suitable for Project Development**
Kn* (e)	Knowlton silt loam, rarely flooded	—	32.13	0.26	**Most Suitable for Project Development**
ShC**(e,w)	Shelocta-Grigsby-Stokly complex	2-15%	19.41	0.16	**Limited Potential for Project Development**
Co* (w)	Cotaco loam, rarely flooded	—	32.13	0.26	**Most Suitable for Project Development**
AeC**(e)	Allegheny loam	6-15%	12.68	0.1	**Limited Potential for Project Development**
SeC**(e)	Shelocta loam	6-15%	12.68	0.1	**Limited Potential for Project Development**
ChB* (e)	Chavies fine sandy loam, rarely flooded	2-6%	8.58	0.07	**Most Suitable for Project Development**
St* (w)	Stokly fine sandy loam, occasionally flooded	—	7.32	0.06	**Least Suitable for Project Development**
MaF (e)	Marrowbone-Dekalb-Muskingum complex, very rocky	30-80%	5.27	0.04	**Least Suitable for Project Development**
FmF (e)	Fedscreek-Marrowbone-Dekalb complex	30-70%	1.4	0.01	**Least Suitable for Project Development**
MyF (e)	Myra very channery fine sandy clay loam, stony	30-70%	0.46	0	**Least Suitable for Project Development**
Gy*(w)	Grigsby-Yeager complex, occasionally flooded	—	0.07	0	**Limited Potential for Project Development**

Source: NRCS (2005)



Dewey Lake Master Plan

Soil Suitability for Development

- Least Suitable for Development
- Limited Development Potential
- Most Suitable for Development
- Water
- Dam

N

0.75 0 0.75 Miles

US Army Corps of Engineers®
Huntington District

Figure 3-2: Dewey Lake Project Soil Suitability Map

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3.1.4 Water Resources

This section contains a discussion of surface water and groundwater in the project area.

3.1.4.1 Surface Water

Surface water in the Project area includes rivers and streams, Dewey Lake, and the tail water.

Rivers and Streams

Dewey Lake Dam is located in Floyd County, Kentucky on Johns Creek, a tributary of Levisa Fork of the Big Sandy River. The dam site is located 5.4 miles upstream of the mouth of Johns Creek and 79.4 miles above the mouth of the Big Sandy River (USACE, 2005). A network of stream tributaries carries surface water to Johns Creek from the 206-square-mile Johns Creek watershed upstream of the Paintsville Lake dam (USACE, 2004). This network of tributaries covers approximately 776.7 stream miles. Figure 3-3 shows the surface waters and tributaries within the project area (USACE, 2004).

Water quality at Dewey Lake is designated as impaired under Section 303(d) of the Clean Water Act of 1977 (CWA) (33 U.S.C. § 1313). According to the *2010 Integrated Report to Congress on the Condition of Water Resources in Kentucky* (KYDOW, 2010), the Dewey Lake watershed, part of the Johns Creek watershed, is listed as impaired above Dewey Lake for aquatic life support because of sediment, siltation, and other factors. Data indicates that water quality in the lake reflects overall Johns Creek Watershed conditions (USACE, 2004). Upland activities such as coal mining and resource extraction have caused soil erosion and the transport of sediment into surface waters. Sediment is considered a pollutant and diminishes the clarity of streams and degraded surface water quality within the Lower Levisa Sub-basin and the Johns Creek Watershed. Excessive sedimentation is the most significant water quality problem at Dewey Lake.

The Commonwealth of Kentucky regulates and preserves its most pristine rivers through the Wild Rivers Program. This program was established by the Kentucky Wild Rivers Act of 1972 and is administered by the Kentucky Division of Water (KYDOW). None of the streams or rivers designated as wild and scenic under this program or designated under the National Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271 et seq.) are located within the project area boundaries.

The CWA (33 U.S.C. §§ 1251 et seq.) established the basic framework for regulating discharges of pollutants into the waters of the United States. The CWA National Pollutant Discharge

Elimination System (NPDES) (33 U.S.C. § 1342) requires permits for stormwater discharges associated with construction activities. The KYDOW is authorized to carry out NPDES permitting under the Kentucky Pollutant Discharge Elimination System (KPDES). Construction projects that disturb more than 1 acre of land require coverage under the KPDES General Permit for Stormwater Discharges Associated with Construction Activities. Coverage under this permit requires development of construction site erosion control and storm water management plans.

Dewey Lake

Dewey Lake is approximately17.75 miles long. During the summer pool (April through November), the lake has a surface area of 1,100 acres and an elevation of 650 feet National Geodetic Vertical Datum (NGVD). The summer pool is typically the highest water level during the year. The lake is long and relatively narrow with many coves developed at junctions with tributaries; these features result in a shoreline that is more than 52 miles long during the summer. The shoreline generally consists of steep hills that are well vegetated down to the water line above the summer pool elevation.

Within the project boundary and flowage easement; the USACE, KYDOW, and U.S. Geological Survey (USGS), maintain water quality monitoring stations. Using six monitoring stations, the Corps samples the water of Dewey Lake over a 12 month period on a five year cycle at different depths. The samples are analyzed for metal, nutrient, and other parameters. KYDOW utilizes four monitoring stations to analyze water quality primarily for physical parameters but also for metal, nutrients, and microbiological parameters. USGS also monitors for physical parameters with their monitoring stations. The lake is stratified during the summer with warm, oxygenated water on the surface and cold water with low or depleted oxygen levels at the bottom.

Tailwaters

The tailwaters is immediately downstream of the dam where the outflow from the lake is discharged. Water is released from the lake through an intake structure and passes through a tunnel and stilling basin to emerge as outflow. This system allows withdrawal from various water depths and offers choices over a considerable range of outflow rates and water parameters, including temperature. In April, May, October, and November, the KDFWR stocks the tailwaters with 2,200 rainbow trout, providing increased recreational fishing opportunities within the project area.

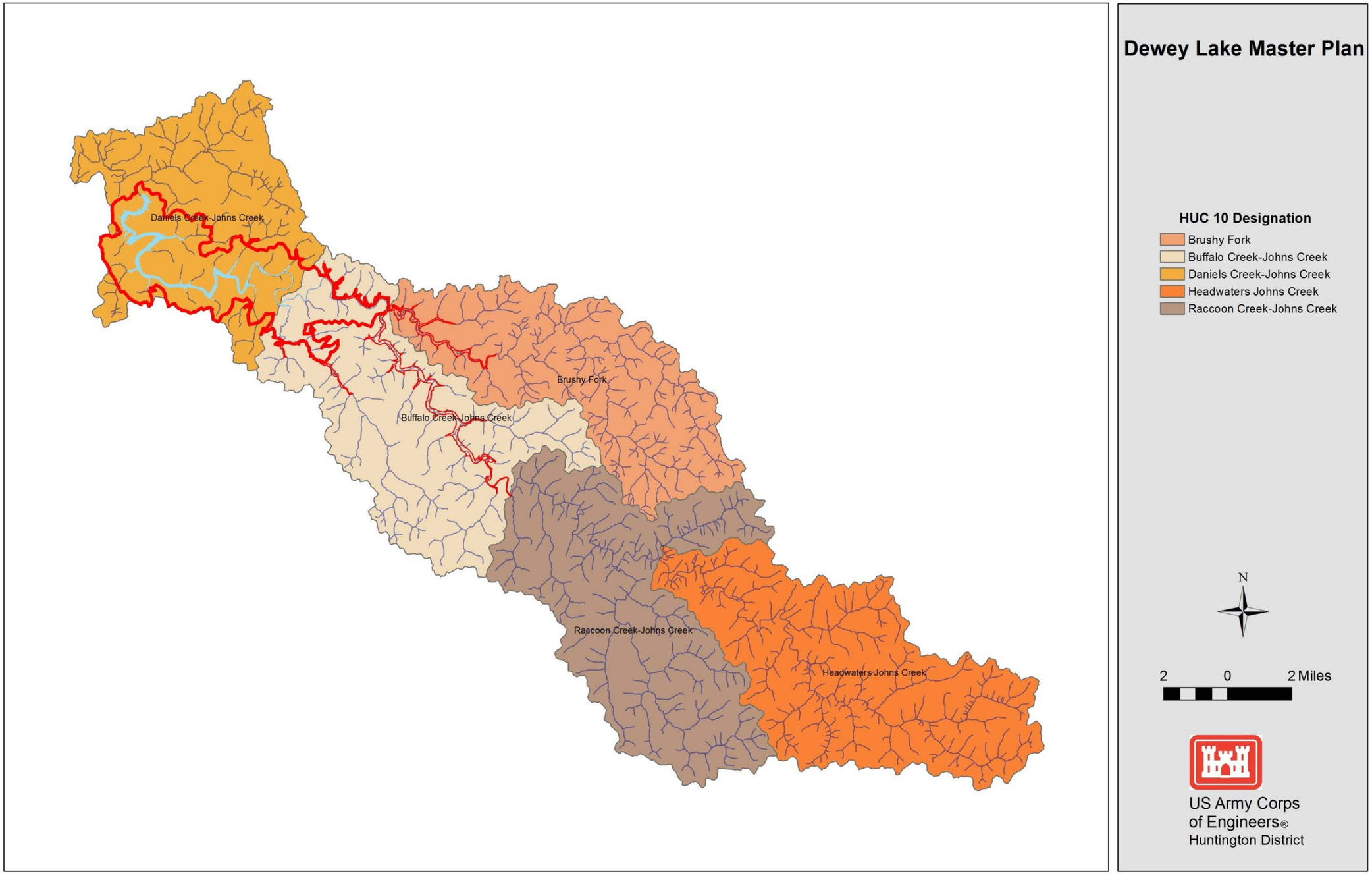

Figure 3-3: Dewey Lake Project Watershed

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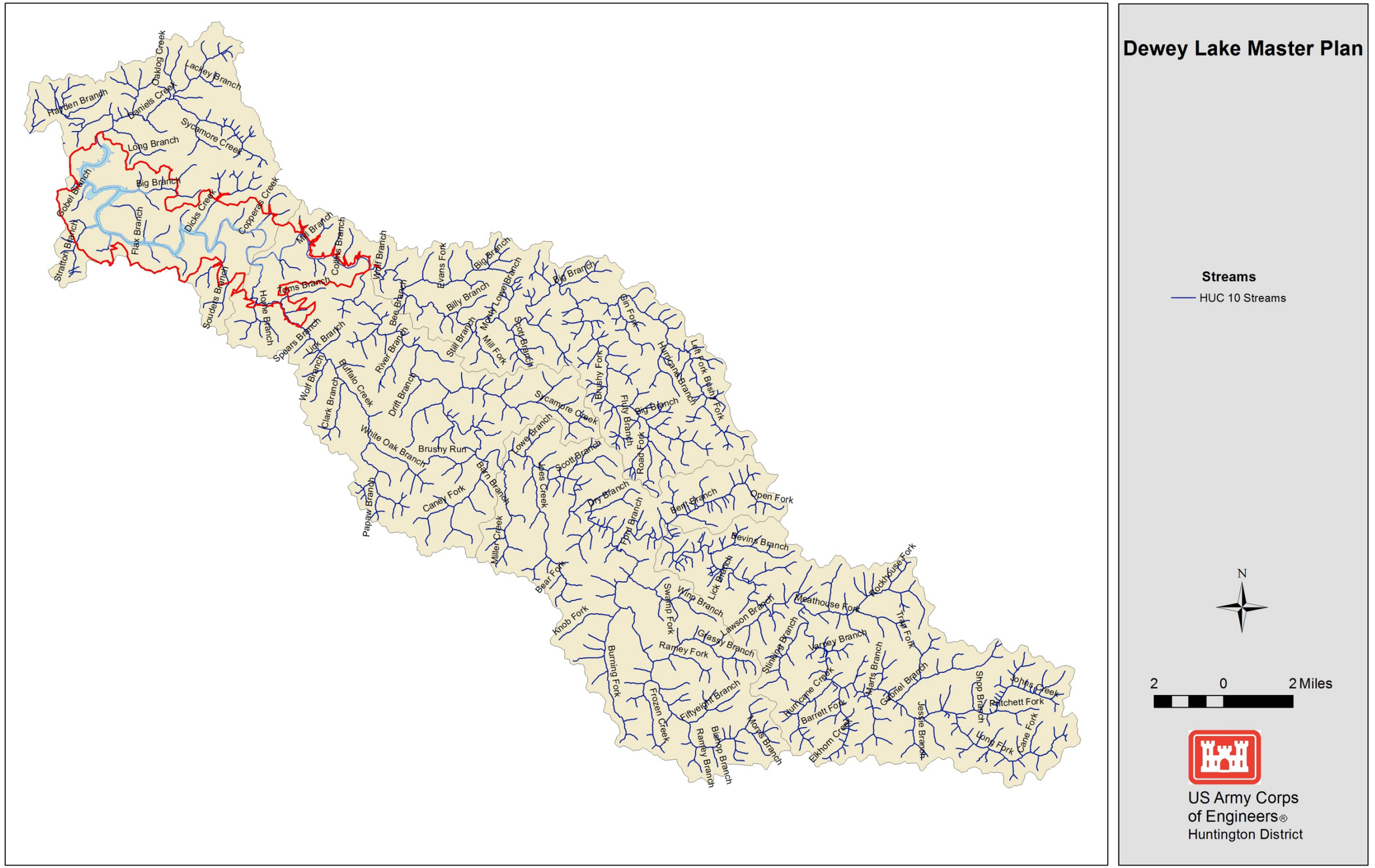

Figure 3-4 Surface Waters within the Watershed

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3.1.4.2 Groundwater

Groundwater is subsurface water in geologic units called aquifers, which are recharged by precipitation and infiltration of surface waters. Groundwater supplies wells and springs and is generally pumped by wells for public and private use. One aquifer, the Breathitt Formation, provides water to the groundwater wells in the project area. Approximately 552 groundwater wells are located within the Johns Creek Watershed (Figure 3-5). The Project area also has ten groundwater wells, seven domestic water wells, and three mine monitoring wells (Kentucky Geological Survey, 2002), but the current condition of the groundwater wells is (active or abandoned) is unknown. No natural springs have been identified in the project area.

In Floyd County, the groundwater contains noticeable amounts of iron (Fe) and is considered moderately to extremely hard. Other naturally occurring constituents that may be present in objectionable amounts are sulfate (SO_4), sodium chloride (NaCl), and manganese (Mn) (Kentucky Geological Survey, 2011). Salty water commonly occurs at depths of 200 feet below the ground surface but may be encountered at more shallow levels such as the ground surface level of the major valley bottoms. Groundwater is not used to supply potable water within the project area; potable water is provided by municipal water systems.

Groundwater is a vital, natural resource that is susceptible to contamination from a variety of activities. Contaminated groundwater can be difficult to remediate. The Kentucky Department for Environmental Protection assesses how easily and quickly a contaminant can move into and within a groundwater system (Ray et al., 1994) on a scale from 1 (low) to 5 (high). The groundwater system in the project area is rated at 3 (moderate) for contamination potential.

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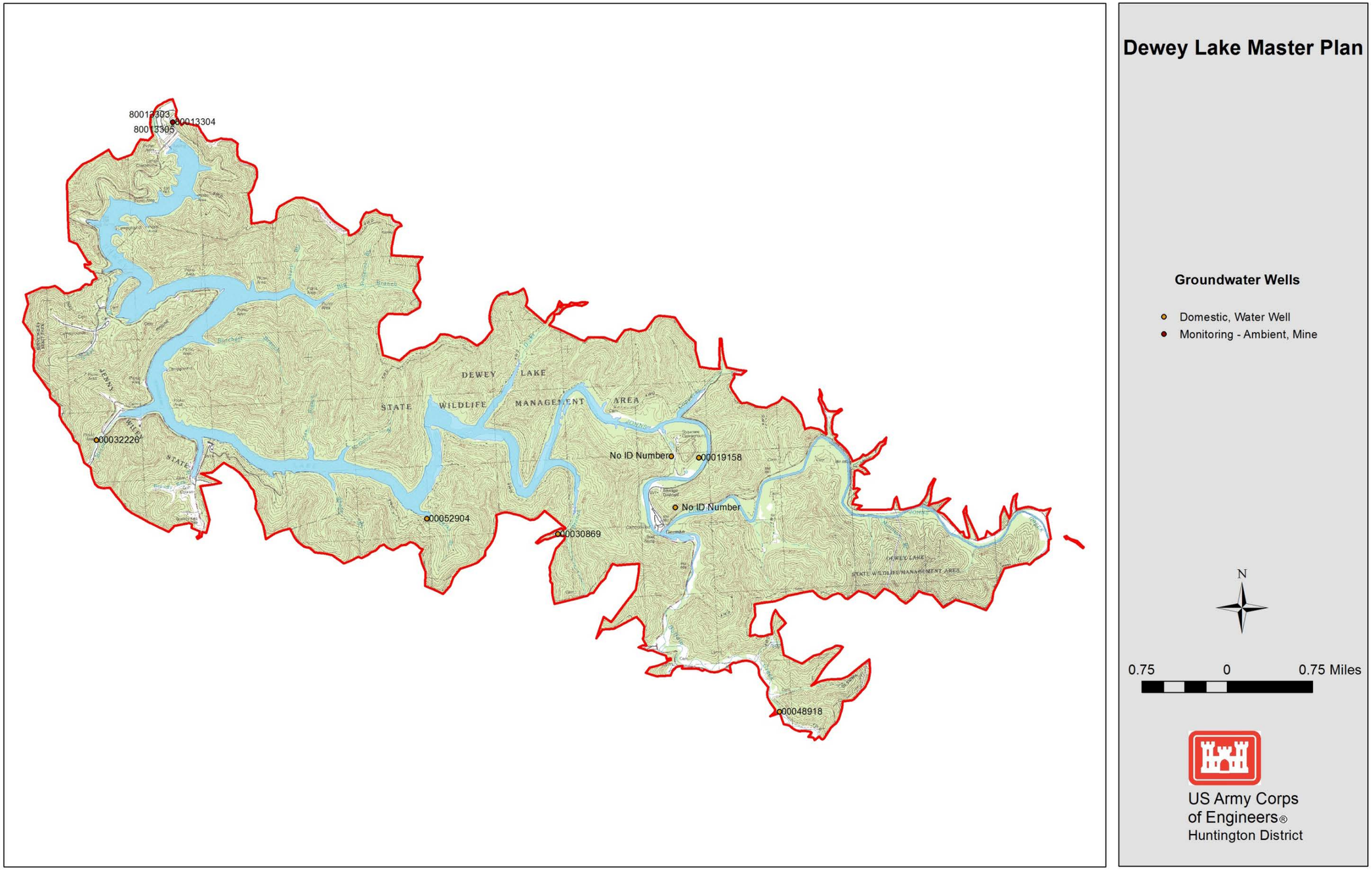

Figure 3-4: Groundwater Well Locations in the Project Area

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3.1.5 Floodplains

Executive Order 11988, which requires Federal agencies to consider the potential effects of their proposed actions to floodplains. One of the authorized purposes of the project is flood risk management. The project area around the lake is designed to store floodwaters to reduce flood risk downstream. Consequently, inundation by flooding is largely artificially controlled. Figure 3-6 shows inundation areas between the summer pool elevation of 630 feet NGVD and the maximum flood control pool elevation 645 feet NGVD. Flooding of the land above the recreational summer pool elevation does occur, but the majority of flooding instances occur during the winter and spring months. Based on Figure 3-6, the majority of the recreation areas are subject to inundation.

3.1.6 Air Quality

The U.S. Environmental Protection Agency (EPA) has set national air quality standards for six principal pollutants (also referred to as "criteria" pollutants): carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), and sulfur dioxide (SO_2) (EPA, 2010). Ambient air quality in the Dewey Lake area is in attainment for all criteria pollutants (Kentucky Division of Air Quality, 2010).

3.1.7 Climate

The USACE must ensure that projects are planned and built to assure Climate Preparedness and Resilience. The project area has a continental climate but experiences humid subtropical conditions in the summer and experiences the four seasons with average temperatures ranging from approximately 26 degrees Fahrenheit in the winter to 79 degrees Fahrenheit in the summer. Precipitation in Kentucky averages approximately 45 inches, with spring being the wettest season. Kentucky's generally moderate climate allows extensive opportunities for most kinds of outdoor recreation, excepting only winter sports. Only rarely is the heat or humidity too oppressive or the winters too harsh to preclude intensive outdoor activities.

3.1.8 Noise

EPA's Noise Control Act of 1972 (42 U.S.C. §§ 4901–4918), as amended by the Quiet Communities Act of 1978, states that the policy of the United States is to promote an environment for all Americans that is free from noise that jeopardizes health or welfare.

Noise is generally defined as loud or undesirable sound and is most commonly measured in "A-weighted" decibels (dBA) that the human ear is most sensitive to, with the Day-Night Average

Noise Level (DNL) used as an average measure of sound in dBA. As there are no federal standards for allowable noise levels, the DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses. The Federal Aviation Administration (FAA) denotes a DNL above 65 dBA as the level of significant noise impact. Several other agencies, including the Federal Energy Regulatory Commission and Environmental Protection Agency (EPA), use a DNL criterion of 55 dBA as the threshold for defining noise impacts that are acceptable for "outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time …," which would include the project area (EPA, 1974). Additionally, the Corps Safety and Health Requirements Manual provides criteria for temporary permissible noise exposure levels for consideration of hearing protection or the need to administer sound reduction controls. Although temporary/transient noises occur in the project area (e.g., from vehicles or boats), no notable sources of noise pollution are known to be present.

3.1.9 Hazardous, Toxic, and Radioactive Waste (HTRW)

Hazardous wastes, as defined by the Resource Conservation and Recovery Act (RCRA), are a solid waste or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed. The EPA's online database at http://www.epa.gov/enviro/facts/topicsearch.html was examined for HTRW within the project area. According to the database, there are no reports of HTRW within the Dewey Lake Reservoir or flowage easement.

3.2 Biological Environment

The biological environment includes vegetation, wetlands, terrestrial wildlife, and aquatic life. Threatened and endangered species in the project area are also discussed in this section.

3.2.1 Vegetation

The majority of the land cover at the project is forested (approximately 86.42 percent), broken by small, scattered areas of grasslands/herbaceous cover, developed open space, and active coal mining. (Figure 3-6) (Kentucky Geography Network, 2001). Table 3-2 lists the land cover types in the project area and the percentage of the area they cover.

Table 3-2: Land Cover Types in the Project Area

Allegheny-Cumberland Dry Oak Forest and Woodlands	38.73%
Open water	7.60%
South-Central Interior Mesophytic Forest	22.80%
Dry oak forest	17.30%
Hemlock-Deciduous Forest	.74%
Floodplain Forest	5.30%
Pine Forest	1.17%
Oak and Coniferous forest	.55%
Agriculture	2.86%
Pasture and Grassland	0.84%
Early Succession Deciduous Forest	1.14%
Mined Herbaceous	31.77%
Mined Bare Ground	7.60%

Source: Kentucky Geography Network. (2001); Adjusted 2012

The primary tree species in the project area are oaks, maples, and hickorys, with small stands of pine. Other less dominant species include American beech, yellow poplar, American basswood, cucumber tree, black walnut, and Eastern hemlock (NatureServe, 2009).

The two primary forest communities are as follows:

- **Allegheny-Cumberland Dry Oak Forests and Woodlands** are typically dominated by white oak, southern red oak,, chestnut oak, and scarlet oak, with lesser amounts of red maple, pignut hickory, and mockernut hickory. Small stands of shortleaf pine or Virginia pine may occur, particularly adjacent to escarpments or following fire. In the absence of fire, eastern white pine may be prominent, occurring in a variety of situations, including on nutrient-poor or acidic soils (NatureServe, 2009).
- **South-Central Interior Mesophytic Forests** are highly diverse and predominantly deciduous. They occur on deep and enriched soils enhanced by the presence of limestone or related base-rich geology, in non-mountainous settings, and usually in somewhat protected landscape positions such as coves or lower slopes. Dominant species include sugar maple, American beech, yellow poplar, American basswood, red oak, cucumber tree, and black

walnut. Eastern hemlock may be present in some stands. Trees may grow to be large in undisturbed areas. Many examples of this type of forest are bisected by small streams (NatureServe, 2009).

Vegetation Management

Ecosystem management goals for forest resources at Dewey Lake are shared by the KYDFWR and Kentucky Division of Forestry (KDF). The KDF manages timber resources and KYDFWR manages terrestrial and aquatic life within the Wildlife Management Area (WMA). There is currently no plan for harvesting timber in the project area; Kentucky Division of Forestry does limited cutting of overstocked areas to remove undesirable tree species in favor of native hardwoods, such as oak and hickory tree, as conservation of oak and hickory forest type is the primary objective of timber management on Dewey Lake WMA. Opportunities exist at Dewey to improve forest composition and structure, enhance forest communities of conservation interest, and restore individual tree species.

The recent loss of pine forests in eastern Kentucky due to the outbreak of the southern pine beetle in 2000 and 2001 present's one opportunity to positively impact a forest type. Pine forests remaining can be managed now to improve their survival in the future when drought, disease, or insects attack again. Thinning pine stands will allow more sunlight, water, and soil nutrients for the residual trees, thereby improving the vigor of the stand. Removal of mid-story hardwood trees along with the possible reintroduction of periodic fire will help maintain pine trees as the dominant tree in these stands.

The historic loss of bottomland hardwood forests provides a second opportunity at Dewey. Bottomland hardwood forests typically grow on level ground along streams and rivers in eastern Kentucky. These forests were cleared historically to provide sites for agriculture and housing. In some areas where bottomland hardwood forests have regenerated on their own, the dominant species are the light-seeded trees such as sycamore, river birch, silver maple, and boxelder. While the light-seeded trees are valuable components of the bottomland forest, nut-producing trees such as pin oak, swamp white oak, black walnut, butternut, and shellbark hickory are missing from the bottoms. Direct seeding and seedling planting will be necessary to re-establish diverse bottomland hardwood forests.

An invasive species is a species that is foreign to a particular region and out-competes native species for the same resources. Prominent invasive species in the project area are Autumn olive, Crown vetch, Garlic mustard, Japanese honeysuckle, Japanese knotweed, Johnson grass, Multiflora rose, Sericea lespedeza, and Tree-of-Heaven. Invasive species are monitored and

managed at the project to ensure that they do not affect native ecology; management activities include chemical applications and physical removal.

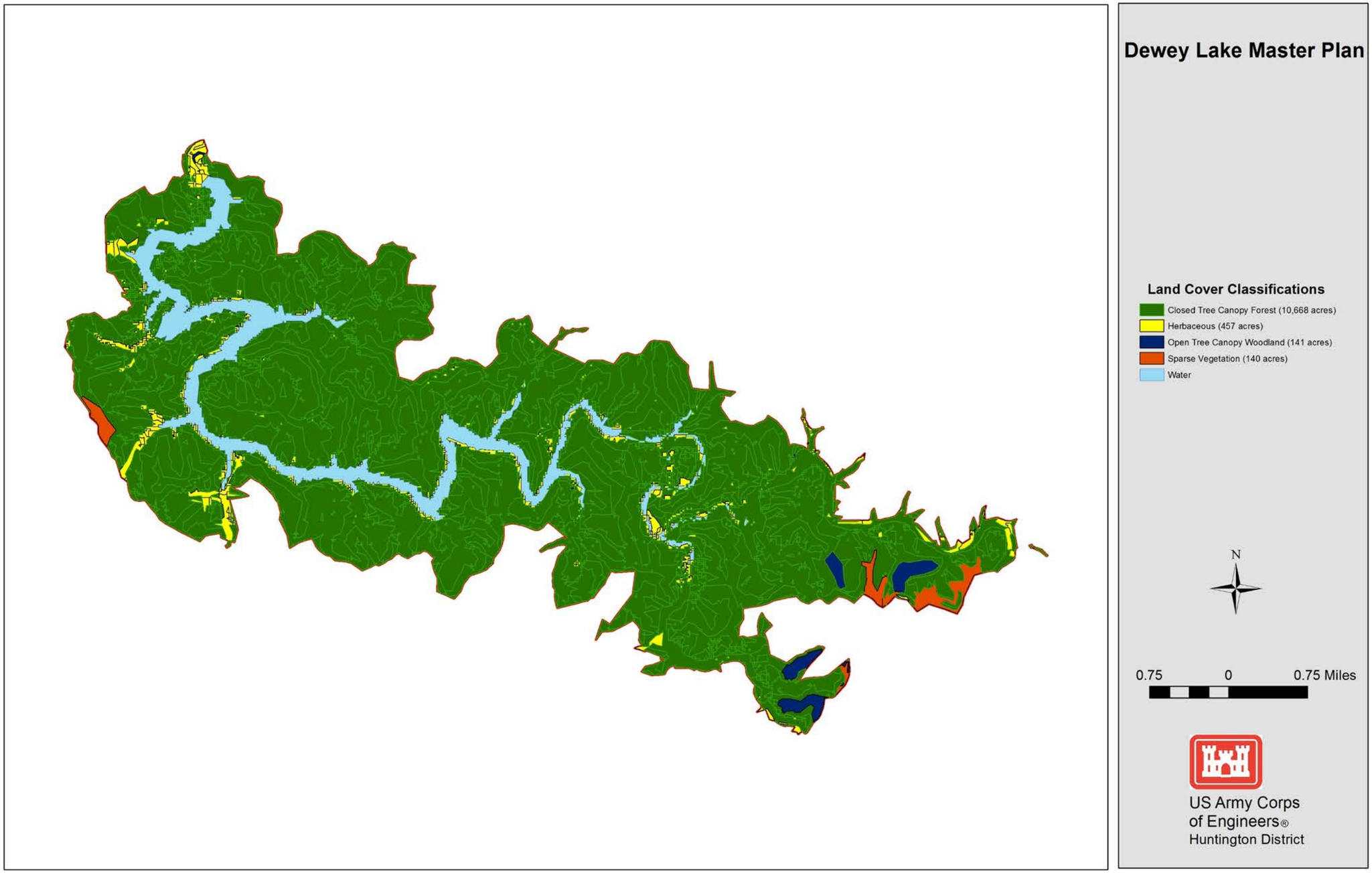

Figure 3-6 Land Cover Classifications

3.2.2 Wetlands

The USACE regulates the discharge of dredged or fill material into waters of the United States, including wetlands, pursuant to Section 404 of the CWA (33 U.S.C. § 1344). Additionally, Executive Order (EO) 11990 (Protection of Wetlands) requires federal agencies to avoid, to the extent possible, adverse impacts to wetlands. Wetlands provide a number of benefits to the environment, including water quality improvement, floodwater storage, fish and wildlife habitat, aesthetics, and biological productivity.

According to the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, 1,049 acres of wetlands existed within the project area. The NWI maps are a generalized series of maps that give approximate locations of wetland areas based on previous surveys; no other mapping of the entire project area has been conducted since the NWI maps were released. Wetlands account for only 1,049 acres, or 8.50 percent, of the total 12,339 acres within Dewey Lake. The most common wetland at the project is the lacustrine, deep water habitat, which is the lake itself and is comprised of 1,003 acres or 96 percent of the total project wetlands. This is followed by palustrine wetlands that occur throughout the project but are predominantly located in the eastern portion of the project area in close proximity to the riverine and lacustrine systems. Palustrine wetlands comprise 25 acres or 2 percent of the project area and are located in relatively small areas of 4 acres or less. Lastly, the project area contains 21 acres of riverine wetlands which are 2 percent of the total project wetlands. Project wetlands are labeled in Figure 3 -7.

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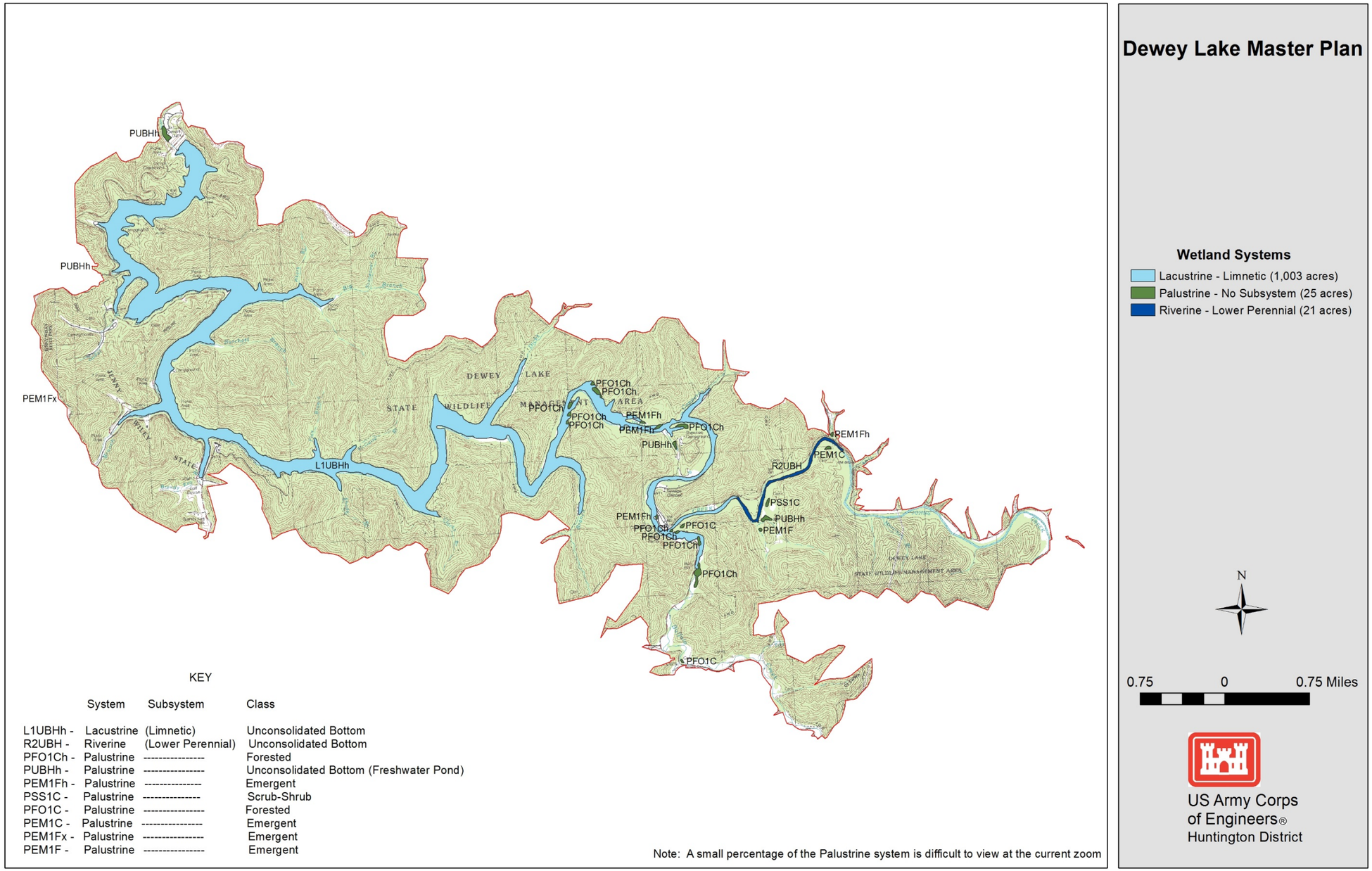

Figure 3-5: Wetland Systems

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3.2.3 Terrestrial Wildlife

According to the KDFWR, the project area supports more than 24 amphibian species, 24 reptile species, 154 bird species, and 55 mammal species. The scientific and common names of some of the species commonly found in the project area are listed in Table 3-3.

Table 3-3: Some of the Common Species in the Dewey Lake Project Area

Taxonomic Group	Scientific Name	Common Name
Amphibians	*Ambystoma maculatum*	spotted salamander
	Necturus maculosus	mudpuppy
Birds	*Cathartes aura*	turkey vulture
	Coccyzus americanus	yellow-billed cuckoo
	Meleagris gallopavo	wild turkey
	Chaetura pelagica	chimney swift
	Archilochus colubris	ruby-throated hummingbird
	Contopus virens	eastern wood-pewee
	Empidonax virescens	acadian flycatcher
	Sayornis phoebe	eastern phoebe
	Myiarchus crinitus	great crested flycatcher
	Vireo flavifrons	yellow-throated vireo
	Progne subis	purple martin
	Helmitheros vermivorum	worm-eating warbler
	Geothlypis formosa	Kentucky warbler
Mammals	*Cervus elaphus*	elk
	Corynorhinus rafinesquii	rafinesque's big-eared bat
	Eptesicus fuscus	big brown bat
	Lasiurus borealis	eastern red bat
	Lasiurus cinereus	hoary bat
	Marmota monax	woodchuck
	Myotis septentrionalis	northern myotis
	Myotis sodalis	indiana bat
	Odocoileus virginianus	white-tailed deer
	Perimyotis subflavus	eastern pipistrelle

Taxonomic Group	Scientific Name	Common Name
	Sciurus carolinensis	eastern gray squirrel
	Sylvilagus floridanus	eastern cottontail
Reptiles	*Agkistrodon contortrix*	copperhead
	Crotalus horridus	timber rattlesnake
	Elaphe guttata	eastern corn snake
	Thamnophis sirtalis sirtalis	eastern garter snake

Sources: KDFWR (2013) and USACE (2015)

Migratory waterfowl are often found in the WMA. Species using the project for at least part of the year include Mallard (*Anas platyrhynchos*), Wood Duck (*Aix sponsa*), American Black Duck (*Anas rubripes*), Bufflehead (*Bucephala albeola*), Green-winged Teal (*Anas crecca*), Green Heron (*Butorides virescens*), Blue Heron (*Ardea herodias*), and Belted Kingfisher (*Megaceryle alcyon*) (Naturally Kentucky, 2005).

Although none of the main North American flyways cross the project area, many neotropical migrants can be found in eastern Kentucky. Neotropical birds breed in North America and spend the non-breeding season in Mexico, the Caribbean, and Central and South America. The annual migration of neotropical migrants brings species such as cerulean warblers, Indigo Buntings, Scarlet Tanagers, Baltimore Orioles, and Wood Thrushes into Kentucky to nest and breed while others pass through on their way to and from their breeding habitat north of Kentucky. During the non-breeding season, the neotropical species return south (Naturally Kentucky, 2005).

Wildlife Management

The WMA, which is managed by KDFWR, occupies a large portion of the project area 8,922 of the 13,602 acres of the project area. KDFWR conducts regular surveys to measure wildlife populations and collects reports from hunters regarding numbers and types of animals harvested to estimate the numbers of game species. Hunting for deer, elk, and squirrel is popular in the WMA.

The deer population throughout Kentucky was less than 1,000 in 1927. In the late 1940s and early 1950s, Dewey Lake WMA, along with several others in the State of Kentucky, became part of a collection of refuges for deer restoration. Currently, populations have stabilized or increased throughout the state.

In 1997, the State of Kentucky began an elk reintroduction program with seven elk captured in western Kansas. Elk were reintroduced into a sixteen county zone within eastern Kentucky by the Rocky Mountain Elk Foundation. Reintroductions originally target 1,800 elk at a rate of 200 elk per year over a nine year period. Due to the program's success rate, which is achieving a 90% breeding success rate and a 92% calf survival rate, reintroductions were halted in 2002 with approximately 1,500 releases. The target elk population of 7,400 was reached in 2008 (http://www.rmefnky.org/kyelkherd.HTML).

Only twelve elk hunt permits were issued between 2001 and 2003. In 2004, the permits were increased to 40 due the program's success rate. Hunting was originally restricted to the restoration zone and a twelve county buffer zone. In 2004, the buffer zone was removed and elk that travel outside of the restoration zone may be hunted with the correct license. (http://www.rmefnky.org/kyelkherd.HTML).

Currently, the USACE and KDFWR jointly manage a forest opening that also serves as a wildlife viewing area given its close proximity to the lake and Route 302 (Lake Road). The 7.5-acre forest opening was created after a stand of pines was killed by the southern pine beetle. The opening is managed to attract deer, elk, and turkey (Scott Freidhof, KDFWR Wildlife Biologist, written communication, 16 August 2013).

3.2.4 Aquatic Life

Dewey Lake sustains a diverse composition of aquatic species. Some of the fish species found in the lake are listed in Table 3-4. The tailwater below the dam is stocked annually by KDFWR with 2,200 rainbow trout in April, May, October, and November (USACE, 2016).

Additionally, there are semi-aquatic species such as amphibians that spend half of their life cycle in aquatic ecosystems and half in terrestrial ecosystems. The project area supports 24 species of amphibians but only the spotted salamander and mudpuppy have been observed (KDFWR 2013). Amphibians are good indicators of the health and stability of an aquatic ecosystem.

The lake provides habitat for many species. Common fish species found include the largemouth base, smallmouth bass, white bass, common carp, black crappie, white crappie, channel catfish, flathead catfish, blue catfish, bluegill, green sunfish, longear sunfish, redear sunfish, striped bass, warmouth sunfish, and walleye. In development of the lake, timber was left in many of the cove areas so it would be below the summer pool elevation in order to provide underwater habitat to benefit fisheries. Additionally, there are natural and developed submerged brush sites that provide habitat for spawning and cover. Artificial brush piles are developed by the KDFWR by

securing suitable cover such as discarded Christmas trees to the lake bottom. The adjacent wetlands and shallow water areas provide additional spawning areas as well as hunting areas for predator birds and other wildlife. The natural physiology also provides for structure that is conducive to a healthy aquatic system. Existing structures like rocky bottoms, sandy bottoms, pooling areas, rock outcrops, and grassy areas provide diverse habitat for aquatic life.

3.2.5 Threatened and Endangered Species

Threatened, endangered, and species of special concern are defined in this PEA as sensitive and protected biological resources, including plants and animals, that are listed for protection by the USFWS or the Commonwealth of Kentucky. Under the Endangered Species Act of 1973 (ESA) (16 U.S.C. §§ 1531–1544), an endangered species is defined as any species in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as any species likely to become an endangered species in the foreseeable future.

Threatened and endangered species and species of special concern that may occur in Floyd and Pike Counties and therefore in the project area, are listed in Table 3-4, along with their federal and state status.

Table 3-4: Listed Threatened and Endangered Species and Species of Special Concern in Floyd and Pike Counties

Taxonomy	Common Name	Scientific Name	Federal Status	County	State Status
Vascular Plants	Eastern Waterleaf	*Hydrophyllum virginianum*	—	Floyd	T
	Yellow Troutlily	*Erythronium rostratum*	—	Floyd	S
	Smooth Veiny Peavine	*Lathyrus venosus*	—	Floyd	S
	Scrub oak	*Quercus ilicifolia*	—	Floyd	S
	Tall Hairy Groovebur	*Agrimonia gryposepala*	—	Pike	T
	Brook Saxifrage	*Boykinia aconitifolia*	—	Pike	E
	Allegheny Chinkapin	*Castanea pumila*	—	Pike	T
	Rock Harlequin	*Corydalis sempervirens*	—	Pike	S
	Threadfoot	*Podostemum ceratophyllum*	—	Pike	S
	Bay Starvine	*Schisandra glabra*	—	Pike	E
	Rock Skullcap	*Scutellaria saxatilis*	—	Pike	T
	Appalachian Rosinweed	*Silphium wasiotense*	—	Pike	S
	Northern White Cedar	*Thuja occidentalis*	—	Pike	T
Freshwater Mussels	Rabbitsfoot	*Quadrula cylindrica cylindrica*	—	Floyd	T
	Little Spectaclecase	*Villosa lienosa*	—	Floyd	S
Fishes	Northern Brook Lamprey	*Ichthyomyzon fossor*	—	Floyd	T
	American Brook Lamprey	*Lampetra appendix*	—	Floyd Pike	T
	Trout-perch	*Percopsis omiscomaycus*	—	Floyd	S
	Cumberland Arrow Darter	*Etheostoma sagitta*	—	Pike	S
	Northern Madtom	*Noturus stigmosus*	—	Pike	S
	Longhead Darter	*Percina macrocephala*	—	Pike	E
Birds	Sharp-shinned Hawk	*Accipiter striatus*	—	Pike	S
	Bachman's Sparrow	*Aimophila aestivalis*	—	Pike	E
Mammals	Rafinesque's Big-eared Bat	*Corynorhinus rafinesquii*	—	Floyd	S
	Gray Myotis	*Myotis grisescens*	—	Floyd	T
	Eastern Small-footed Myotis	*Myotis leibii*	—	Floyd	T
	Indiana Bat	*Myotis sodalis*	E	Floyd Pike	E

Taxonomy	Common Name	Scientific Name	Federal Status	County	State Status
	Northern Long-Eared Bat	*Myotis septentrionalis*	T	Floyd Pike	T
	Evening Bat	*Nycticeius humeralis*	—	Floyd	S
	Eastern Small-footed Myotis	*Myotis leibii*	—	Pike	T
Insects	Sparkling Jewelwing	*Calopteryx dimidiata*	—	Floyd	E
	Ashcamp Cave Beetle	*Pseudanophthalmus hypolithos*	—	Floyd Pike	T
	Vermont Sallfly	*Rasvena terna*	—	Pike	S
Reptiles	Scarlet Kingsnake	*Lampropeltis triangulum elapsoides*	—	Floyd	S
Terrestrial Snails	Virginia Bladetooth	*Patera panselenus*	—	Floyd Pike	S
	Sculpted Glyph	*Glyphyalinia rhoadsi*	—	Pike	T
Crustaceans	Big Sandy Crayfish	*Cambarus veteranus*	—	Pike	T
Amphibians	Wehrle's Salamander	*Plethodon wehrlei*	—	Pike	E

Source : Kentucky State Nature Preserves, 2014

E= Endangered

T =Threatened

S= Special Concern

3.2.5.1 Federally Listed Species

Four federally listed endangered species, Indiana bat (*Myotis sodalist)*, Northern Long-Eared bat (*Myotis septentrionalis*), Gray bat (*Myotis grisescens*), and Big Sandy crayfish (*Cambarus callainus*) may occur in the project area. No designated critical habitat under Section 7 of the ESA (16 U.S.C. § 1536) occurs within the Project area.

Indiana Bat

The Indiana bat has a wide range in the eastern United States, with a distribution from eastern Oklahoma to New Hampshire and from southern New England to the Florida panhandle (USACE, 2006). Most of the population hibernates in relatively few caves, which makes the species exceptionally vulnerable to disturbance to local habitat (NatureServe, 2009b). Census data from 1995 to 1997 indicate an acute decline of about 60 percent since population surveys

began in the 1960s; the most severe declines occurred in Kentucky and Missouri, where the decline totals are 430,000 individuals over the past few decades (NatureServe, 2009b).

Northern populations migrate south to Alabama, Tennessee, Kentucky, Indiana, Missouri, and West Virginia for the winter. The most important hibernating caves in Kentucky include the Bat, Hundred Dome, and Dixon caves (NatureServe, 2009b) but none of these caves are near Dewey Lake. However, the habitat in the project area is potentially suitable for the Indiana bat.

Northern Long-Eared Bat

The northern long-eared bat has a wide range in the eastern and north central United States, whose range includes 37 states. During the summer, northern long-eared bats roost individually or in colonies underneath bark, or crevices of both live and dead trees (USFWS ECOS, 2015). In the winter, northern long-eared bats hibernate in caves or mines. Most of the population uses large caves or mines. White-nose syndrome, a fungal disease, is currently a threat to this bat. Throughout the Northeast, the species has declined by up to 99 percent from pre-white-nose syndrome at numerous hibernation sites (USFWS ECOS, 2015). The project area is potentially suitable for the northern long-eared bat.

Gray Bat

The gray bat is a migratory species that lives in colonies within limestone caves throughout the year. The gray bat is found in Oklahoma in the late spring and summer months and in the fall, migrates east and hibernates within caves in Arkansas and Kentucky. This species is listed as endangered because it is estimated that approximately 90 percent of the population is concentrated in a small number of caves during the hibernation period. Furthermore, the gray bat has experienced population declines as a result of habitat loss and disturbance. The project area is potentially suitable for the gray bat (Oklahoma Department of Wildlife Conservation, 2017).

Big Sandy Crayfish

The big sandy crayfish is a freshwater crustacean found in streams and rivers in regions of Kentucky, Virginia, and West Virginia. The Big Sandy Crayfish lives in clean, medium-sized rivers and streams and are usually found in faster moving sections of water, in areas with large rocks and boulders, and areas of minimal sedimentation or pollution. The Big Sandy Crayfish has experienced widespread habitat loss and stream fragmentation has reduced its range. The UFWS indicates that the Big Sandy Crayfish "habitat is afforded some federal protection under the Clean Water Act and the Surface Mining Control and Reclamation Act, as well as some protection

from various other state erosion and sedimentation regulations and best management practices. While these regulations and best management practices help improve overall water quality, they have not been sufficient to alleviate the threats to the species" (USFWS, 2017).

3.2.5.2 State-Listed Species

As of 2014, 37 species in Floyd and Pike Counties are state-listed as endangered, threatened or of special concern (KSNPC, 2014). The list consists of 13 vascular plant species, two freshwater mussel species, six fish species, two bird species, six mammal species, three insect species, one reptile, two terrestrial snails, one crustaceans, and one amphibian.

The Kentucky State Nature Preserves Commission (KSNPC) designates State Nature Preserves and State Natural Areas to protect and preserve rare species and the natural environment throughout the Commonwealth (KSNPC, 2013). There are no designated Nature Preserves or State natural areas within the Dewey Lake project area

3.3 Socioeconomic Environment

The socioeconomic environment includes population and employment, environmental justice, transportation and traffic, recreation, cultural resources, and aesthetics.

3.3.1 Population

An area of influence comprising the town of Prestonsburg, Kentucky is the closest community to Dewey Lake and is identified as the area from which most visitors would be attracted to the Project. Several state parks exist within fifty miles of Dewey Lake offering recreational opportunities similar to those at Jenny Wiley State Park. These include Buckhorn to the southwest, Carter Caves to the northwest, and Beech Fork located near Huntington, WV.

In relation to larger population centers, the lake is approximately 75 miles south of Huntington, West Virginia, and 125 miles east of Lexington, Kentucky. Dewey Lake is one of several large, multiuse lakes within the region. The region includes eastern Kentucky, southwestern West Virginia, and southwest Virginia. Yatesville, Paintsville, and Fishtrap Lakes fall within ten 10 to 25 mile radius of Dewey Lake.

Within a 25 to 50 mile radius, large multiuse lakes include: Cave Run, Grayson, Beech Fork, East Lynn, RD Bailey, John W Flannagan, North Fork Pound, Carr Creek, and Buckhorn Lakes. Along with the larger lakes, numerous small lakes are also located throughout the region. These small lakes also offer recreational opportunities such as small boating and fishing

Demographic data (population and age) were compiled from U.S. Census Bureau data and regional and State data centers. The data were analyzed to determine the population in the surrounding region which includes Floyd and Pike Counties.

From 2010 to 2016, Floyd County experienced a population change of -5.9% and has an estimated population of 37,110 persons. The county is 393.35 square miles and has a population density of 100.3 persons per square mile. The age structure of the county is as follows: Persons under 5 years is 6.7%, persons under 18 years is 22.1%, and persons 65 years and over is 16.6%. The county has a per capita income of $18,176 and a home ownership rate of 69.7% (U.S. Census Bureau: State and County QuickFacts 2017).

Pike County has an estimated population of 60,555 persons in 2016. From 2010 to 2016, the county experienced a population change of -6.9%. The county is 786.83 square miles and has a population density of 82.6 persons per square mile. The age structure of the county is as follows: Persons under 5 years is 5.9%, persons under 18 years is 21.1%, and persons 65 years and over is 16.6%. The county has a per capita income of $20,061 and a home ownership rate of 73% (U.S. Census Bureau: State and County QuickFacts 2017).

By comparison, the State of Kentucky has experienced a population change of 4.7% and has an estimated population of 323.2 million. The population density is 87.4 persons per square mile. The age structure within the state is as follows: Persons under 5 years is 6.2%, persons under 18 years is 22.9%, and persons 65 years and over is 14.9%. The county has a per capita income of $28,930 and a home ownership rate of 63.9% (U.S. Census Bureau: State and County QuickFacts 2017).

Based upon the U.S. Census demographic data, both Floyd and Pike Counties are currently experiencing a slight decline in population whereas the State as a whole exhibits a slight increase. Pike County has a population density that mirrors the State whereas Floyd County has denser population per square mile. The population's age structure is consistent between both counties and the Commonwealth's average. The per capita income for both counties falls below the Commonwealth's average.

Table 3-5 lists the estimated number of visits to the project area from 2001 to 2012. A visit represents the entry of one person into a recreational area. As shown in Table 3-5, visitation during this period was highest in 2007 and 2008. A drop in visitation occurred in 2002. Between 2001 and 2012, overall visitation has remained relatively consistent showing slight to moderate fluctuations year to year. Prior to relocation of counters in FY13, six counters at Camp

Shawnee, downstream recreation area, German Campground, Jenny Willey State Pak, Oddfellows, and shoreline sites yield visitation data. Out of the six reporting locations, project visitation is heaviest at Jenny Wiley State Park and lowest at German Campground.

Table 3-5: Number of Visitors to the Dewey Lake Project, Fiscal Years 2001–2012

Fiscal Year (10/1 to 9/30)	Number of Visitors
FY 2001	825,591
FY 2002	777,601
FY 2003	906,310
FY 2004	1,291,065
FY 2005	1,151,201
FY 2006	1,173,747
FY 2007	1,508,535
FY 2008	1,623,818
FY 2009	1,145,509
FY 2010	1,313,003
FY 2011	1,184,286
FY 2012	1,066,747

3.3.2 Environmental Justice

Executive Order (EO) 12898, Federal Action to Address Environmental Justice in Minority Populations and Low Income Populations and the February 11, 1994, Presidential Memorandum providing guidance for this EO require Federal agencies to develop strategies for protecting minority and low-income populations from disproportionate and adverse effects of federal programs and activities. The EO is "intended to promote non-discrimination in Federal programs substantially affecting human health or the environment." An environmental justice evaluation is performed to evaluate the impact of a project on the population and to ascertain whether target populations would be affected more adversely than other residents.

The 2016 U.S. census data was reviewed for the population composition for Floyd and Pike Counties (U.S. Census Bureau, 2017). Floyd County reported an estimated total population of 37,110 persons in 2016. Within the estimated population, 97.9% are white and 2.1% are listed as minority. The largest minority groups are black or African American at 1% and Hispanic or Latino at 0.7%. Pike County reported a total population of 60,555 persons in 2016. Within the

estimated population, 97.8% are white and 2.2% are listed as minority. The largest minority groups are two or more races at 0.8% and Hispanic or Latino at 0.7%. The State as a whole reports an estimated population consisting of 85.9% white and a minority population of 14.6% (U.S. Census Bureau, 2012). The largest minority group is black or African American at 8.1%. Both Floyd and Pike Counties exhibit lower minority populations than the overall Commonwealth.

The 2015 census data regarding income and poverty lists the median household income for Floyd County as $30,096 and persons living the poverty level as 29.5%. Pike County has a median income of $33,183 and persons living below the poverty level are 25.0%. The state has a median household income of $42,610 and 18.6% persons living below the poverty level (U.S. Census Bureau, 2012). Both Floyd and Pike Counties fall below the State's median income and exceed the average for persons living below the poverty level. Based upon the above statistics, there is some probability of minority and low-income persons residing in areas surrounding the project. There is a larger probability of low income persons than minority populations surrounding the project.

3.3.3 Transportation and Traffic

U.S. Highway 23 runs north-south and is the principal link to surrounding population centers. Generally speaking, KY State Routes (SR) 302 (Water Gap Road) and 3024 service the western end of the project, while KY SR 194 and 3385 service the eastern end of the project.

Within the project area most recreation sites are served by SR 302 (Water Gap Road). The German Bridge area is relatively remote from other developed sites and is served by SR 194 via SR 1428. Primitive roads serve the Sounders Branch, Clarks Branch area, and the other largely undeveloped portions of the project. Project lands on the north side of the lake are inaccessible to most visitors except by boat.

3.3.4 Recreation

The project area has seven distinct recreational areas. Table 1-1 lists the recreational areas, the entities that manage them, and the approximate size of each area. Figure 3-9 shows the locations of outgranted areas.

3.3.4.1 Dam Site Area

The Dam Site Area is managed by the USACE and comprises the Dewey Lake dam and the Tailwater Area. The Dam Site Area has recreational amenities, including a picnic shelter, and

several picnic sites. The project office is also located in this area, The Tailwater Area is also present in the Dam Site Area and is stocked regularly with rainbow trout by the KYDFWR.

3.3.4.2 German Bridge Recreation Area

The German Bridge recreation area, managed by Floyd County, is remote and provides camping, a boat launch, two restroom facilities, and equestrian accommodations including stalls. German Bridge also serves as the trail head for several horse riding trails and offers overnight opportunities for both the rider and the horse. The area also serves as a staging for special group trail riding event. Located at the headwater end of the lake, the German Bridge launch ramp appeals to those looking for a more solitary experience. Physical lake features limit the ability of larger vessels to utilize this portion of the lake which has made it popular for kayaks, canoes, and john boats.

3.3.4.3 Jenny Wiley State Resort Park

Managed as part of the Kentucky State Park system, the State of Kentucky provides and manages the Jenny Wiley State Resort Park. Facilities provided include: lodge, guest pool, cabins, campground, golf course, marina, two boat launch ramps, 900-seat amphitheater, stable and hiking trails. Overnight opportunities include the May Lodge, cabins, and a variety of RV and tent camp sites.

The Lodge grounds have become a popular venue for weddings and other special group events. Limited parking and outdoor space coupled with scheduling conflicts have limited their ability to accommodate requests.

Tournament fishing is very popular on the lake. The Jenny Wiley State Resort Park manages the Stratton Branch boat launch and parking area, which has become a favorite location for tournament launching. The launch area is also the location of the state operated pool which has long since been closed and remains abandoned. In the future, Jenny Wiley State Resort Park may consider adventure recreation as a potential avenue for future expansion of recreational opportunities within the Dewey Lake project boundaries.

3.3.4.4 Wildlife Management Area

The WMA, which is managed by the KYDFWR, covers approximately 8,923 acres. The WMA is open for hunting, hiking, horseback riding, and wildlife viewing. Hunting for deer, elk, and squirrel is popular in the WMA.

3.3.5 Cultural Resources

The National Historic Preservation Act (NHPA) of 1966, (Public Law [P.L]. 89-665; 16 USC 470 *et seq.*) as amended, outlines Federal policy to protect historic properties and promote historic preservation in cooperation with States, Tribal Governments, local governments, and other consulting parties. The NHPA established the National Register of Historic Places (NRHP) and designated the State Historic Preservation Office (SHPO) as the entity responsible for administering State-level programs. Section 106 of the NHPA and its implementing regulations (36 CFR 800) outlines the procedures for Federal agencies to follow to take into account the effect of their actions on historic properties. The Section 106 process applies to any Federal undertaking that has the potential to affect historic properties, defined in the NHPA as those properties that are listing in or eligible for listing in the NRHP. As defined by the Advisory Council on Historic Preservation, a historic property is defined as a prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP). A historic property includes artifacts, records, and remains that are related to and located within NRHP properties.

A Historic Properties Management Plan (HPMP) was completed for the Project area in 1993 with an additional USACE-funded reservoir survey performed in 2011. The HPMP contains a summary of the 4 inventoried archeological sites and one cemetery that were identified and recorded on USACE fee land from 1970 to 2015. USACE show that few archeological surveys had been investigated. Most of the surveys were conducted on USACE fee-land either as initial studies, shoreline reservoir surveys, or specific parcels. In total eleven additional surveys have been conducted at the Project since its construction. The surveys include: a 1948 William Haag archeological investigation of areas impacted by project construction; a 1977 survey of Floyd County, conducted by the Kentucky Heritage Commission; a1996 land transfer survey in Jenny Wiley State Resort Park; a 2000 road relocation survey at Jenny Wiley State Park; a 2001 Stratton Branch boat ramp survey; a 2002 Jenny Wiley State Resort Park access road survey; a 2007 Cam Mining surface coal mine survey; a 2008 Brushy Fork bridge replacement survey; a 2009 Ranger Pipeline survey; and a 2011 American Recovery and Reinvestment Act (ARRA) dam area survey. Based upon GIS mapping, the total surveyed area within the Project includes approximately 659 total acres which translates to only 5.34% of the Project. Archeological sites were primarily classified as prehistoric (110) dating from the Early Archaic (8000–6000 B.C.) through the Fort Ancient (1000–1750 A.D.) temporal periods. Only 18 of the sites had a historic Euro-American affiliation. The remaining 6 sites were not given a cultural affiliation.

3.3.6 Aesthetics

Dewey Lake is located in a rural setting in eastern Kentucky. The land surrounding the lake is characterized by a mountainous terrain predominantly consisting of a closed canopy deciduous forest. The project also has small clearings associated with reclaimed and active surface mining as well as a small clearing established for wildlife viewing associated with pine loss from the southern pine beetle. Currently areas of reclaimed and active mining are not visible from the lake. View distances are relatively confined due to steep, rugged, sharp-crested mountains with deep coves and narrow valleys.

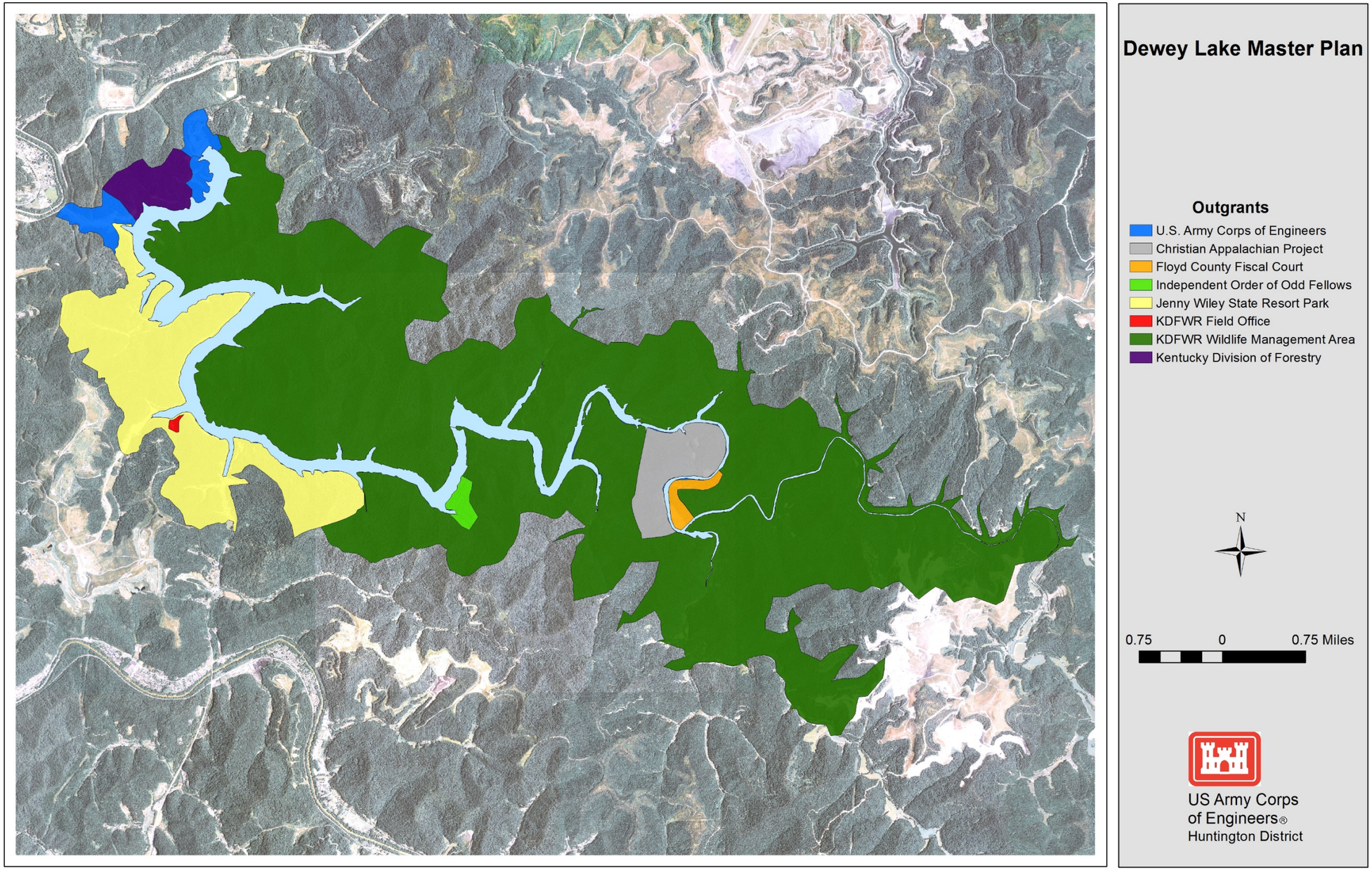

Figure 3-6: Outgranted Areas in the Dewey Lake Project

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3.3.7 Land Use

Land use within the project area is primarily recreational or focused on wildlife management areas. Although the Dewey Project area is surrounded by rural land use such as agriculture, no agriculture occurs within the project boundaries. No industrial sites occur within the site boundary. Surrounding land use, such as coal mining, logging, agriculture, and land development, have caused erosion, and the eroded sediment has been transported into surface water.

The project area is located in the Appalachian Mountains and is part of a region that contains coal deposits and oil and gas reserves. Coal mining and oil and gas extraction are ongoing activities occurring throughout the watershed and within the project boundary and flowage easement. Currently, there are 873.86 permitted acres for mining within the project area and flowage easement. At present, there is also a 1,409.63 acre underground mine proposed within the reservoir by the CZAR mining company. Within the project boundary there are 104 oil and gas wells on record with Kentucky Division of Oil and Gas Conservation (KDOG). There are an additional 25 wells on record within the flowage easement.

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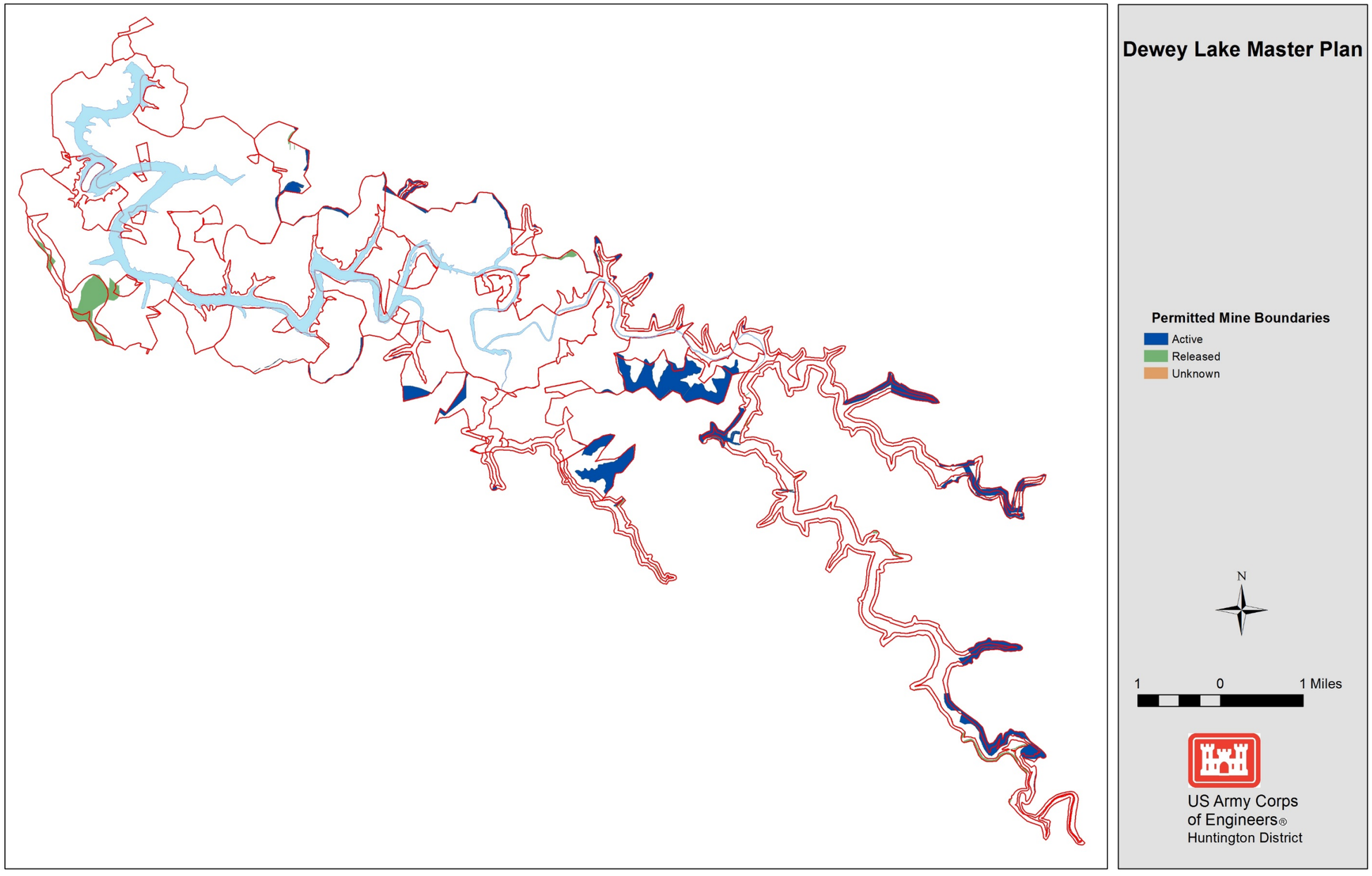

Figure 3-7: Project Lands with Permitted Mine Boundaries

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4.0 ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

This section identifies and assesses the potential environmental impacts from the No Action (NAA) and Proposed Action Alternatives (PAA).

4.1 Physical Environment

4.1.1 Topography, Geology, and Soils

4.1.1.1 No Action

Under the No Action Alternative, no new proposed facilities or measures recommended in the Master Plan Update would be implemented. With the anticipated increase in visitation, the USACE and other agencies responsible for outgrants would monitor areas that are susceptible to erosion from increased usage and people trying to access less congested areas (potentially resulting from the development of social trails, trampling of vegetation on the edges of existing campgrounds, or overuse of existing trails), therefore minimizing the potential for increased erosion. To minimize potential adverse impacts on soils, the USACE and other resource agencies responsible for outgrants would implement Best Management Practices (BMPs) such as closing off eroded areas and using erosion control measures as needed. Therefore, no significant impacts on topography, soil, and geology would occur as a result of the NAA.

4.1.1.2 Proposed Action

Under the Proposed Action, no impacts on topography would occur. Geotechnical evaluations would be performed to determine the risk of construction in areas of geologic concern such as highly erodible or unstable slopes.

Soils in the project area on steep sloping terrain are generally prone to severe erosion and therefore have limited development potential for roadways, trails, small buildings, camping, and picnicking. Maintaining steep slopes (i.e., greater than 15 percent slope) in a forested condition would minimize erosion potential. Areas with slopes of less than 15 percent have less potential for erosion than steeper areas and are more suitable for recreational use. The areas proposed for the construction of facilities (e.g., cabins, picnic shelters, camping sites) would occur primarily on slopes of less than 15 percent and close to existing development.

Implementation of temporary erosion and sediment control BMPs during construction (e.g., mulching bare areas, installing silt fences) along with permanent BMPs post-construction (e.g., managing the flow of stormwater runoff from impervious areas such as buildings and parking

lots, establishing permanent vegetation) would occur for all proposed activities that would disturb the ground surface. For construction that would disturb more than 1 acre, the agency responsible for the action would obtain coverage under the KPDES by applying for a General Permit for Stormwater Discharges Associated with Construction Activities from the Kentucky Division of Water and would develop construction site erosion control and stormwater management plans as required.

To more thoroughly evaluate impacts, the USACE would consider soil suitability, slope, and potential for geologic instability during site-specific project planning. Site-specific mitigation measures would be determined prior to construction and implemented as needed. Therefore, no anticipated impacts on topography, geology, and soil are anticipated as part of the PAA.

4.1.2 Water Resources

4.1.2.1 No Action

Under the No Action Alternative, the measures recommended in the Master Plan Update would not be implemented. USACE would manage Dewey Lake and monitor water quality. As the selection of the NAA would entail no changes to the project area, there would be no impacts to surface water anticipated as part of the NAA.

4.1.2.2 Proposed Action

Under the Proposed Action, an increase in impervious surface area would occur from new development such as parking areas, facilities, and new trails and would result in concentrated and increased stormwater runoff from these areas. BMPs to minimize the stormwater runoff from impervious surfaces would be required, and runoff would be directed away from nearby surface waters, minimizing the risk of water pollution from spilled or water-transported materials.

Adverse short-term impacts on surface water quality could occur from sedimentation that is the result of ground disturbances during construction, especially in construction areas close to the shoreline or water bodies. With multiple areas being considered for new or updated facilities, there is increased potential for this additional nonpoint source pollution. Implementing erosion and sediment control BMPs during construction and implementing permanent stormwater runoff controls would minimize potential adverse impacts. For example, disturbed or bare areas remaining after construction would be vegetated to reduce the potential for erosion.

Short-and long-term impacts on water quality may result in adverse impacts on water resources due to recreation (fishing and swimming), water treatment systems, mineral extraction, aquatic

biological resources and wildlife. Impacts on water quality may occur from trash/debris entering water bodies, from sewage, and from spills and leaks of contaminants from both land- and water-based vehicles. Stormwater runoff from additional impervious surfaces such as parking areas could carry additional pollutants into Dewey Lake. Mitigation such as setting limits for boating carrying capacity, providing adequately sized parking areas designed to appropriately handle stormwater runoff, providing adequate trash and sewage facilities for the amount of use, and including stormwater runoff measures during the design of redeveloped or new facilities would minimize adverse impacts.

Temporary and localized turbidity in the nearshore lake environment would increase if expansion at the Jenny Wiley State Park Marina would occur. Turbidity impacts during construction would be related directly to the amount of silt and clay on the lake bottom. Impacts would be short-term and limited to the vicinity of the work, especially with implementation of mitigation measures to minimize turbidity. These measures may include installation methods using techniques that minimize disturbance to submerged vegetation, limiting the construction equipment to the banks of the shore to the extent practicable, using a sediment/silt curtain if warranted, and implementing spill prevention and control measures for vehicles operating in the water. A CWA Section 401 permit from the Kentucky Division of Water would be obtained for any in-water work required for implementation of identified measures or actions.

Although groundwater resources are not currently used at the project, they are a potential source of water for enhancing or developing additional wetlands, for irrigating the golf course or other significant maintained landscape areas, or for providing potable water for development in remote areas. To protect water resources, existing unused wells (both groundwater and oil/gas wells) would be examined; if the unused wells have not been properly plugged and abandoned and are determined to be unusable for future recreational development, they would be abandoned in accordance with State regulations. Wells deemed potentially usable would be identified and secured. Because any new groundwater wells would be dispersed throughout the multi-thousand acre project area, their effect on the local water table is expected to be negligible, but the amount of water proposed for withdrawal from new wells would be evaluated for impacts on the groundwater supply, and permits would be obtained from the Kentucky Division of Water if necessary. New potable water wells would be drilled and installed according to State and Federal regulations, effectively minimizing any risk of groundwater contamination. Therefore, the Proposed Action would not result in significant impacts to water quality.

4.1.3 Floodplains

4.1.3.1 No Action

Under the No Action Alternative, no new construction could occur within areas subject to inundation from fluctuation in lake levels. Some areas in the floodplain may be used by visitors attempting to find adequate space for recreational activities such as camping and picnicking, resulting in a potential safety risk for people occupying undesignated areas. Although flooding of the land above the recreational summer pool elevation could occur, there are no anticipated significant impacts to floodplains under the No Action as the project would continue to operate under the 1949 Master Plan. Impacts to the floodplain could occur if new facilities not identified are constructed. New construction would be evaluated under NEPA on a case-by-case bas and would meet requirements of Executive Order 11988, resulting in minor impacts to the floodplain.

4.1.3.2 Proposed Action

Because flat areas are conducive to development, existing facilities are primarily located in stream valleys and adjacent to the lake shoreline, and new facilities are typically proposed for the same areas. Additionally, many recreational activities require direct access to the lake. Therefore, most of the recommended measures in the Proposed Action would take place within areas subject to inundation from fluctuation in lake levels. Because of topography constraints and the nature of water-based activities such as swimming and boating, no practicable alternative locations exist. The USACE would follow existing agency guidance described under the No Action Alternative regarding development within areas subject to inundation from fluctuation in lake levels.

The functionality of the floodplain would not be reduced by Project activities. The USACE would ensure that its actions complied with USACE's guidance on development in a floodplain (USACE, 2004), EO 11988 (Floodplain Management), and USACE's guidance on implementation of EO 11988, and would implement BMPs such as secondary containment and/or elevation of hazardous materials above base flood elevations to the maximum extent possible. Additionally, USACE and the State would ensure the safety of visitors by monitoring flood levels at areas and facilities used by the public and taking actions such as closing facilities as necessary. The USACE would ensure that actions would be in compliance EO 11988. Therefore, no impacts to floodplains are anticipated as part of the Proposed Action.

4.1.4 Air Quality

4.1.4.1 No Action

Under the No Action, any approved new construction could result in short-term impacts on air quality from fugitive dust and construction vehicle emissions. To reduce temporary impacts on air quality from fugitive dust, the construction areas would be watered down when necessary to minimize particulate matter and dust. Emissions from fuel-burning internal combustion engines (e.g., heavy equipment, earthmoving machinery) could temporarily increase the levels of some of the criteria pollutants, including CO, NO_2, O_3, particulate matter 10 microns or greater in diameter, and non-criteria pollutants such as volatile organic compounds. To reduce the emission of criteria pollutants, running times of fuel-burning equipment would be minimized, and engines would be properly maintained. An increase in vehicles traveling in the Project area could cause limited, local air quality impacts. Any prescribed burning for wildlife management could result in short-term localized impacts on air quality. The size and timing of burning would be coordinated with local stakeholders and conducted in accordance with local, State, and Federal regulations. The public would be notified of prescribed burning well in advance of the burning, areas would be closed from public access, and signs would be posted to inform the public as needed. Impacts under the No Action would be temporary and negligible compared to existing conditions.

4.1.4.2 Proposed Action

Impacts on air quality and mitigation measures to reduce potential impacts would be the same as described under the No Action. However, there is potential to be more construction-related emissions compared to the No Action because more construction is possible to occur under the Proposed Action. Impacts to air quality under the Proposed Action would be temporary and minor.

4.1.5 Noise

4.1.5.1 No Action

Construction noise from capital improvements such as campground construction, vegetation management, and other development activities could have a moderate and temporary impact on visitors, employees, and wildlife. To reduce noise impacts, construction would occur during normal business hours, would not occur on Sundays or Federal holidays to the extent possible, and would be scheduled during the off season if possible. Equipment and machinery on construction sites would meet all local, state, and Federal noise regulations.

Increased visitation at the Project would create additional noise above existing conditions. Seasonal noise from boats on the lake could have a negative impact on wildlife, day users, and lakeside campers. However, with the exception of boat ramps and marinas where boating noise is concentrated, boating-related noise is not expected to be loud or of long duration and would therefore have a minor impact on wildlife and visitors.

4.1.5.2 Proposed Action

Noise and mitigation measures to reduce potential noise impacts would be the same as described under the No Action Alternative except that temporary construction-related noise would be greater because more construction is possible under the Proposed Action.

4.2 Biological Environment

4.2.1 Vegetation

4.2.1.1 No Action

Under the No Action, the KYDFWR and the USACE would continue to monitor, manage, and protect grassland and forestland in the Project area. Activities would include limited cutting of overstocked areas, native seeding and planting, and monitoring and removal of invasive species. Littering and trampling of vegetation could occur from informal use areas and social trails, especially with the anticipated increase in visitor usage. The USACE would monitor for impacts on vegetation and implement restrictions or restoration as needed. Therefore, there are no significant impacts anticipated to vegetation as part of the No Action.

4.2.1.2 Proposed Action

Under the Proposed Action, impacts on vegetation could occur as a result of the expansion of parking areas; road improvements; construction of new recreational facilities, trails, and campgrounds or clearing for infrastructure expansion. Other impacts to vegetation could occur from foot traffic on social trails, informal use of picnic or camping areas, littering, or the collection of woody material for fuel. Park ranger supervision would help to mitigate these impacts.

Construction-related impacts, which would involve primarily removing vegetation prior to construction, would range from minimal impacts, such as clearing and leveling camping sites at a campground, to larger impacts related to the construction of parking areas and infrastructure. Many of the areas that would be affected by construction are adjacent to areas that have been developed or disturbed. Construction BMPs, such as revegetating disturbed areas and mitigating

permanently lost vegetation by planting in other areas or restoring equivalent habitats, would be implemented as appropriate.

Some elements of the Proposed Action would result in long-term beneficial impacts on vegetation by consolidating activities to more central areas, allowing the recovery of discontinued areas, or reducing the number of social trails by constructing new trails. Hazardous trees in campgrounds, along roadways, and in day-use areas would be removed as appropriate and replaced with native plant species as possible.

Because of the regional decline and unique ecology of eastern hemlocks, these trees and their habitat may be identified, preserved, and managed to ensure that the species remains in its current form. Proactive management of open areas, such as meadows and clearings, and more densely vegetated areas would be initiated to achieve the optimal balance for wildlife and recreational use. Finally, a more aggressive approach to managing invasive species would occur in order to encourage the viability of native species.

Bottomland hardwood habitats are becoming scarcer and consequently more valuable. Loss of this valuable habitat continues because of changes in land use and increases in development. Because bottomland hardwood habitats support a variety of plant and animal species that can adapt to both flood conditions and dry periods and also support wildlife that does not thrive in other environments, this habitat would be protected and any impacts mitigated to the extent practicable. Management of these areas would yield a high-quality habitat for wildlife that would also be beneficial for many recreational activities, including hunting and wildlife viewing. Systematic harvesting of timber, which would result in long-term beneficial impacts on the ecosystem, would be considered in some areas to yield a more balanced forest in terms of desirable habitat to support target game and non-game species, as well as a diversity of wildlife and recreational use. Therefore, there would be minor impacts to vegetation as a result of the Proposed Action.

4.2.2 Wetlands

4.2.2.1 No Action

Under the No Action Alternative, the USACE and KDFWR would continue to preserve and enhance wetland resources within the Project area as outlined in EO 11990 and the 1949 Master Plan.

4.2.2.2 Proposed Action

Under the Proposed Action, updated wetland delineations in focused areas of the Project and regular monitoring of wetlands for changes in size and health would be considered. Wetlands would be designated as environmentally sensitive resources. Restrictions on the development in wetlands would be incorporated into any plans for construction or recreational activities.

Wetlands would be both a constraint and an opportunity in the development of recreational facilities and activities. Development opportunities for high-intensity recreational facilities and activities (e.g., cabins, campsites, picnic sites) would be limited or not allowed in wetlands. However, the wetlands would also provide recreational opportunities such as wildlife viewing, bird watching, and interpretive and educational activities. Wetlands would also support target game species and waterfowl, thereby supporting consumptive recreational uses.

The USACE would obtain all appropriate permits as required by Section 401 of the CWA for construction that would impact any waters of the US or Commonwealth of Kentucky. The USACE would require other agencies and developers to obtain CWA Section 404 permits prior to implementation of projects that would result in impacts on wetlands. Furthermore, wetland delineations would be considered if necessary prior to implementation of any projects. Therefore, there no significant impacts to wetlands are anticipated as a result of the Proposed Action.

4.2.3 Terrestrial Wildlife

4.2.3.1 No Action

Under the No Action Alternative, impacts on wildlife resources would reflect the impacts of anticipated increased visitor use. Use of the shoreline and areas not designated for recreational purposes could result in increased habitat degradation, especially in more heavily used areas. The KYDFWR and the USACE would continue to monitor and manage wildlife in the same manner as outlined in the 1949 Master Plan. Wildlife viewing, birding, and opportunities to hunt game in portions of the Project area would continue. Significant impacts on vegetation from construction (e.g. removal of vegetation) would be avoided or minimized to the extent possible under the No Action.

4.2.3.2 Proposed Action

Under the Proposed Action, maximizing the diversity of habitats in the Project area, including grasslands, meadows, forest, wetlands, and open areas, to support a wide variety of wildlife species is a key objective of KDFWR and the USACE. Other key objectives are to identify and delineate the location, size and extent of ecosystems and enhance management to conserve and

protect wildlife and habitat. Terrestrial wildlife resources that support recreational activities (e.g., white-tailed deer, wild turkey, doves, waterfowl, various small game species) would be managed to allow hunting while maintaining population viability. Wildlife management would also provide opportunities for stewardship, support for species that are in decline, and preservation of habitat in accordance with the USACE's *Environmental Stewardship and Maintenance Guidance and Procedures* (USACE, 1996).

Adverse impacts on wildlife could occur from construction and human-related noise, loss of habitat, increased number of people in existing recreational areas, or new development in previously undisturbed areas. The increase in campsites and recreational facilities would increase visitation and potential visitor damage to wildlife habitat. However, user impacts would be mitigated by expanding and upgrading various day-use facilities and trails. Littering, trampling of vegetation, vandalism, and other problems associated with visitor use could occur. Park ranger supervision would help mitigate these impacts. Mitigation such as timing of construction to avoid sensitive periods to some populations (i.e., nesting season), consideration of wildlife corridors, and effects on species prior to development would minimize impacts. However, because the majority of new disturbance would occur in areas that have been previously disturbed and have a relatively low habitat value compared to most of the undeveloped Project area, adverse impacts would be minimal under the Proposed Action.

4.2.4 Aquatic Life

4.2.4.1 No Action

Under the No Action, the KDFWR and the USACE would continue to monitor and manage aquatic resources in the same manner as described in the 1949 Master Plan and under current programs and management goals. The KDFWR would continue to occasionally stock Dewey Lake and downstream area as suitable.

Excess deposition of sediment as a result of stormwater runoff during land-based construction could adversely affect aquatic life, including the food chain, spawning and rearing habitat, in-stream cover, water temperature extremes, and other structural and functional components. Sedimentation from construction in areas adjacent to water bodies would be minimized by implementing erosion and sediment control measures, and any sedimentation increases would therefore be minor, short-term, and localized. Implementation of construction BMPs such as erosion and sediment controls and permanent stormwater runoff BMPs would minimize adverse impacts under the No Action.

The effect of the No Action Alternative on fish populations would be a continuation of the existing conditions. Over time, visitation and demands on fish populations are expected to increase. To maintain the current quality and makeup of fish communities, current fishery management practices may need to be modified (e.g., stocking, catch limits).

4.2.4.2 Proposed Action

Construction in the water (e.g., new boat slips, new courtesy docks, etc.) could result in short-term adverse impacts on the aquatic environment. Additionally, excess deposition of sediment as a result of stormwater runoff during land-based construction could affect aquatic life, including the food chain, spawning and rearing habitat, in-stream cover, water temperature extremes, and other structural and functional components. Sedimentation from construction in areas adjacent to water bodies would be minimized by implementing erosion and sediment control measures, and any sedimentation increases would therefore be minor, short-term, and localized.

As impervious surfaces increase, the amount of runoff increases and the quality of stormwater runoff may be reduced from sediment, oils, and other pollutants. Impacts would be concentrated adjacent to the shoreline because this area has the largest number of visitors and most of the development. With designated land uses and development corridors, potential water quality impacts would be minimized. Implementation of construction BMPs such as erosion and sediment controls, and permanent stormwater runoff BMPs would minimize adverse impacts.

Growth in visitation could continue to increase fishing pressure, which could lead to increased harvests that would affect the population of some species. Increased recreational use could also result in indirect impacts from increased boating (noise disturbances and potential for spills and/or leaks of pollutants), trash or sewage entering water bodies, and stream bank or lakeside habitat destruction from overuse of some areas that could result in sedimentation of water or loss of riparian habitat. Protection or conservation of the riparian area around the lake would have positive impacts on aquatic resources by providing canopy cover, thereby reducing temperatures around the water's edge and providing a source of detritus, and by having tree roots that would maintain the banks. In addition, a wider riparian corridor with mature trees would filter runoff before reaching the lake. Therefore, the Proposed Action is not anticipated to have significant adverse impacts to aquatic life.

4.2.5 Threatened and Endangered Species

4.2.5.1 No Action

The USACE would continue following bald eagle habitat management practices from the *National Bald Eagle Management Guidelines* (USFWS, 2007) to minimize disturbances and comply with the Bald and Golden Eagle Protection Act. These guidelines include restricting new construction to 330 to 660 feet from a nest, depending on the type of structure and visibility from the nest. Timber operators (e.g., personnel who clear cut or remove overstory trees) would maintain a minimum of 330 feet from a nest at any time and 660 feet during breeding season. For the following activities, no buffer would be necessary around nests outside the breeding season and should be avoided within 330 feet of the nest during breeding season: (1) off-road vehicles, (2) motorized watercraft (including jet skis and personal watercraft), (3) non-motorized recreation and human entry (e.g., hiking, camping, fishing, hunting). Loud, intermittent noises such as blasting would be avoided within 0.5 mile of active nests. The resource manager would be tasked with creating an inventory and monitoring all identified bald eagle nests.

Activities (i.e. tree clearing) which have the potential to affect threatened and endangered species must be coordinated with the USFWS in accordance with the Endangered Species Act. Often times, the conclusion of the project specific consultation with the USFWS results in seasonal tree clearing limitations to avoid and minimize impacts to listed bats. The KYDWFR and the USACE would continue to implement USFWS avoidance measures to avoid potential adverse impacts on the federally listed Indiana bat, Gray bat, and Northern long-eared bat as appropriate, including conducting informal or formal consultation with the USFWS. In addition, the current practice of restricting tree cutting from October 15 to March 31 would be continued in coordination with USFWS to protect listed species. Therefore, there are no effects to any listed species under the No Action.

4.2.5.2 Proposed Action

The USACE would coordinate with the USFWS under Section 7 of the ESA prior to implementation of any element (i.e. tree clearing) of the Proposed Action that may impact federally listed species or designated critical habitat. The USACE would follow mitigation measures required by USWFS for federally protected species. Upon conclusion of coordination with USFWS, surveys for federally listed species if potential habitat is identified will be conducted in the Proposed Action area. The KYDWFR and the USACE would continue to implement practices to avoid potential adverse impacts on federally listed bats as appropriate. In addition, the current practice of restricting tree cutting in coordination with USFWS from

October 15 to March 31 would be continued in order to protect listed species. No impacts to caves would be implemented under the Proposed Action. The USACE would follow bald eagle habitat management practices as described under the No Action Alternative. Therefore, there the Huntington District has determined that the Proposed Action would have no effect on the Indiana bat, Northern-long eared bat, and Grey bat. Additionally, due to increased sedimentation at Dewey Lake and minimal suitable habitat, the Proposed Action would have no effect on the Big Sandy crayfish.

4.3 Socioeconomic Environment

4.3.1 Population and Employment

4.3.1.1 No Action

Existing programs, operation and maintenance activities that would continue under the No Action and construction could result in short-term beneficial impacts on the local economy by increasing employment opportunities for local construction workers and increasing the number of workers in the Dewey Lake area during business hours. No impacts on population are anticipated.

4.3.1.2 Proposed Action

Short-term beneficial impacts from construction and long-term beneficial impacts from an anticipated increase in visitors to the Project would be the same as described under the No Action. No impacts on population are anticipated.

4.3.2 Environmental Justice

4.3.2.1 No Action

Existing programs and operation and maintenance activities that would continue under the No Action would be implemented within the boundaries of the project and at a distance from local population centers. As a result, any environmental justice populations that may reside around the project would not be directly impacted by these actions and no disproportionately high or adverse impacts on low-income or minority would occur under the No Action. Construction would provide greater employment opportunities for all local residents.

4.3.2.2 Proposed Action

As discussed in section 3.3.2, there is some probability of minority and low-income persons residing in areas surrounding the project. For purposes of this programmatic environmental

assessment, generalizations about potential environmental justice populations using available data are acceptable, but more specific evaluations that will be required as part of any future supplementary project-specific NEPA documentation should be based on the more accurate data from the most recent Census. At the time that specific actions are planned for implementation and it is determined that additional NEPA documentation will be needed for these actions, Census block group and block data should be available for use in determining whether minority and low income populations may be disproportionately impacted by the proposed actions.

The locations within the Project where the Proposed Action recommendations would be implemented are generally far removed from populated areas. As a result, local residents would be unlikely to experience direct impacts from implementing these recommendations, whether disproportionate or otherwise. The direct and indirect impacts resulting from the proposed action recommendations on local communities are not expected to be substantial, and it is unlikely that such impacts could likely be considered as disproportionate if environmental justice populations were determined to exist in any affected community. Final determination will be made when the impacts of individual recommendations planned for implementation are analyzed as part of any supplementary NEPA evaluations that may be required for these actions.

4.3.3 Transportation/Traffic

4.3.3.1 No Action

As visitor use increases, the ability of the existing facilities to handle the increase in traffic would decline. Some areas of the Project are already congested, especially during holidays. The USACE would consider additional parking areas to reduce adverse impacts on traffic congestion.

4.3.3.2 Proposed Action

Increased traffic from construction and worker vehicles during construction could result in minor temporary impacts on traffic and transportation, but in most areas, the impact would likely be negligible. The expansion of parking areas would have long-term beneficial impacts on vehicular traffic, and the addition of courtesy docks would have long-term beneficial impacts on boat traffic. The USACE would continue to consider additional parking areas to reduce potential impacts on traffic congestion as visitation increases.

4.3.4 Recreation

4.3.4.1 No Action

The provision of recreational facilities and services would continue under the No Action, but the 1949 Master Plan, which the resource manager and staff operate under, would not accurately reflect the current status of Project facilities. In addition, there would be limited new measures such as trail corridors and additional land use designations to better accommodate recreational needs while protecting natural resources. No significant adverse impacts to recreation are anticipated under the No Action. Under the No Action, updates to facilities and new recreational measures could be beneficial to recreation at Dewey Lake.

4.3.4.2 Proposed Action

Needs related to recreational activities such as reduced congestion and better traffic flow at facilities would be better accommodated by implementing the Proposed Action. The Proposed Action is based on a review of the existing facilities, resource suitability, and discussions with stakeholders. There are many beneficial impacts on recreation from increasing the intimacy of the visitor's experience with nature through new interpretive trails, signage, and support facilities. These activities would combine with existing facilities and vegetative management to facilitate outdoor educational activities. Expanding the camping experience with modern facilities would also complement the existing campsites, and the expansion of parking would accommodate additional people.

Implementing the Proposed Action would require that proposals consider potential impacts on existing recreational facilities from construction and include avoidance and minimization measures and mitigation as necessary. Trails would be located to accommodate visitor experience and education while protecting and conserving the natural resources and limiting possible environmental impacts. In addition, hunting would be enhanced by inventory and management of wildlife habitats. Trail designs would accommodate various uses and avoid conflicts, such as with horseback riders and hikers. Therefore, there are no negative adverse impacts anticipated to recreation as part of the Proposed Action.

4.3.5 Cultural Resources

4.3.5.1 No Action

Recreational activities and construction could be implemented individually under the No Action Alternative. The process for identifying sites prior to project implementation and the required consultations under Section 106 of the NHPA would be the same as under the Proposed Action.

4.3.5.2 Proposed Action

Cultural resources in the conservation pool were originally situated in open field environments that were subject to deforestation, plowing, and clearing for the reservoir. These cultural resources have been continuously inundated since the operation of the reservoir in 1949. The effect if the inundation of these resources is unknown, but if the sites were not eroded prior to the establishment of silt caps, the inundation may have preserved them.

Cultural resources in the littoral zone were also originally situated in open field environments that were subject to deforestation and plowing. These sites are difficult to relocate because of the silting that occurs when the sites are submerged during normal summer pool and exposed during winter pool. If large enough silt caps are formed, the sites may have been preserved, but the alternating wet-dry cycle of the littoral zone increases decay rates for organic materials in the sites. If these sites are exposed during the winter pool, there is potential for looting.

Cultural resources in the upland zone are susceptible to mechanical and biochemical processes and human activities that are not associated with inundation. The sites in the upland zone constitute most of the recorded sites and are commonly affected by erosion, development, agricultural practices, and looting.

Site distribution tendencies in the Project area are based on the distribution of recorded sites in the Project area. Distributions have an inherent bias since most of the studies have been confined to the modern shoreline and bluffs as opposed to the adjacent ridge tops and hillsides. Alluvial landforms have a high potential to contain buried sites. The colluvial apron is also considered a potential location for deeply buried sites.

Proposed development actions should take into account previously identified sites and their treatment recommendations and must comply with Section 106 of the National Historic Preservation Act. Sites which are eligible or potentially eligible for the NRHP should be avoided or mitigated prior to any undertaking that has the potential to affect those sites. Avoidance measures and/or mitigation would be coordinated by the USACE Huntington District

archeologist (District archaeologist). Actions proposed for areas not previously surveyed would require coordination with the District archeologist to determine whether a cultural resource survey is required.

Once the USACE inventories real estate actions that have been cleared internally, these smaller projects need to be catalogued and mapped using Geographical Information Systems (GIS) to ensure that areas are not subject to repeated surveys. In the absence of mapping, coordination with the District archeologist would ensure that real estate actions are not subject to unnecessary resurveying. Cultural resource research, evaluation, and reporting must comply with all applicable Federal and State laws and regulations.

Priorities for cultural resources at the Project are as follows:

1. Surveys of the littoral and upland zones during winter pool, when the majority of the littoral zone is accessible
2. Stabilizing and evaluating recorded sites that have been previously listed as potentially eligible or needing further evaluation for their NRHP eligibility.
3. Accessing artifact collections recovered from the Project according to the guidelines established in 36 CFR Part 79.
4. Improving consultation and education efforts including outreach to Native American tribes, coordination with the Kentucky Heritage Council, training of project personnel, and site interpretation.
5. Updating the HPMP to include the GIS georeferenced boundary delineations and metadata for all surveyed areas and identified resources in the Project.
6. Producing GIS boundary delineations for previously evaluated as well as all future real estate actions.

Prior to development/construction, the USACE would evaluate the potential for the Proposed Action to adversely affect cultural resources and would consult with the Federally-Recognized Tribes and the Kentucky State Historic Preservation Officer under Section 106 of the NHPA before implementing any actions that have a potential to affect the sites that are eligible or potentially eligible for the NRHP. Actions that are proposed in areas that have not been surveyed require coordination with the USACE archeologist to determine whether a cultural resources survey is required.

4.3.6 Aesthetics

4.3.6.1 No Action

Under the No Action, there would be a potential for increased adverse impacts on the aesthetics of the Project area. Outgrants would continue to be requested. If the outgrants are not concentrated in a designated area, there is additional likelihood of land disturbance, which could negatively affect aesthetic qualities. An increased number of visitors could result in littering, trash, trampled vegetation, and congestion that would adversely affect the aesthetics of the Project area. The USACE would monitor Project areas and implement measures such as additional trash receptacles, restoration of affected areas, or restrictions as needed to avoid or minimize impacts.

4.3.6.2 Proposed Action

With continuous requests for outgrants of Project lands, implementing the Proposed Action would reduce the potential impacts to the aesthetics in the Project area by concentrating development in designated areas. By developing corridors for recreation and development, activities would be concentrated, and there would be less potential for land disturbance, which often reduces the aesthetic quality of natural areas. In addition, an updated inventory and resource analysis would more accurately identify the areas that provide high-quality aesthetics.

An increased number of visitors could result in littering, trash, trampled vegetation, and congestion that could impact aesthetics of the Project area. The USACE would monitor Project areas and implement measures such as additional trash receptacles, restoration of affected areas, or restrictions as needed to avoid or minimize impacts. No significant impacts to aesthetics under the Proposed Action are anticipated.

4.3.7 Land Use

4.3.7.1 No Action

No changes in existing land use would occur under the No Action. Under existing conditions, the public and private uses of Dewey Lake do not affect industrial areas or local industry.

4.3.7.2 Proposed Action

For Project lands where the federal government owns all subsurface mineral rights, any future resource extraction would proceed through the Bureau of Land Management. The Bureau of Land Management would coordinate any new leases with the USACE to avoid or minimize

impacts to recreational, natural, or sensitive resources associated with access road and extraction site development. For Project lands where the federal government does not own the subsurface mineral rights, the owner of the mineral rights would apply to the Kentucky Division of Mine Permits for approval and permitting of the extraction process and amounts. Because mineral extraction can cause disturbances, the federal government would be allowed to review and comment on the application. The Proposed Action would not affect industrial areas or local industry.

4.4 Cumulative Impacts

Cumulative impacts would result from the incremental impact of the Proposed Action added to impacts from other past, present, or reasonably foreseeable future actions in the local area. The Corps must consider the cumulative effects of the proposed project on the environment as stipulated in the NEPA. Cumulative effects are "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions". Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR Part 1508.7 Council on Environmental Quality [CEQ] Regulations).

The cumulative effects analysis is based on the potential effects of the proposed project when added to similar impacts from other projects in the region. An inherent part of the cumulative effects analysis is the uncertainty surrounding actions that have not yet been fully developed. The CEQ regulations provide for the inclusion of uncertainties in the analysis and states that "when an agency is evaluating reasonably foreseeable significant adverse effects on the human environment...and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking" (40 CFR 1502.22).

Temporal and geographical limits for this project must be established in order to frame the analysis. These limits can vary by the resources that are affected. The Proposed Action would have minimal and insignificant negative impacts on the environment. The temporal limits for assessment of this impact would initiate with the reservoir impoundment in 1949 and end 50 years after completion of the Dewey Master Plan update. The geographical boundaries for this discussion of cumulative impacts would be broadened to consider the effects beyond the Proposed Action. The geographic extent is considered the Johns Creek Watershed.

Johns Creek was impounded for the construction of Dewey Lake Dam, which occurred in 1949. The Johns Creek Watershed is listed on Kentucky’s 303d list of impaired waters where it is rated

as impaired for sediment, siltation, and other factors. Routine operations and maintenance of Dewey Lake is ongoing. Dewey Lake contributes to the local economy through visitor spending and by providing local jobs. Recreational facilities are associated with the high volume of visitation. In fiscal year 2016, the project prevented over $89 thousand dollars in flood damages with an accumulative total of $123 million dollars damages prevented since construction of the project. In the past, coal mining has been active around Dewy Lake and within the John's Creek Watershed. Currently, a coal company has expressed interest in obtaining a lease to mine Federally owned coal reserves beneath project lands currently adjacent to existing mining operations. Additionally, in 2014, the Corps completed an Initial Watershed Assessment for the Big Sandy River Basin. The assessment identified problems, issues, and opportunities throughout the basin along with recommended action such as improvements to water quality.

In the future, watershed programs may address water quality and conservation activities. Impairment of the Johns Creek Watershed is expected to continue. The Bureau of Land Management could potentially allow coal mining within the project lands. Geotechnical investigations and coordination with coal Company would be necessary to identify any risks and measures to ensure min. Visitation in the Project is expected to increase. Pressure on the lake's resources is therefore expected to continue. Requests for outgrants and encroachments on public lands are also expected to continue.

As the area around Dewey Lake experiences increased development, terrestrial resources surrounding the reservoir will become even more limited. With the loss of vegetated land area outside USACE boundaries, wildlife is likely to be concentrated in the remaining forested lands. In addition, more pressure will be placed on the public lands for the facilities and activities that are provided.

Land development and stormwater runoff from developed, mining areas are the primary sources of water quality pollution in the lake. With urban development and loss of pervious surfaces (vegetated areas where water can infiltrate) upstream in Floyd County, there is increased potential for stormwater runoff and a reduction in water quality draining into the lake.

Because visitation to the Dewey Lake Project is expected to increase, demands for recreational facilities will also continue to increase. Facilities will need continual repair and upgrade to meet visitor expectations. In addition, there may be conflicting demands for recreational opportunities on the lake and Project lands. The continued request for uses of Project lands by various interests will also add more demands on Project lands and waters; however, the USACE would limit development to a sustainable level.

Section 3.0 documents the existing environment and section 4.0 documents the potential environmental effects of the Proposed Action and No Action with respect to existing conditions. The effects of the Proposed Action, as discussed beforehand, are localized and minor. Past actions that may result in similar effects may include trails, boat slips, and other recreational measures. No reasonably foreseeable future actions that would have similar impacts as the proposed action were identified. In scoping cumulative effects issues, no resources were identified as having a potential to be significantly affected. Only minor and temporary impacts to ecological resources would be sustained with the implementation of the Proposed Action.

4.5 Environmental Commitments

Implementation of the Proposed Action (implementation of the Master Plan Update) would provide a tool for the resource staff of Dewey Lake to ensure that natural resources and Project facilities are being used to the greatest extent possible without degrading resources. Designating areas for existing and future outgrants of Project lands would limit locality and severity of potential impacts while expediting evaluation period for requests. A summary of mitigation measures and agency consultation requirements are listed below and would be implemented as appropriate to avoid or minimize adverse impacts on resources:

- Implementing erosion and sediment control BMPs for all projects and obtaining an NPDES General Permit for Stormwater Discharges Associated with Construction Activities from the Kentucky Division of Water for any project that would disturb more than 1 acre of ground
- Obtaining Section 401 Water Quality Certification from the Kentucky Division of Water for work in waters of the United States, including the nearshore environment of the lake and wetlands
- Coordination with the USFWS under Section 7 of the ESA where there is a potential to adversely affect Federally listed threatened and endangered species
- Coordination with the USFWS under the Bald and Golden Eagle Protection Act
- Tree clearing may only occur upon completion of consultation with USFWS and between October 15 and March 31 to avoid effects to listed species.
- Compliance with Section 106 of the NHPA prior to construction

In addition, the USACE would consult with the following agencies prior to implementation of the Proposed Action:

- USFWS under Section 7 of the ESA and Bald and Golden Eagle Protection Act
- Kentucky State Historic Preservation Officer under Section 106 of the NHPA and other Consulting Parties including Native American tribes as appropriate

- Kentucky Department of Fish and Wildlife Resources as necessary

5.0 PUBLIC REVIEW AND COMMENTS

The PEA and FONSI will be made available for public review and comment for a period of 30 days, as required under NEPA. A Notice of Availability was published in the local newspaper, The Floyd County Times, advising the public of this document's availability for review and comment. A copy of the PEA will also be placed in the Floyd County Public Library and will be made available on-line at http://www.lrh.Corps.army.mil/Missions/PublicReview.aspx. The mailing list for the EA is located in Appendix B.

6.0 CONCLUSION

The updated Master Plan will guide the comprehensive management, development, and use for recreation, natural resources, and cultural resources at Dewey Lake. The proposed measures identified in the Master Plan update and carried forward as the PEA would Implementation of the Master Plan Update would allow an update of the Dewey Lake Project lands and waters that reflects environmental stewardship and conservation while meeting current and future public, social, and economic demands. No significant adverse impacts have been identified as a result of implementation of the proposed measures in the PAA. Supplemental NEPA documents will be required for implementation of specific measures or actions listed in the above in Table 2-1. All of the effects are anticipated to be minor and/or temporary, and could be further reduced through the use of best management practices and environmental commitments as described within the EA. Therefore, the PAA would not be expected to have significant impacts on the human environment.

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Appendix A:
Dewey Lake Project Master Plan

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Appendix B
Distribution List for the
Draft Programmatic Environmental Assessment