

Hugo Lake Master Plan

Red River Basin: Kiamichi River, Kiamichi Watershed

August 2022



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of Engineers®**

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EXECUTIVE SUMMARY

Hugo Lake Master Plan
U.S. Army Corps of Engineers
Prepared by the Southwestern Division
Regional Planning and Environmental Center (RPEC)
August 2022

ES.1 PURPOSE

The Hugo Lake Master Plan (hereafter Plan or Master Plan) is a complete revision of the 1971 *Hugo Lake Public Use Plan* and its supplements. The revision is a framework built collaboratively to guide appropriate stewardship of U.S. Army Corps of Engineers (USACE) administered resources at Hugo Lake over the next 25 years. The 1971 Public Use Plan has served well past its intended 25-year planning horizon and does not reflect the growing population around the lake and regional recreation needs.

Hugo Dam and Lake (Hugo Lake hereafter) was authorized in 1946 as a multipurpose project for flood control, water supply, water quality, recreation, and fish and wildlife conservation. Hugo Lake, located on the Kiamichi River, is an integral component of the larger Red River Basin that has additional congressionally authorized purposes including flood control, hydropower, navigation, and water quality. In addition to these primary missions, the USACE has an inherent mission for environmental stewardship of project lands while working closely with stakeholders and partners to provide regionally important outdoor recreation opportunities.

The Master Plan and supporting documentation provide an inventory and analysis, goals, objectives, and recommendations for USACE lands and waters at Hugo Lake, Oklahoma, with input from the public, stakeholders, and subject matter experts. The Master Plan is primarily a land use and outdoor recreation strategic plan that does not address the specific authorized purposes of flood risk management or water supply. Although water management is addressed in the 1996 USACE Water Control Manual for Hugo Lake, the Master Plan acknowledges that fluctuating water level for flood risk management and water supply can have a dramatic effect on outdoor recreation, especially at boat ramps, swim beaches, and the marina.

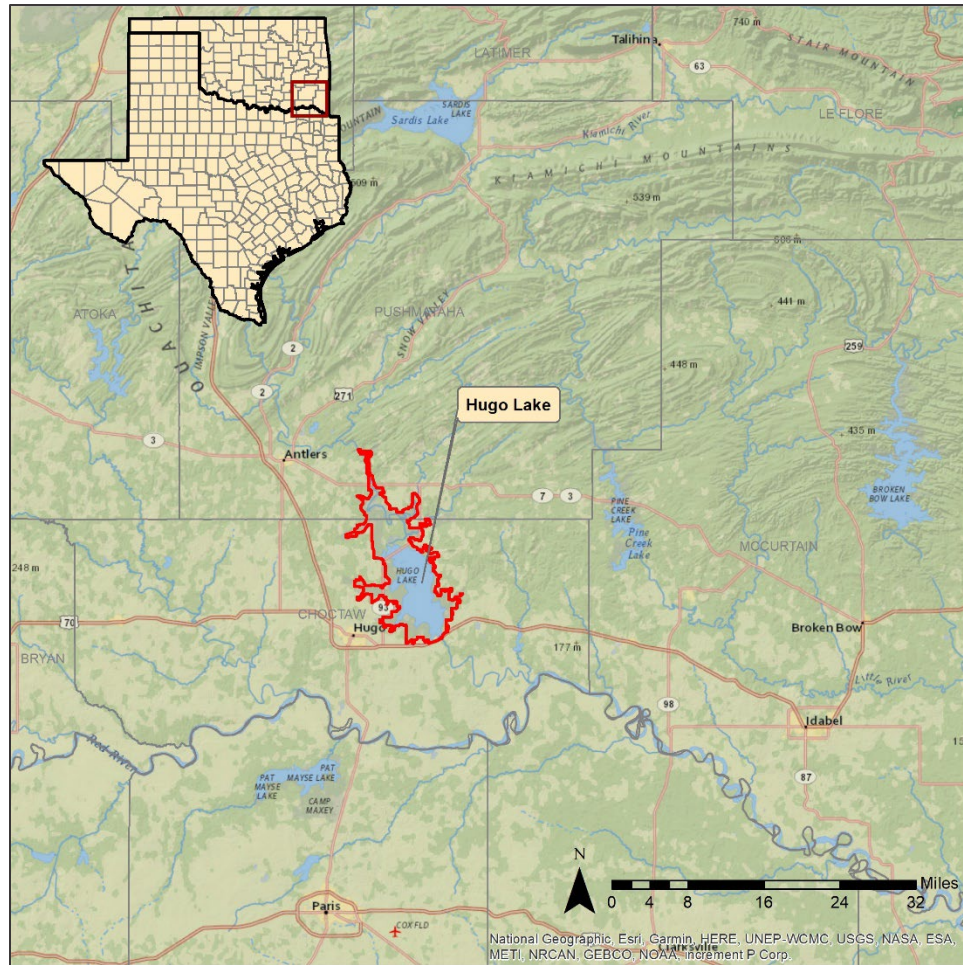


Figure ES.1 Vicinity Map of Hugo Lake and Dam

The 1971 Public Use Plan included a total of 40,085 acres of total lands acquired in fee including 13,250 acres of surface water at the normal or conservation pool elevation of 404.5 feet National Geodetic Vertical Datum of 1929 (NGVD29) and 26,835 acres of land above the conservation pool with a shoreline of approximately 110 miles. The acres figure was derived using land measurement technology dating from the 1950s and has been used since 1971 to describe the size of the pool at the normal elevation. The mapping used for this Master Plan revision uses modern satellite imagery and Geographic Information System (GIS) mapping, resulting in different acreage calculations than that of the 1971 Public Use Plan. Using GIS measurements, Hugo Lake has a water surface of 11,390 acres at conservation pool of 404.5 feet NGVD29 and approximately 27,048 acres of federal land lie above the conservation pool with a shoreline of approximately 110 miles at the top of the conservation pool.

ES.2 PUBLIC INPUT

To ensure a balance between operational, environmental, and recreational outcomes, the USACE obtained both public and agency input toward the Master Plan.

An Environmental Assessment (EA) was completed in conjunction with the Master Plan to evaluate the impacts of alternatives and can be found in Appendix B.

In the interest of public health and well-being due to the Covid-19 pandemic, the public input process was changed from a face-to-face public meeting to a virtual presentation detailing the specifics of the master plan revision. The presentation and public input process remained open for 30 days. The public comment period began May 26, 2021 and ran through June 26, 2021. The USACE received one comment from the City of Hugo and no comments from the general public.

The presentation included a description and definition of a master plan, descriptions of the new land use classification options, and instructions for commenting on the master plan. Presentation topics included:

- Public involvement process
- Project overview
- Overview of the National Environmental Policy Act (NEPA) process
- Master Plan and current land classifications
- Instructions for submitting comments

The Draft Master Plan and EA were made available for public and agency review, hosted virtually on the USACE Tulsa District Website. The website provided the Draft Master Plan and Environmental Assessment, news release, comment form, and a virtual presentation. The comment period was held April 28, 2022 through May 31, 2022. A total of one comment was received from the public. Upon review of the public comment, the final Master Plan, EA, and FONSI will be prepared and signed by the District Engineer for implementation. The final versions will be posted on the Tulsa District website.

ES.3 RECOMMENDATIONS

The following land and water classification changes (detailed in Chapter 8) were a result of the inventory, analysis, synthesis of data, documents, and public and agency input. In general, all USACE land at Hugo Lake was reclassified either by a change in nomenclature required by regulation or changes needed to identify actual and projected use. Changes to the acreage differentiates areas set aside for intensive recreation and acreage for Environmentally Sensitive Areas and Multiple Resource Management.

Table ES.1 Change from 1971 Land and Water Surface Classifications to New 2022 Land and Water Surface Classification

Prior Land Classifications (1971)	Acres	New Land Classifications (2022)	Acres	Net Difference
Project Operations	227	Project Operations (PO)	259	32
Recreation – Intensive Use	4,528	High Density Recreation (HDR)	4,022	(506)
		Environmentally Sensitive Areas (ESA)	3,232	3,232
Recreation – Low Density	3,834	Multiple Resource Management – Low Density Recreation (LDR)	3,690	(144)
Wildlife Management	18,246	Multiple Resource Management – Wildlife Management (WMA)	15,846	(2,400)
TOTAL	26,835		27,048	213*
Prior Water Surface Classifications (1986)	Acres	New Water Surface Classifications (2022)	Acres	Net Difference
Permanent Pool	13,250	Open Recreation	11,232	(2,018)
		Designated No-Wake	141	141
		Restricted	17	17
TOTAL	13,250		11,390	(1,860)
TOTAL FEE	40,085		38,438	(1,647)*

* Total Acreage differences from the 1971 total to the 2022 totals are due to improvements in measurement technology, deposition/siltation, and erosion. Totals also differ due to rounding while adding parcels.

The acreages of the conservation pool and USACE land lying above the conservation pool were measured using satellite imagery and Geographical Information System (GIS) technology. The GIS software allows for more finely tuned measurements and, thus, stated acres may vary from official land acquisition records and acreage figures published in the 1971 Public Use Plan. Some changes may also be due to erosion and siltation. A more detailed summary of changes and rationale can be found in Chapter 8.

ES.4 PLAN ORGANIZATION

Chapter 1 of the Master Plan presents an overall introduction to Hugo Lake. Chapter 2 consists of an inventory and analysis of Hugo Lake and associated land resources. Chapters 3 and 4 lay out management goals, resource objectives, and land classifications. Chapter 5 is the resource management plan that identifies how project lands will be managed for each land use classification. This includes current and projected overall park facility needs, an analysis of existing and anticipated resource use, and anticipated influences on overall project operation and management. Chapter

6 details special topics that are unique to Hugo Lake. Chapter 7 identifies the public involvement efforts and stakeholder input gathered for the development of the Master Plan, and Chapter 8 gives a summary of the changes in land classification from the previous master plan to the present one. Finally, the appendices include information and supporting documents for this Master Plan revision, including Land Classification and Park Plate Maps (Appendix A).

An Environmental Assessment was developed with the Master Plan, which analyzed alternative management scenarios for Hugo Lake, in accordance federal regulations including the National Environmental Policy Act of 1969, as amended (NEPA); regulations of the Council on Environmental Quality; and USACE regulations, including Engineer Regulation 200-2-2: Procedures for Implementing NEPA. The EA is a separate document that informs this Master Plan and can be found in its entirety in Appendix B.

The EA evaluated two alternatives as follows: 1) No Action Alternative, which would continue the use of the 1971 Public Use Plan, and 2) Proposed Action. The EA analyzed the potential impact these alternatives would have on the natural, cultural, and human environments. The Master Plan is conceptual and broad in nature, and any action proposed in the Plan that would result in significant disturbance to natural resources or result in significant public interest would require additional NEPA documentation at the time the action takes place.

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CHAPTER 1 – INTRODUCTION

1.1 GENERAL OVERVIEW

Hugo Lake is located at river mile (RM) 17.6 on the Kiamichi River, within the Red River Basin. The damsite is in Choctaw County, about 7 miles east of the Hugo city limits and 25 miles north of Paris, Texas (Figure 1.1), and the lake is partially within Choctaw and Pushmataha Counties. Approximately 40,085 acres of fee simple land were purchased for the project in addition to 3,459 acres of flowage easement. The construction of Hugo Lake and Dam began 6 September 1968; the final storage began 18 January 1974; and the conservation pool was filled for the first time on 12 March 1974.

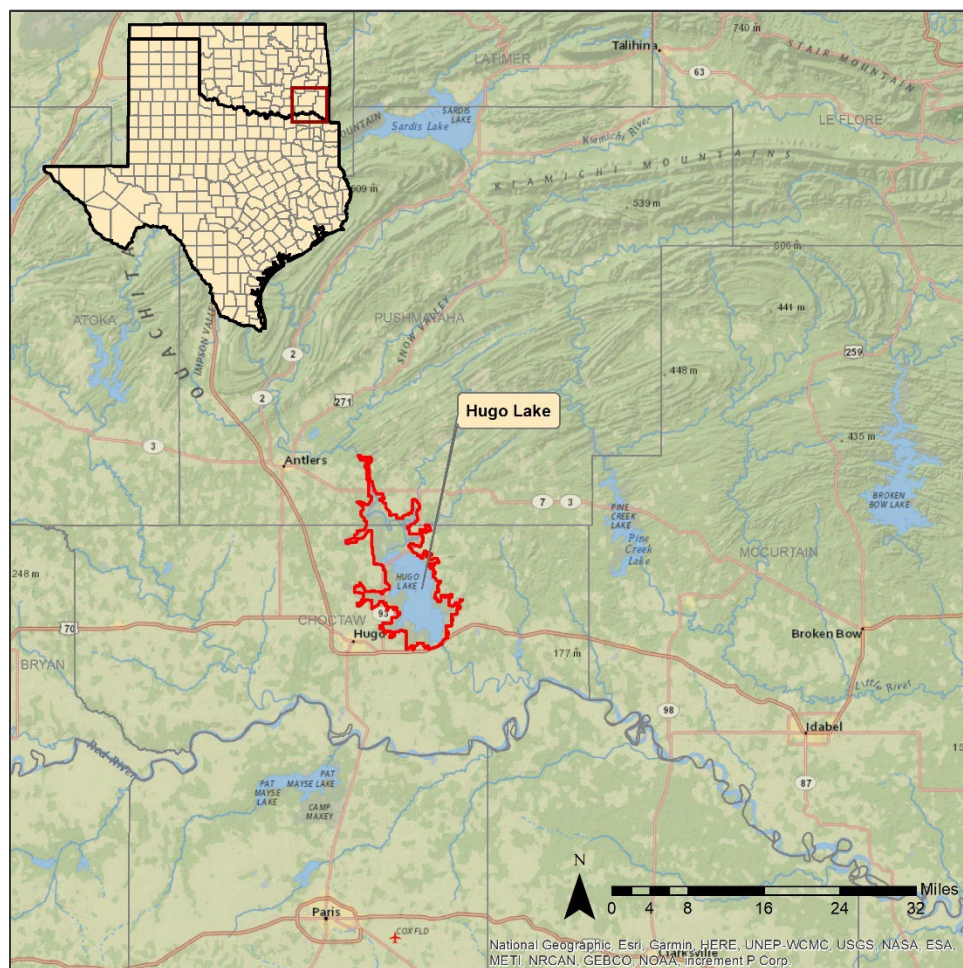


Figure 1.1 Vicinity Map of Hugo Lake and Dam

Hugo Lake is an integral part of the USACE regional plan for flood control and water conservation in the Red River Basin. The total river basin is 1,830 square miles, while the drainage area upstream of Hugo Dam is 1,709 square miles. The USACE operates and maintains the dam and associated facilities and administers the Federal lands and flowage easements comprising the project through a combination of direct

management and leases for park and recreation purposes and through consultation with local Tribal Nations.

The Master Plan is intended to serve as a comprehensive land and recreation management guide with an effective life of approximately 25 years. The focus of the Plan is to guide the stewardship of natural and cultural resources and make provision for outdoor recreation facilities and opportunities on federal land associated with Hugo Lake. The Master Plan identifies conceptual types and levels of activities, but does not include designs, project sites, or estimated costs. All actions carried out by the USACE, other agencies, and individuals granted leases to USACE lands must be consistent with the Master Plan. The Plan does not address the flood risk management or water supply purposes of Hugo Lake. The Hugo Lake Master Plan was written as Design Memorandum No. 3B in 1971 and last supplemented in 1991 and has served well past the intended planning horizon of 25 years. In 1999, USACE discontinued use of the Design Memorandum system as a means of organizing the many phases of civil works projects, therefore, the term “Design Memorandum” is not used in the title of this Master Plan revision.

National USACE missions associated with water resource development projects may include flood risk management, water supply, water quality, navigation, recreation, fish and wildlife, and hydroelectric power generation. Most of these missions serve to protect the built environment and natural resources of a region from the climate extremes of drought and floods. This helps to create a more resilient and sustainable region for the health, welfare, and energy security of its citizens. Mitigation, while not a formal mission at USACE lakes, may be implemented to achieve the fish and wildlife and recreation missions. Maintaining a healthy vegetative cover and including a native prairie or tree cover where ecologically appropriate on Federal lands within the constraints imposed by primary project purposes helps reduce stormwater runoff and soil erosion, mitigates air pollution, and moderates temperatures. To this end, the USACE has developed the following statements.

The USACE Sustainability Policy and Strategic Plan states:

The U.S. Army Corps of Engineers strives to protect, sustain, and improve the natural and man-made environment of our Nation, and is committed to compliance with applicable environmental and energy statutes, regulations, and Executive Orders. Sustainability is not only a natural part of the Corps' decision processes; it is part of the culture.

Sustainability is an umbrella concept that encompasses energy, climate change and the environment to ensure today's actions do not negatively impact tomorrow. The Corps of Engineers is a steward for some of the Nation's most valuable natural resources and must ensure customers receive products and services that provide sustainable solutions that address short and long-term environmental, social, and economic considerations.

The USACE mission for the Responses to Climate Change Program is:

To develop, implement, and assess adjustments or changes in operations and decision environments to enhance resilience or reduce vulnerability of USACE projects, systems, and programs to observed or expected changes in climate.

1.2 PROJECT AUTHORIZATION

Hugo Lake was authorized for construction by the Flood Control Act of 1946 (Public Law [PL] 526, 79th Congress, 1946) and modified by the Rivers and Harbors Act of 1962 (PL 87-874, Senate Document No. 145, 87th Congress, 2d session, 1962). Although originally authorized for just flood control, other authorized purposes and missions would be added later.

1.3 PROJECT PURPOSE

Hugo Lake is a multipurpose water resource project constructed and operated by the USACE. The project was designed to provide maximum flood protection on the Kiamichi River and Red River when operated in conjunction with the larger Red River Basin System. Hugo Lake has the following primary purposes authorized by the laws listed above:

- Flood risk management
- Water supply
- Water quality
- Recreation
- Fish and wildlife conservation

Hugo Lake, located on the Kiamichi River, is an integral component of the larger Red River Basin that has additional congressionally authorized purposes including flood control, hydropower, navigation, and water quality. In addition to these primary missions, the USACE has an inherent mission for environmental stewardship of project lands while working closely with stakeholders and partners to provide regionally important outdoor recreation opportunities. Other laws, including but not limited to Public Law 91-190, National Environmental Policy Act of 1969 (NEPA) and Public Law 86-717, Forest Cover Act, place emphasis on the environmental stewardship of Federal lands and USACE-administered Federal lands, respectively.

1.4 MASTER PLAN PURPOSE AND SCOPE

In accordance with Engineering Regulation (ER) 1130-2-550 Change 07, dated 30 January 2013 and Engineering Pamphlet (EP) 1130-2-550 Change 05, dated 30 January 2013, master plans are required for most USACE water resources development projects having a federally owned land base. The master plan works in tandem with the Operational Management Plan (OMP), which is the task-oriented implementation tool for the resource objectives and development needs identified in the master plan. This revision of the Master Plan is intended to bring the master plan up to

date to reflect current ecological, socio-demographic, and outdoor recreation trends that are impacting the lake, as well as those anticipated to occur within the next 25 years.

The *Hugo Lake Master Plan* (hereafter Plan or Master Plan) is the strategic land use management document that guides the efficient, cost-effective, comprehensive management, development, and use of recreation, natural resources, and cultural resources throughout the life of the Hugo Lake project. It is a vital tool for responsible stewardship and sustainability of the project's natural and cultural resources for the benefit of present and future generations. The Plan guides and articulates USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources. It is a dynamic and flexible tool designed to address changing conditions. The Plan focuses on carefully crafted resource-specific goals and objectives. It ensures that equal attention is given to the economy, quality, and needs in the management of Hugo Lake resources and facilities, and that goals and objectives are accomplished at an appropriate scale.

The master planning process encompasses a series of interrelated and overlapping tasks involving the examination and analysis of past, present, and future environmental, recreational and socioeconomic conditions and trends. With a generalized conceptual framework, the process focuses on the following four primary components:

- Regional and ecosystem needs
- Project resource capabilities and suitability
- Expressed public interests that are compatible with Hugo Lake's authorized purposes
- Environmental sustainability elements

It is important to note what the Master Plan does not address. Details of design, management and administration, and implementation are not addressed here but are covered in the Hugo Lake OMP. In addition, the Master Plan does not address the specifics of regional water quality, shoreline management (a term used to describe primarily vegetation modification or permits by neighboring landowners), or water level management, nor does it address the operation and maintenance of prime project operations facilities such as the dam embankment, gate control outlet, and spillway. Additionally, the Plan does not address the flood risk management, water supply, or fish and wildlife purposes of Hugo Lake with respect to management of the water level in the lake.

The previous Plan was sufficient for prior land use planning and management, but changes in outdoor recreation trends, regional land use, population, current legislative requirements, and USACE management policy have occurred over the past decades. Additionally, increased urbanization and the proximity to Tulsa, increasing fragmentation of wildlife habitat, national policies related to land management, climate change, and growing demand for recreational access and protection of natural and cultural resources are all factors affecting Hugo Lake and the region in general. In response to these escalating pressures and trends, a full revision of the 1971 Public

Use Plan is required as set forth in this Master Plan. The Master Plan revision will update land classifications and include new resource management goals and objectives.

1.5 BRIEF WATERSHED AND PROJECT DESCRIPTION

Hugo Lake is located in the Kiamichi River watershed in the Red River Basin. The Kiamichi River rises near the Oklahoma/Arkansas border in the Ouachita Mountains within Le Flore County, Oklahoma, and flows generally southwest until it reaches Pine Valley where it starts to flow southeast until it reaches the Red River. The basin is crescent-shaped, 169 miles long, and varies in width from 5 to 30 miles. The total drainage area in the basin is 1,830 square miles, with 1,709 square miles above Hugo Lake. There are numerous tributaries, with some of the larger ones being Jackfork, Buck, Tenmile, and Cedar Creeks. Elevations in the basin range from about 1,600 feet NGVD29 at the source to about 370 feet NGVD29 at the confluence with the Red River. Sardis Dam on Jackfork Creek is the only significant structure upstream of Hugo Dam. There are no significant structures downstream of Hugo Dam on the Kiamichi River.

Hugo Dam consists of a rolled earthfill embankment, two controlled type outlets, a gated spillway, and supporting facilities. The embankment is about 10,200 feet long with a maximum height of 101 feet above the streambed. The top of the dam, elevation 452.5, is 32 feet wide with a 24-foot wide roadway. The outlets through the dam consist of one 48-inch water supply pipe for the town of Hugo, Oklahoma and one 48-inch low-flow line provided for minimum downstream requirements. The spillway is an ogee weir-type with a length of 290 feet. Spillway discharge is controlled by six 40-by-50-foot tainter gates. The lake was authorized as part of a three-reservoir system on the Kiamichi River. Sardis Lake was constructed after Hugo Lake, and Texahoma Lake was never constructed and was later deauthorized.

The real estate acquisition was based on contour elevation 441.0 feet NGVD29, which is 3.5 feet above the top of the flood control pool. Flowage easements were acquired to higher elevations that varied based on soils and topography. In the upper reaches of the lake, the flowage easement is based on the projected backwater effect during significant storms. A total of 40,085 fee simple acres and 3,459 flood flowage easement acres were acquired for the construction of Hugo Lake.

1.6 DESCRIPTION OF RESERVOIR

Hugo Lake covers approximately 11,390 surface acres of water when at the top of conservation pool (404.5 NGVD29). The deepest part of the lake is located directly upstream of the dam and is approximately 50 feet deep, while depths gradually decrease further north of the dam. The top of the flood control pool is elevation 437.5 feet NGVD29. At the conservation pool, the lake was designed to accommodate 157,600 acre-feet for water supply and the accumulation of 30,000 acre-feet of sediment. The Kiamichi River is considered a light sediment-bearing waterway due to rockier soils and geology within the watershed, while the Sardis Reservoir and conservation sediment catchments further reduce the sediment load to Hugo Lake.

1.7 PROJECT ACCESS

Hugo Lake is easily accessed by several primary, secondary, and tertiary roads. U.S. Highway (US)-70 runs east to west along the southern edge of the lake just below the dam. US-70 intersects Oklahoma State Highway (OK)-93 about 4.5 miles west of the dam, which then runs northward before turning northeast to cross the lake, then continues north again before intersecting OK-3 in the town of Rattan.

1.8 PRIOR DESIGN MEMORANDA AND PLANNING REPORTS

Design Memoranda (DM) and planning reports approve and set forth design and development plans for all aspects of the project including the prime flood risk management facilities, real estate acquisition, road and utility relocations, reservoir clearing, and the master plan for recreation development and land management. The *Master Plan, Hugo Lake, Sawyer, Oklahoma*, dated September 1966, presents a program for development and management of the Hugo Lake area for recreation and other land and water uses. The following are DMs for Hugo Lake:

- Design Memorandum No. 1, Hydrology – Part I, dated December 1964.
- Design Memorandum No. 1, Hydrology – Part II, dated March 1966.
- Design Memorandum No. 2, General Design, dated October 1966.
- Design Memorandum No. 3A, Preliminary Master Plan, dated September 1966.
- Design Memorandum No. 3B, Public Use Plan, March 1971.
- Design Memorandum No. 4-1, Real Estate - Dam Site, dated May 1967.
- Design Memorandum No. 4-2, Real Estate – Remainder of Reservoir, dated July 1967.
- Design Memorandum No. 5, Project Building and Right Abutment Access Road, dated December 1966.
- Design Memorandum No. 6, Embankment, dated April 1967.
- Design Memorandum No. 7, Spillway, dated April 1968.
- Design Memorandum No. 8, Concrete Aggregates, dated February 1967.
- Design Memorandum No. 10, Reservoir Clearing, dated July 1968.
- Design Memorandum No. 11, Relocation of Oklahoma Highway 93, dated May 1969.
- Design Memorandum No. 12, Relocation of Southwestern Bell Telephone Company Facilities, dated March 1969.
- Design Memorandum No. 13, Relocation of Choctaw Electric Cooperative Facilities, dated October 1968.
- Design Memorandum No. 14, Relocation of Public Service Company Facilities, dated March 1968.

- Design Memorandum No. 15, Relocation of Choctaw County Roads, dated March 1968.
- Design Memorandum No. 18, Relocation of Oklahoma Highway 147, dated October 1967.
- Design Memorandum No. 19, Relocation of Antlers Municipal Facilities, dated September 1970.
- Design Memorandum No. 20, Sedimentation and Degradation Ranges, dated January 1970.

1.9 PUBLIC LAWS

The following Public Laws (PL) are applicable to Hugo Lake. Additional information on Federal Statutes applicable to Hugo can be found in the Environmental Assessment for the Hugo Lake Master Plan revision in Appendix B of this Plan.

1. PL 59-209, Antiquities Act of 1906. This was the first federal law established to protect what are now known as "cultural resources" on public lands. It provides a permit procedure for investigating "antiquities" and consists of two parts: An act for the Preservation of American Antiquities, and Uniform Rules and Regulations.
2. PL 74-292, Historic Sites Act of 1935. This act declares it to be a national policy to preserve for (in contrast to protecting from) the public, historic (including prehistoric) sites, buildings, and objects of national significance. This act provides both authorization and a directive for the Secretary of the Interior, through the National Park Service, to assume a position of national leadership in the area of protecting, recovering, and interpreting national archeological historic resources. It also establishes an "Advisory Board on National Parks; Historic Sites, Buildings, and Monuments, a committee of eleven experts appointed by the Secretary to recommend policies to the Department of the Interior".
3. Title 16 U.S. Code §§ 668-668a-d, 54 Stat. 250, Bald Eagle Protection Act of 1940, as amended. This act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The act provides criminal penalties for persons who take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or any manner, any bald eagle [or any golden eagle], alive or dead, or any part, nest, or egg thereof. The act defines "take" as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.
4. PL 78-534, Flood Control Act of 1944. Section 4 of this act as last amended in 1962 by Section 207 of Public Law 87-874 authorizes the USACE to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to federal, state or local governmental

agencies. This law also authorized the creation of the Southwestern Power Administration (SWPA), then within the Dept. of the Interior and now within the Dept. of Energy, as the agency responsible for marketing and delivering the power generated at federal reservoir projects.

5. PL 79-525, River and Harbor Act of 1946. This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.
6. PL 79-526, Flood Control Act of 1946. This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes including construction of Hugo Lake. This law amends PL 78-534 to include authority to grant leases to non-profit organizations at recreational facilities in reservoir areas at reduced or nominal fees.
7. PL 83-780, Flood Control Act of 1954. This act authorizes the construction, maintenance, and operation of public park and recreational facilities in reservoir areas under the control of the Department of the Army and authorizes the Secretary of the Army to grant leases of lands in reservoir areas deemed to be in the public interest.
8. PL 85-624, Fish and Wildlife Coordination Act 1958. This act as amended in 1965 sets down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources shall be examined along with other purposes which might be served by water resources development.
9. PL 86-523, Reservoir Salvage Act of 1960, as amended. This act provides for (1) the preservation of historical and archeological data that might otherwise be lost or destroyed as the result of flooding or any alteration of the terrain caused as a result of any Federal reservoir construction projects; (2) coordination with the Secretary of the Interior whenever activities may cause loss of scientific, prehistoric, or archeological data; and (3) expenditure of funds for recovery, protection, and data preservation. This Act was amended by Public Law 93-291.
10. PL 86-717, Forest Conservation. This act provides for the protection of forest and other vegetative cover for reservoir areas under the jurisdiction of the Secretary of the Army and the Chief of Engineers.
11. PL 87-88, Federal Water Pollution Control Act Amendments of 1961, as amended. Section 2(b)(1) of this act gives the USACE responsibility for water quality management of USACE reservoirs. This law was amended by the Federal Water Pollution Control Act Amendment of 1972, Public Law 92-500.

12. PL 87-874, Rivers and Harbors Act of 1962. This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.
13. PL 88-578, Land and Water Conservation Fund Act of 1965. This act established a fund from which Congress can make appropriations for outdoor recreation. Section 2(2) makes entrance and user fees at reservoirs possible by deleting the words "without charge" from Section 4 of the 1944 Flood Control Act as amended.
14. PL 89-72, Federal Water Project Recreation Act of 1965. This act requires that not less than one-half the separable costs of developing recreational facilities and all operation and maintenance costs at Federal reservoir projects shall be borne by a non-Federal public body. A USACE/OMB implementation policy made these provisions applicable to projects completed prior to 1965.
15. PL 89-90, Water Resources Planning Act (1965). This act established the Water Resources Council and gives it the responsibility to encourage the development, conservation, and use of the Nation's water and related land resources on a coordinated and comprehensive basis.
16. PL 89-272, Solid Waste Disposal Act, as amended by PL 94-580, dated October 21, 1976. This act authorized a research and development program with respect to solid-waste disposal. It proposes (1) to initiate and accelerate a national research and development program for new and improved methods of proper and economic solid-waste disposal, including studies directed toward the conservation of national resources by reducing the amount of waste and unsalvageable materials and by recovery and utilization of potential resources in solid waste; and (2) to provide technical and financial assistance to State and local governments and interstate agencies in the planning, development, and conduct of solid-waste disposal programs.
17. PL 89-665, Historic Preservation Act of 1966. This act provides for: (1) an expanded National Register of significant sites and objects; (2) matching grants to states undertaking historic and archeological resource inventories; and (3) a program of grants-in aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 requires that the President's Advisory Council on Historic Preservation have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.
18. PL 90-483, River and Harbor and Flood Control Act of 1968, Mitigation of Shore Damages. Section 210 restricted collection of entrance fee at USACE lakes and reservoirs to users of highly developed facilities requiring continuous presence of personnel.

19. PL 91-190, National Environmental Policy Act of 1969 (NEPA). NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a "continuing policy of the Federal Government... to use all practicable means and measures...to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations, and public law of the United States shall be interpreted and administered in accordance with the policies of the Act.
20. PL 91-611, River and Harbor and Flood Control Act of 1970. Section 234 provides that persons designated by the Chief of Engineers shall have authority to issue a citation for violations of regulations and rules of the Secretary of the Army, published in the Code of Federal Regulations.
21. PL 92-347, Golden Eagle Passbook and Special Recreation User Fees. This act revises Public Law 88-578, the Public Land and Water Conservation Act of 1965, to require Federal agencies to collect special recreation user fees for the use of specialized sites developed at Federal expense and to prohibit the USACE from collecting entrance fees to projects.
22. PL 92-500, Federal Water Pollution Control Act Amendments of 1972. The Federal Water Pollution Control Act of 1948 (PL 80-861, 80th Congress), as amended in 1956, 1961, 1965 and 1970 (PL 91- 224), established the basic tenet of uniform State standards for water quality. Public Law 92-500 strongly affirms the Federal interest in this area. "The objective of this act is to restore and maintain the chemical, physical and biological integrity of the Nation's waters."
23. PL 92-516, Federal Environmental Pesticide Control Act of 1972. This act completely revises the Federal Insecticide, Fungicide and Rodenticide Act. It provides for complete regulation of pesticides to include regulation, restrictions on use, actions within a single State, and strengthened enforcement.
24. PL 93-205, Conservation, Protection, and Propagation of Endangered Species Act of 1973, as amended. This law repeals the Endangered Species Conservation Act of 1969. It also directs all Federal departments/agencies to carry out programs to conserve endangered and threatened species of fish, wildlife, and plants and to preserve the habitat of these species in consultation with the Secretary of the Interior. This act establishes a procedure for coordination, assessment, and consultation. This act was amended by Public Law 96-159.
25. PL 93-251, Water Resources Development Act of 1974. Section 107 of this law establishes a broad Federal policy which makes it possible to

participate with local governmental entities in the costs of sewage treatment plant installations.

26. PL 93-291, Archeological Conservation Act of 1974. The Secretary of the Interior shall coordinate all Federal survey and recovery activities authorized under this expansion of the 1960 act. The Federal Construction agency may transfer up to one percent of project funds to the Secretary with such transferred funds considered non-reimbursable project costs.
27. PL 93-303, Recreation Use Fees. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended, to establish less restricted criteria under which Federal agencies may charge fees for the use of campgrounds developed and operated at Federal areas under their control.
28. PL 93-523, Safe Drinking Water Act. The act assures that water supply systems serving the public meet minimum national standards for protection of public health. The act (1) authorizes the Environmental Protection Agency to establish Federal standards for protection from all harmful contaminants, which standards would be applicable to all public water systems, and (2) establishes a joint Federal-State system for assuring compliance with these standards and for protecting underground sources of drinking water.
29. PL 93-81, Collection of Fees for Use of Certain Outdoor Recreation Facilities. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended to require each Federal agency to collect special recreation use fees for the use of sites, facilities, equipment, or services furnished at Federal expense.
30. PL 94-422, Amendment of the Land and Water Conservation Fund Act of 1965. This act expands the role of the Advisory Council. Title 2 - Section 102a amends Section 106 of the Historical Preservation Act of 1966 to say that the Council can comment on activities which will have an adverse effect on sites either included in or eligible for inclusion in the National Register of Historic Places.
31. PL 95-217, Clean Water Act of 1977, as amended. This act amends the Federal Water Pollution Control Act of 1970 and extends the appropriations authorization. The Clean Water Act is a comprehensive Federal water pollution control program that has as its primary goal the reduction and control of the discharge of pollutants into the nation's navigable waters. The Clean Water Act of 1977 has been amended by the Water Quality Act of 1987, Public Law 100-4.
32. PL 95-341, American Indian Religious Freedom Act of 1978. The act protects the rights of Native Americans to exercise their traditional religions by ensuring access to sites, use and possession of sacred objections, and the freedom to worship through ceremonials and traditional rites.

33. PL 95-632, Endangered Species Act Amendments of 1978. This law amends the Endangered Species Act Amendments of 1973. Section 7 directs agencies to conduct a biological assessment to identify threatened or endangered species that may be present in the area of any proposed project. This assessment is conducted as part of a Federal agency's compliance with the requirements of Section 102 of NEPA.
34. PL 96-95, Archeological Resources Protection Act of 1979. This act protects archeological resources and sites that are on public and tribal lands and fosters increased cooperation and exchange of information between governmental authorities, the professional archeological community, and private individuals. It also establishes requirements for issuance of permits by the Federal land managers to excavate or remove any archeological resource located on public or Indian lands.
35. PL 98-63, Supplemental Appropriations Act of 1983. This act authorized the USACE Volunteer Program. The United States Army Chief of Engineers may accept the services of volunteers and provide for their incidental expenses to carry out any activity of the USACE, except policymaking or law or regulatory enforcement.
36. PL 99-662, The Water Resources Development Act (WRDA) 1986. This act provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure and establishes new requirements for cost sharing.
37. PL 101-233, North American Wetland Conservation Act (13 Dec 1989). This act directs the conservation of North American wetland ecosystems and requires agencies to manage their lands for wetland/waterfowl purposes to the extent consistent with missions.
38. PL 101-336, Americans with Disabilities Act of 1990 (ADA), 26 July 1990, as amended by the ADA Amendments Act of 2008 (PL 110-325). This law prohibits discrimination based on disabilities in, among others, the area of public accommodations and requires reasonable accommodations for persons with disabilities.
39. PL 101-601, Native American Graves Protection and Repatriation Act (16 Nov 1990). This act requires Federal agencies to return Native American human remains and cultural items, including funerary objects and sacred objects, to their respective peoples.
40. PL 102-580, Water Resources Development Act (WRDA) of 1992 (31 Oct 1992). This act authorizes the USACE to accept contributions of funds, materials and services from non-Federal public and private entities to be used for managing recreational sites and facilities and natural resources.
41. PL 103-66 Omnibus Reconciliation Act-Day use fees (10 Aug 1993), authorizes the USACE to collect fees for the use of developed recreational

sites and facilities, including campsites, swimming beaches and boat ramps.

42. PL 104-303, WRDA 1996, authorizes recreation and fish and wildlife mitigation as purposes of a project, to the extent that the additional purposes do not adversely affect flood control, power generation, or other authorized purposes of a project.
43. PL 104-333, Omnibus Parks and Public Lands Management Act of 1996, (12 Nov 1996). This act created an advisory commission to review the current and anticipated demand for recreational opportunities at lakes or reservoirs managed by the Federal Government and to develop alternatives to enhance such opportunities for such use by the public.
44. PL106-147, Neo-tropical Migratory Bird Conservation Act (20 July 2000). This act promotes the conservation of habitat for neo-tropical migratory birds.

1.10 PERTINENT PROJECT INFORMATION

The following table provides pertinent information regarding key reservoir elevations and storage capacity a Hugo Lake.

Table 1.1 Hugo Lake Pertinent Data

Feature	Elevation (feet)	Area (acres)	Capacity (acre-feet)	Equivalent Runoff ⁽¹⁾ (inches)
Top of Dam	452.5	-	-	14.04
Maximum Pool	445.2	42,067	1,245,075	13.67
Surcharge	440.5	38,144	1,056,622	11.59
Top of Flood Control Pool and 50-Year Pool	437.5	35,639	945,950	10.38
Flood Control Storage	404.5 – 437.5	-	802,637	8.81
Top of Conservation Pool	404.5	12,497	143,313	1.57
Conservation Storage ⁽²⁾	390.0 – 404.5	-	119,757	1.31
10-Year Drawdown Pool	394.0	6,248	44,249	0.49
Top of Inactive Pool	390.0	4,049	23,556	0.26

⁽¹⁾ Drainage area is 1,434 square miles.

⁽²⁾ Includes Un-contracted Water Supply=1.811%, Antlers=.757%, Hugo=16.889%, RWD #3 Pushmataha Co.=.42%, Western Farmers=19.3%, and Water Quality=60%. Yield is 58 mgd based on 47,600 acre-feet for water supply and 90 mgd for water quality after 100-year sediment conditions.

CHAPTER 2 – PROJECT SETTING AND FACTORS INFLUENCING MANAGEMENT AND DEVELOPMENT PHYSIOGRAPHIC SETTING

2.1 ECOREGIONS OVERVIEW

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. The Environmental Protection Agency (EPA) has developed a series of maps that categorizes these regions across the United States. Levels I and II divide the North American continent into 15 and 52 regions, respectively, while Level III ecoregions represent a subdivision of those into 104 unique regions and Level IV a finer sub-classification of those. Hugo Lake and its watershed are located in the Level III South Central Plains and Ouachita Mountains ecoregions as illustrated in Figure 2.1. Those ecoregions and their vegetation resources are discussed in more detail in Section 2.9.2.

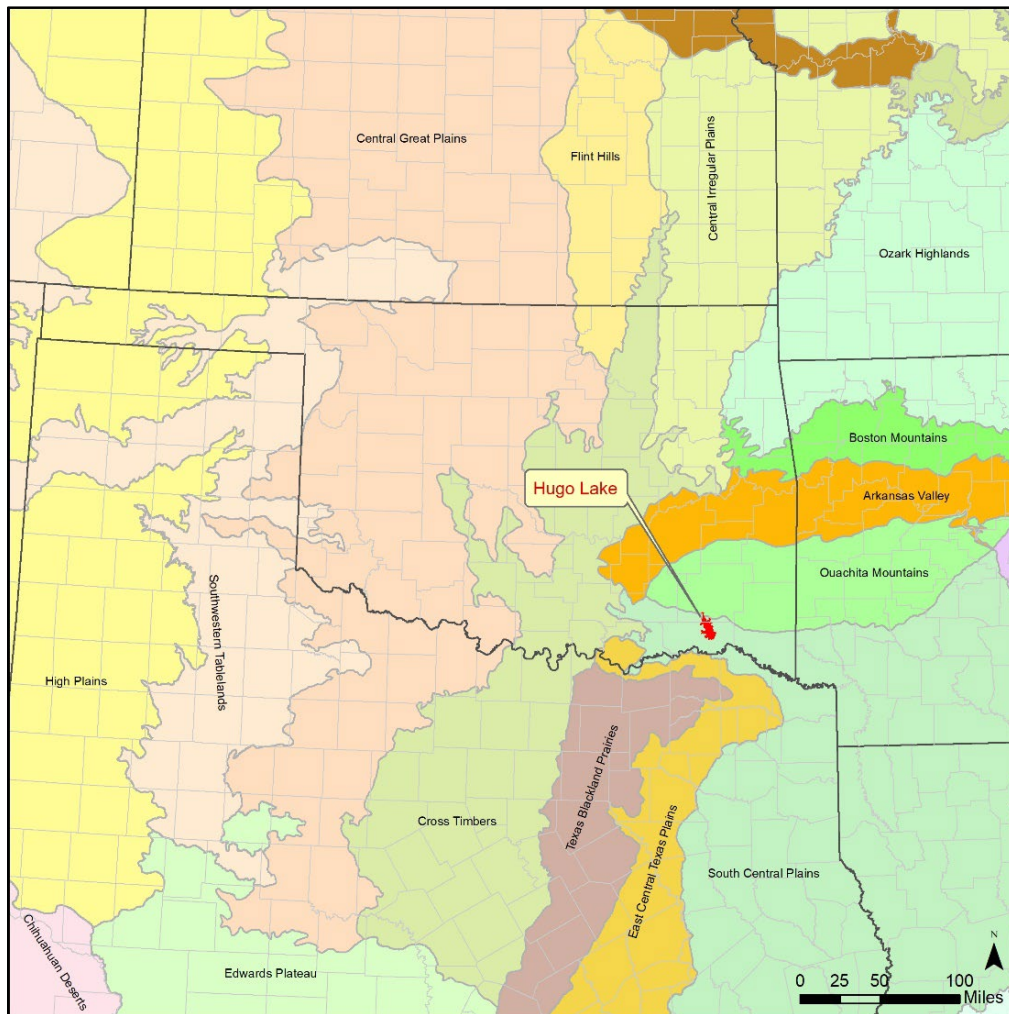


Figure 2.1 Hugo Lake within Oklahoma Ecoregions

Source: EPA (2021)

2.2 CLIMATE

Hugo Lake lies in the southeast part of the state of Oklahoma. The region is characterized by moderate winters and long, humid summers with high temperatures. Rainfall usually occurs as high intensity, local thunderstorms occurring primarily in the late spring and early fall months. These storms are frequently accompanied by high winds, hail, and occasional tornadoes. The mean annual temperature in nearby Battiest, Oklahoma (the nearest National Oceanic and Atmospheric Administration [NOAA] weather station) is about 59.5 degrees Fahrenheit (°F) (NOAA, 2021A). January, the coldest month, has an average temperature of 39.1°F and average minimum daily temperature of about 26.5°F. July has the highest average daily temperature of 79.2°F, and August has the highest average maximum daily temperature of 91.5°F. The average length of the growing season is 195 days (NOAA, 2021B). Hugo Lake lies within the U.S. Department of Agriculture (USDA) Plant Hardiness Zone 8A and 7B, which is determined by the winter extreme low temperatures, with 8A having normal winter lows between 10°F and 15°F and 7B having normal winter lows between 5° F and 10° F (USDA, 2021).

The normal annual precipitation is 57.6 inches with greater precipitation during spring and less precipitation during winter. The highest annual precipitation recorded since 2000 was in 2015 at 84.3 inches. The lowest annual precipitation recorded in the area since 2000 was in 2012, at 29.4 inches.

The average monthly climate data is presented in Figure 2.2 which includes the average precipitation each month and the average minimum, maximum, and daily average for each month.

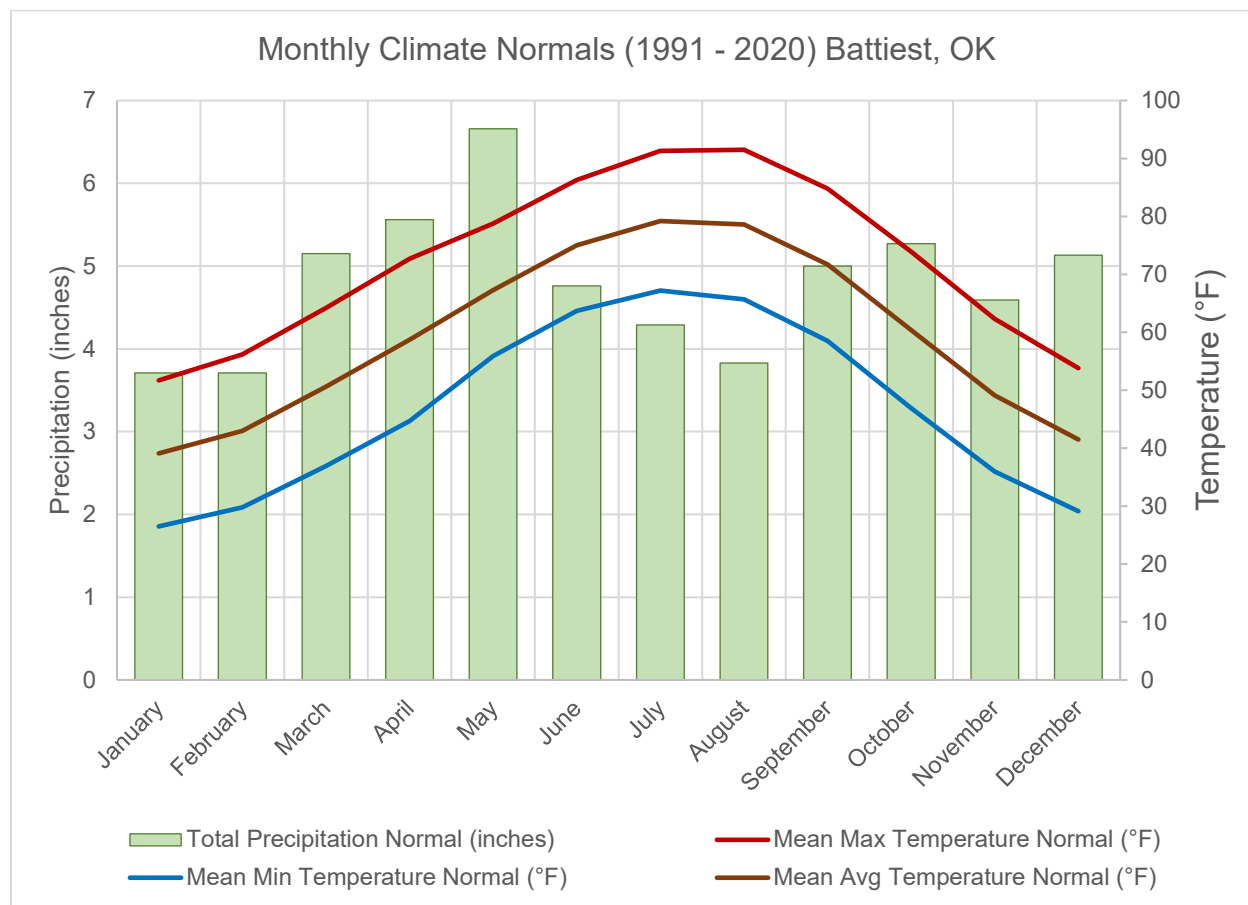


Figure 2.2 Average Monthly Climate Battiest, Oklahoma, 1991 – 2020

Source: NOAA, 2021A.

2.3 CLIMATE CHANGE AND GREENHOUSE GASSES (GHG)

The U.S. Global Change Research Program (USGCRP) looks at potential impacts of climate change globally, nationally, regionally, and by resource (e.g., water resources, ecosystems, human health). Hugo Lake area lies within the Southern Great Plains region of analysis. The Southern Great Plains region has already seen evidence of climate change in the form of rising temperatures that are leading to increased demand for water and energy and impacts on agricultural practices. Over the last few decades, the Southern Great Plains has seen fewer cold days in winter and more hot days in summer, as well as changes to precipitation patterns. The decrease in the cold days has resulted in an overall increase of the frost-free season. Within this region, there has been an increase in average temperatures 1° – 2° Fahrenheit (F) since 1901 (Kloesel et al., 2018). The changing precipitation patterns in the region has led to more frequent extreme droughts, storms, and flood events. If the current rate of greenhouse gas (GHG) emissions continues, the potential increase will be much higher by 2100.

The USACE mission for the Responses to Climate Change Program is “to develop, implement, and assess adjustments or changes in operations and decision environments to enhance resilience or reduce vulnerability of USACE projects, systems, and programs to observed or expected changes in climate.” The effects of climate change and mitigation efforts are evolving, and Hugo Lake and all federally owned property will be managed to comply with laws and executive orders to respond to the growing threat of climate change.

2.4 AIR QUALITY

The U.S. Environmental Protection Agency (EPA) established nationwide air quality standards to protect public health and welfare in 1971. The Air Quality Division of the Oklahoma Department of Environmental Quality has adopted the National Ambient Air Quality Standards (NAAQS) as the state’s air quality criteria. NAAQS standards specify maximum permissible short- and long-term concentrations of various air contaminants including primary and secondary standards for six criteria pollutants: Ozone (O₃), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Nitrous Oxides (NO_x), particulate matter (PM₁₀ and PM_{2.5}), and Lead (Pb). If the concentrations of one or more criteria pollutants in a geographic area is found to exceed the regulated “threshold” level for one or more of the NAAQS, the area may be classified as a non-attainment area. Areas with concentrations that are below the established NAAQS levels are considered either attainment or unclassifiable area. There are currently no non-attainment areas for any monitored pollutants in the State of Oklahoma including the counties around Hugo Lake (Department of Environmental Quality, [DEQ], 2021).

2.5 TOPOGRAPHY, GEOLOGY, AND SOILS

2.5.1 Geology

The Ouachita Mountains through which the Kiamichi River flows are characterized by high, rugged mountains with very shallow soil cover. The rock is mostly shale and sandstone with some limestone. The soil is generally lean clay and clayey, silty sand and gravel. Overburden depth varies from practically none in the upper parts of the mountains to 60 feet in the lower part of the basin.

2.5.2 Topography

The upper two-thirds of the Kiamichi Basin is in rugged Kiamichi Mountains of the Ouachita Mountain system with the lower one-third consisting of gently rolling hills of the Gulf Coastal Plains region. The channel of the Kiamichi River in the upper one-third is shallow and poorly defined, with the middle third varying from 10 to 30 feet in depth and the lower third V-shaped, averaging about 30 feet in depth and 300 feet wide. The stream flows through a succession of widely contrasting reaches, alternating from comparatively wide valleys to steep gorges having banks 80 to 90 feet high. The stream consists of a series of pools and shoals during low flows. The southern part of the Kiamichi River meanders along a wide alluvial valley.

2.5.3 Soils

The main soil series within Hugo Lake Project Lands is the Guyton silt loam, 0 to 1 percent slopes, occasionally flooded. This soil makes up 27.62% of soils found within Hugo Lake project lands, occurs in more than 80 inches thick surface layers, normally found in flood plains, is somewhat poorly drained, derived from silty alluvium, and it is not a prime farmland soil.

The USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (2022) reports 51 soil types occurring within Hugo Lake project lands. Table 2.1 shows the acreage and farmland status associated with each soil & surface type in the detention area. The vast size and the overall different number of soils makes it impossible to make a coherent visible map for this report.

Table 2.1 – Acres of Surface Soil Types within Hugo Lake Project Lands

Soil Type	Number of Acres	Percent Total	Farmland Status
Alusa loam, 0 to 1 percent slopes	60.0	0.24%	Prime Farmland
Bernow fine sandy loam, 1 to 3 percent slopes	292.9	1.19%	Prime Farmland
Bernow fine sandy loam, 3 to 5 percent slopes	106.4	0.43%	Prime Farmland
Bernow, Bosville, and Romia soils, 3 to 8 percent slopes, gullied	334.5	1.36%	None
Bernow, Romia, and Bosville soils, 2 to 12 percent slopes, gullied	11.4	0.05%	None
Bernow-Romia complex, 3 to 8 percent slopes, eroded	243.8	0.99%	None
Bernow-Romia complex, 8 to 12 percent slopes	561.6	2.28%	None
Boggy fine sandy loam, 0 to 1 percent slopes, frequently flooded	1014.8	4.12%	None
Bosville fine sandy loam, 1 to 3 percent slopes	473.6	1.92%	Prime Farmland
Bosville fine sandy loam, 3 to 5 percent slopes	6.3	0.03%	Prime Farmland
Bosville fine sandy loam, 8 to 15 percent slopes	720.0	2.92%	None
Carnasaw-Pirum-Clebit association, 12 to 20 percent slopes	92.5	0.38%	None
Carnasaw-Pirum-Clebit association, 12 to 20 percent slopes, dry	121.7	0.49%	None
Carnasaw-Stapp association, 8 to 12 percent slopes	16.5	0.07%	None
Clebit-Tuskahoma association, 8 to 12 percent slopes	98.3	0.40%	None
Dela fine sandy loam, 0 to 1 percent slopes, occasionally flooded	451.5	1.83%	Prime Farmland
Dela fine sandy loam, 0 to 2 percent slopes, frequently flooded	861.2	3.49%	Prime Farmland
Dela fine sandy loam, 0 to 2 percent slopes, occasionally flooded	856.4	3.47%	None
Garton silty clay loam, 0 to 1 percent slopes, rarely flooded	51.2	0.21%	Prime Farmland
Glenpool loamy fine sand, 3 to 12 percent slopes	7.2	0.03%	None

Soil Type	Number of Acres	Percent Total	Farmland Status
Guyton silt loam, 0 to 1 percent slopes, occasionally flooded	6,807.7	27.62%	Not Prime Farmland
Hollywood silty clay, 1 to 3 percent slopes	422.2	1.71%	Prime Farmland
Hollywood silty clay, 3 to 5 percent slopes	48.0	0.19%	Prime Farmland
Hollywood-Swink complex, 3 to 8 percent slopes	782.8	3.18%	Prime Farmland
Kaufman clay, 0 to 1 percent slopes, frequently flooded	1,057.5	4.29%	Prime Farmland
Kaufman clay, 0 to 1 percent slopes, occasionally flooded	418.0	1.70%	Prime Farmland
Kullit fine sandy loam, 0 to 1 percent slopes	29.1	0.12%	Prime Farmland
Larue loamy fine sand, 3 to 5 percent slopes	10.3	0.04%	None
Lula silt loam, 1 to 3 percent slopes	38.3	0.16%	Prime Farmland
Muskogee silt loam, 1 to 3 percent slopes	593.8	2.41%	Prime Farmland
Newtonia silt loam, 1 to 3 percent slopes	44.3	0.18%	Prime Farmland
Panola silt loam, 0 to 1 percent slopes	141.4	0.57%	Prime Farmland
Pushmataha loam, 0 to 1 percent slopes, occasionally flooded	374.0	1.52%	None
Ruston fine sandy loam, 1 to 3 percent slopes	514.6	2.09%	Prime Farmland
Ruston fine sandy loam, 3 to 5 percent slopes	225.2	0.91%	Prime Farmland
Ruston loamy fine sand, 3 to 8 percent slopes	110.5	0.45%	None
Saffell gravelly fine sandy loam, 3 to 8 percent slopes	119.8	0.49%	None
Saffell gravelly sandy loam, 3 to 5 percent slopes	2.3	0.01%	None
Saffell gravelly sandy loam, 5 to 20 percent slopes	196.8	0.80%	None
Smithdale fine sandy loam, 3 to 8 percent slopes, eroded	648.2	2.63%	None
Smithdale fine sandy loam, 5 to 12 percent slopes	738.1	2.99%	None
Smithdale fine sandy loam, 5 to 8 percent slopes	159.8	0.65%	Prime Farmland
Speer fine sandy loam, 0 to 1 percent slopes, rarely flooded	1,108.3	4.50%	Prime Farmland
Speer loam, 1 to 3 percent slopes, rarely flooded	68.1	0.28%	Prime Farmland
Swink-Hollywood complex, 5 to 20 percent slopes	1,550.9	6.29%	None
Tenaha and Smithdale soils, 2 to 12 percent slopes, gullied	385.9	1.57%	None
Tenaha loamy fine sand, 1 to 5 percent slopes	68.0	0.28%	None
Tenaha-Kirvin association, 12 to 20 percent slopes	373.3	1.51%	None
Tuskahoma-Clebit-Sobol association, 8 to 12 percent slopes	12.8	0.05%	None
Wrightsville-Elysian complex, 0 to 1 percent slopes	785.5	3.19%	None
Total Acres	24,217.3		

Source: Soil Classes (USACE OMBIL). Note: Because some areas were not included in OMBIL soil classification, the total differs from total fee area.

2.5.4 Prime Farmland

As required by Section 1541(b) of the Farmland Protection Policy Act (FPPA) of 1980 and 1995, 7 U.S.C. 4202(b), federal and state agencies, as well as projects

funded with federal funds, are required to (a) use the criteria to identify and take into account the adverse effects of their programs on the preservation of farmland, (b) consider alternative actions, as appropriate, that could lessen adverse effects, and (c) ensure that their programs, to the extent practicable, are compatible with state and units of local government and private programs and policies to protect farmland.

There are several soil types in the study area that are considered prime farmland soils or soils associated with farmlands of state importance. However, the lands represented by these soil types have not been used for farming since the lands were acquired prior to the initiation of construction of Hugo Lake in September 1968.

2.6 WATER RESOURCES

2.6.1 Surface Water

Hugo Lake is located in the Kiamichi River watershed in the Red River Basin (including the Little River Sub-basin). The Kiamichi River originates near the Oklahoma/Arkansas border in the Ouachita Mountains within Le Flore County, Oklahoma, and flows generally southwest until it reaches Pine Valley where it turns to flow southeast until it joins the Red River. The basin is crescent-shaped, 169 miles long, and varies in width from 5 to 30 miles. The total drainage area in the basin is 1,830 square miles, with 1,709 square miles above Hugo Lake. There are numerous tributaries, with some of the larger ones being Jackfork, Buck, Tenmile, and Cedar Creeks.

2.6.2 Wetlands

Waters of the United States are defined within the Clean Water Act (CWA), and jurisdiction is addressed by the USACE and EPA. Wetlands are a subset of the waters of the United States that may be subject to regulation under Section 404 of the CWA (40 CFR 230.3). Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, and under normal circumstances these wetlands do support this vegetation type.

Typically, the National Wetlands Inventory (NWI) established by US Fish and Wildlife Service (USFWS) is used to identify wetland types in a project area. However, the available dataset for the Hugo project area was mapped prior to impoundment and does not reflect the current conditions. Therefore, NWI was not used to identify and calculate wetland acreage with the fee boundary of the project. Instead, the Oklahoma Ecological System Mapping System (ESM) developed by Oklahoma Department of Wildlife Conservation (ODWC) was used. Using the ODWC ESM mapping, wetlands are delineated as swamps and the lake is shown as open water. Figure 2.3 displays the ecological habitat types at Hugo Lake based on ESM including wetland habitat types.

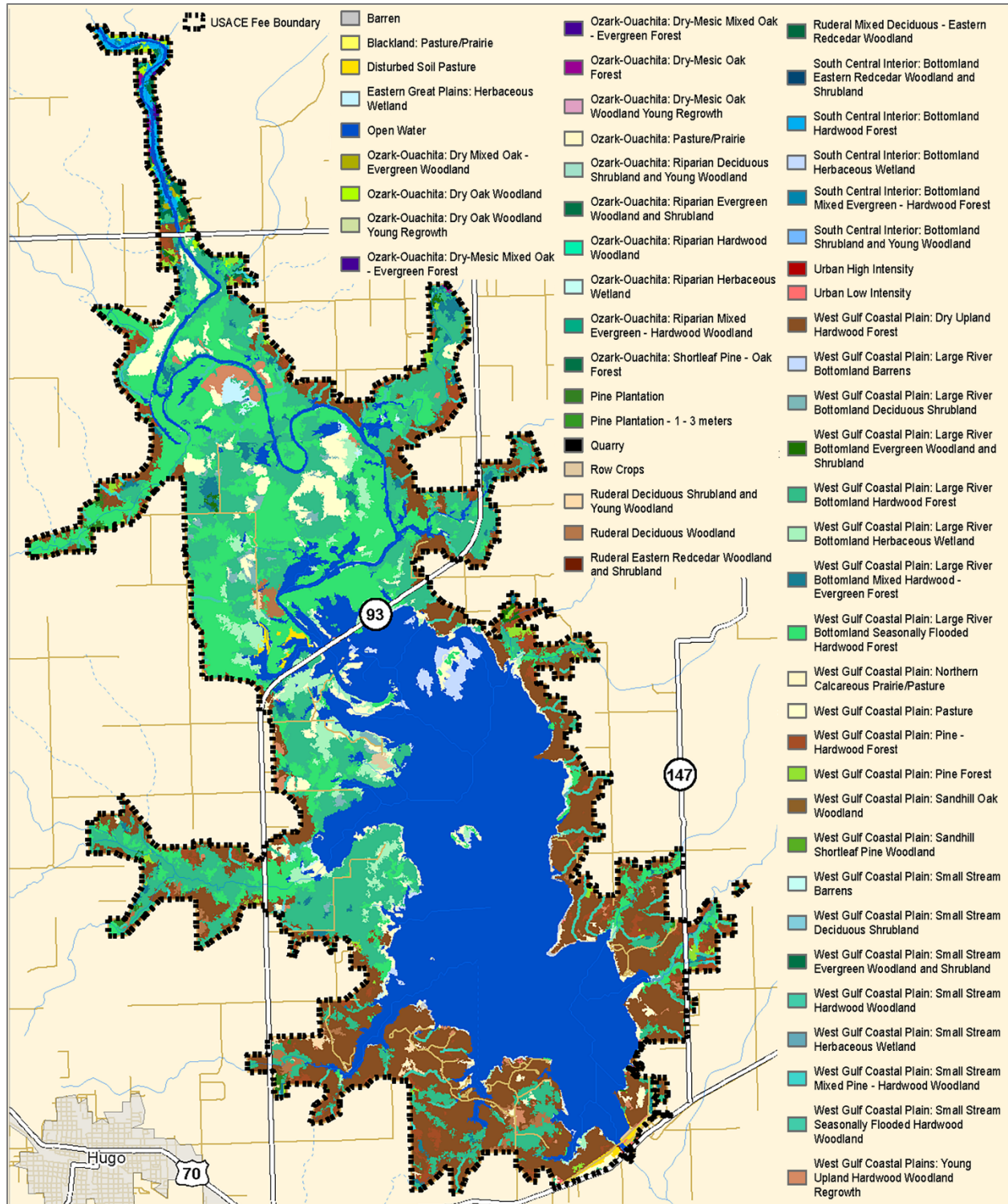


Figure 2.3 Ecological Habitat Types at Hugo Lake

2.6.3 Groundwater

Deep below Hugo Lake lies the Antlers Major Bedrock Aquifer. There are not any minor aquifers found within the Hugo Lake federal fee boundary. The Antlers Major Bedrock Aquifer stores roughly 31,600,000 acre-feet of water (USGS, 1981). The aquifer covers an area 4,400 sq miles, with an overall water quality suitable for municipal use. Communities around the lake typically get their drinking water from Hugo Lake, instead of from the aquifers due to the stable supply of surface water throughout the region.

2.6.4 Hydrology

The regulating channel capacity of the Kiamichi River below Hugo Dam is about 20,000 cubic feet per second (cfs). The approximate regulating channel capacities of the Red River above the mouth of the Kiamichi River at Arthur City is 60,000 cfs while below the mouth of the Kiamichi at DeKalb it is 70,000 cfs and at Index it is 80,000 cfs. Below the mouth of the Little River at Fulton the Red River regulating channel capacity is about 100,000 cfs. Crest travel time from Arthur City to the confluence of the Kiamichi River is 8 to 12 hours, from Hugo Dam to the mouth of the Kiamichi River is 6 to 9 hours, and from the mouth of the Kiamichi to DeKalb is 16 to 24 hours.

Surface waters are categorized into hydrologic units. Hydrologic units are classified by the United States Geologic Survey (USGS) using a Hydrologic Units Code system, also referred to as HUC's. The units are classified from largest HUC with a two-digit region (i.e., the Arkansas-White-Red Region), encompassing the largest area, to a twelve-digit sub-watershed HUC. Hugo Lake is classified to sub-watersheds as follows:

- 11 (HUC 2: Region) – Arkansas-White-Red Region
- 1114 (HUC 4: Sub-region) – Red-Sulphur
- 111401 (HUC 6: Basin) – Red-Little
- 11140105 (HUC 8: Sub Basin) – Kiamichi
- 1114010507 (HUC 10: Watershed) – Hugo Lake-Kiamichi River
- 111401050701 (HUC 12: Sub-watershed) – One Creek
- 111401050702 (HUC 12: Sub-watershed) – Rock Creek
- 111401050703 (HUC 12: Sub-watershed) – Big Waterhole-Kiamichi River
- 111401050705 (HUC 12: Sub-watershed) – Lower Frazier Creek
- 111401050706 (HUC 12: Sub-watershed) – Long Creek
- 111401050707 (HUC 12: Sub-watershed) – Holly Creek-Kiamichi River
- 111401050708 (HUC 12: Sub-watershed) – Salt Creek-Kiamichi River

Most major storms in the Hugo Lake drainage basin have occurred in April through June and September through November. Thunderstorms and the remnants of hurricanes are the type of storms that produce most high runoff events in the basin. Time of year and antecedent soil moisture condition are major factors that determine the runoff from a given storm. Thus, some lesser rainfall storms have resulted in runoff as great as or greater than storms of higher rainfall. Generally, the storms common to the drainage basin are not of uniform intensity.

Hugo Lake is an integral part of the USACE plan for flood control and water conservation in the Red River Basin. The plan presently consists of thirteen major flood control projects, known as Altus Lake, Kemp Lake, Tom Steed Lake, Foss Lake, Ft. Cobb Lake, Waurika Lake, Arbuckle Lake, Hugo Lake, Pat Mayse Lake, Sardis Lake, McGee Creek Reservoir, Broken Bow Lake and Pine Creek Lake. The total river basin is 92,600 square miles within USACE plan, while the drainage area upstream of Hugo Dam is 1,708 square miles. USACE operates and maintains the dam and associated facilities and administers the Federal lands and flowage easements comprising the project through a combination of direct management and leases/licenses for park and recreation purposes.

2.6.5 Water Quality

Oklahoma Department of Environmental Quality (DEQ) sets and implements standards for surface water quality to improve and maintain the quality of water in the state, based on various beneficial use categories for the water body. The Water Quality in Oklahoma 2020 Integrated Report, which is a requirement of the Federal Clean Water Act Sections 305(b) and 303(d), evaluates the quality of surface waters in Oklahoma and identifies those that do not meet uses and criteria defined in the Oklahoma Water Quality Standards (WQS). The Oklahoma 2020 Integrated Report describes the status of Oklahoma natural waters based on historical data and assigns waterways to various categories depending on the extent to which they attain the WQS.

Existing water quality within Hugo Lake is affected by rainfall and associated stormwater flows originating from residential, commercial, and industrial point and nonpoint sources from properties upstream of the dam and reservoir. These stormwater flows have increased over time as a result of increased urbanization, development, and climate change.

The Oklahoma 2020 Integrated Report-303(d) List (DEQ, 2020) lists the entire Hugo Lake as exceeding WQS for pH, mercury, and turbidity.

As of July 19, 2022, a fish consumption advisory exists for Hugo Lake, due to mercury found in fish tissue samples. Fish under this advisory include black crappie, blue catfish, bowfin, channel catfish, flathead catfish, largemouth bass, spotted bass, and white bass (DEQ, 2022). The advisory warnings range from consumption is not recommended for sensitive populations to two meals per month for certain lengths, depending on fish species. Sensitive populations are women of child-bearing age, pregnant or nursing mothers, and children up to age 15.

2.7 HAZARDOUS MATERIALS AND SOLID WASTE

There are no hazardous or solid waste advisories for Hugo Lake. However, DEQ has issued chemical contaminant advisories for Hugo Lake and recommends that persons should limit their consumption of certain species as explained in Section 2.6.5 of the Master Plan. The chemical contaminant of concern is mercury.

2.8 HEALTH AND SAFETY

Hugo Lake's authorized purposes include flood control, water supply, water quality, recreation, and fish and wildlife conservation. Compatible uses incorporated in project operation management plans include conservation and fish and wildlife habitat management components. The USACE, with some assistance from the Oklahoma Highway Patrol, ODWC, and USFWS, has established public outreach programs to educate the public on water safety and conservation of natural resources. In addition to the water safety outreach programs, the project has established recreation management practices to protect the public. These include safe boating and swimming regulations, and speed limit and pedestrian signs for park roads. Hugo Lake also has solid waste management plans in place for camping and day use areas that are maintained by the respective partners that hold the lease.

2.9 ECOREGION AND NATURAL RESOURCE ANALYSIS

2.9.1 Natural Resources

Operational civil works projects administered by the USACE are required, with few exceptions, to prepare an inventory of natural resources. The basic inventory required is referred to within USACE regulations (ER and EP 1130-2-540) as a Level One Inventory. This inventory includes the following: vegetation in accordance with the National Vegetation Classification System through the sub-class level; assessment of the potential presence of special status species including but not limited to Federal and state listed endangered and threatened species, migratory species, and birds of conservation concern listed by the USFWS; land (soils) capability classes in accordance with NRCS soil surveys; and wetlands, which are previously discussed in Section 2.6.2. In addition to the data from the Level One Inventories, a Wildlife Habitat Appraisal Procedure (WHAP) was conducted.

The Texas Parks and Wildlife Department (TPWD)'s WHAP was used to assist in the preparation of the Master Plan. The assessment was conducted June 7-11, 2021 at Hugo Lake by an interagency team consisting of ODWC and USACE biologists, foresters, and park rangers. A total of 61 data collection sites were selected using aerial photography and knowledge of the Hugo Lake staff, choosing points both at random across multiple habitat types and based on areas known to have unique qualities, habitats, or species. The purpose of the survey was to quickly assess wildlife habitat quality within the USACE Hugo Lake fee-owned property. The four major habitat types that were selected and assessed were marsh, riparian/bottomland hardwood forests (BHF), upland forests, and grasslands. However, due to ongoing flooding during the survey, efforts that made it unsafe to survey some low-lying sites like marsh and riparian/BHF were skipped. The highest score a site can receive is 1.00 while the lowest is 0.03, while a score of 0 represents a site skipped and not incorporated into the report calculations. The scores are not species dependent but rather diversity dependent. To evaluate all habitat types on an even scoring basis, upland forest and grassland scores were normalized by dividing their original scores by the maximum possible score for their respective habitat types. The data gathered from this survey helped to quantifiably

describe the general habitat characteristics and identify unique/high quality areas found within USACE Hugo Fee Boundary. This data helped with revising land classifications based on areas needing or benefiting from increased protection. The WHAP assessment report can be found in Appendix C of this Plan.

The WHAP assessment revealed that the two most abundant habitat types surveyed were upland forests and grasslands. The three habitat types sampled (upland forest, riparian/BHF, and grassland) all had average total score within 7 points of each other. This reflects how normalizing efforts on the data has helped to evaluate sites on an even scoring basis.

2.9.2 Vegetation Resources

Hugo Lake lies within the northern extent of the South Central Plains and within the southern extent of the Ouachita Mountains ecoregions (Level IV). The South Central Plains ecoregion is characterized by uplands being dominated by a forest consisting of southern red oak (*Quercus falcata*), post oak (*Quercus stellata*), white oak (*Quercus alba*), hickories (*Carya sp.*), loblolly pine (*Pinus taeda*), and shortleaf pine (*Pinus echinata*). What prairies exist are typically confined to managed lands like parks and wildlife management areas, as areas outside of those management areas have typically been developed into pastures and managed forests. Bottomland forests and wetlands typically occur in poorly drained areas. The bottomland hardwood forests are typically southern hardwood forests which consists of water oak (*Quercus nigra*), willow oak (*Quercus phellos*), swamp chestnut oak (*Quercus michauxii*), sweetgum (*Liquidambar styraciflua*), blackgum (*Nyssa sylvatica*), red maple (*Acer rubrum*), bald cypress (*Taxodium distichum*), and water tupelo (*Nyssa aquatica*).

The Ouachita Mountains ecoregion vegetation is predominantly of an oak-hickory-pine forest. The common tree species are loblolly pine, shortleaf pine, southern red oak, scarlet oak (*Quercus coccinea*), black oak (*Quercus ellipsoidalis*), post oak, blackjack oak (*Quercus marilandica*), white oak, pignut hickory (*Carya glabra*), and mockernut hickory (*Carya tomentosa*). What prairies exist are typically confined to managed lands like parks and wildlife management areas, as areas outside of those units had typically evolved into pastures and forests. Bottomland forests and wetlands typically occur in poorly drained areas.

These regions like so many other ecological regions in Oklahoma have undergone significant changes in the past 150 years. Although habitat for wildlife is present throughout the ecological regions as a whole, populations vary considerably within sub-regions. The diversity and configuration of the plant communities on the landscape influence wildlife populations. Other factors include fragmentation of once continuous habitat into smaller land holdings, competition for food and cover with livestock, conversion of woodland habitat to improved pastures or urban and rural developments, and lack of proper wildlife and habitat management.

2.10 FISHERIES AND WILDLIFE RESOURCES

Hugo Lake provides habitat for an abundance of fish and wildlife species. Predominant fish species in the lake are largemouth bass (*Micropterus salmoides*), channel catfish (*Ictalurus punctatus*), blue catfish (*Ictalurus furcatus*), flathead catfish (*Pylodictis olivaris*), white crappie (*Pomoxis annularis*), black crappie (*Pomoxis nigromaculatus*), and white bass (*Morone chrysops*). Other less prominent species include carp (*Cyprinus carpio*), hybrid catfish, alligator gar (*Atractosteus spatula*), and sunfish (*Lepomis spp.*). Although not sport fish, smaller fish are the most abundant fish in Hugo Lake.

Many of the undeveloped open spaces provide habitat for wildlife including white tail deer (*Odocoileus virginianus*), black bear (*Ursus americanus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), eastern cottontail rabbit (*Sylvilagus floridanus*), fox squirrel (*Sciurus niger*), gray squirrel (*Sciurus carolinensis*), opossum (*Didelphis virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), beaver (*Castor canadensis*) and wild boar (*Sus scrofa*). The area also provides habitat for a diverse range of birds including eastern wild turkey (*Meleagris gallopavo*), great blue heron (*Ardea herodias*), turkey vultures (*Cathartes aura*), American crow (*Corvus brachyrhynchos*), and bald eagle (*Haliaeetus leucocephalus*) as well as providing important stopover habitat for many migratory bird species.

2.11 THREATENED AND ENDANGERED SPECIES

The Endangered Species Act (ESA) was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. USFWS is the primary agency responsible for implementing the ESA and is responsible for birds and other terrestrial and freshwater species. USFWS responsibilities under the ESA include (1) the identification of threatened and endangered species; (2) the identification of critical habitats for listed species; (3) implementation of research and recovery efforts for these species; and (4) consultation with other Federal agencies concerning measures to avoid harm to listed species.

An endangered species is a species officially recognized by USFWS as being in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Proposed species are candidate species that are found to warrant listing as either threatened or endangered, but have not been officially listed yet. Species may be considered eligible for listing as endangered or threatened when any of the five following criteria occur: (1) current/imminent destruction, modification, or curtailment of their habitat or range; (2) overuse of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; and (5) other natural or human-induced factors affecting their continued existence.

A species can have more than one protection measure with the exclusion of endangered, threatened, and listed. A species cannot be both endangered and threatened; however, a species can be endangered, migratory and protected.

- Protected means that there are other Federal laws and regulations protecting the species than the ESA and Migratory Bird Treaty Act. Examples include Bald and Golden Eagle Protection Act, Lacey Act, and Migratory Bird Treaty Act. Just because a species is listed as migratory doesn't automatically qualify it as protected, it must be protected by more than one law.
- Migratory means it applies specifically to migratory birds. The law that governs these species is the Migratory Bird Treaty Act. Under this law "it is illegal to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts*, nests, or eggs of such a bird except under the terms of a valid Federal permit" (USFWS, 2020A).

In addition, USFWS has identified species that are candidates for listing as a result of identified threats to their continued existence. The candidate designation includes those species for which USFWS has sufficient information to support proposals to list as endangered or threatened under the ESA; however, proposed rules have not yet been issued because such actions are precluded at present by other listing activity. Although not afforded protection by the ESA, candidate species may be protected under other federal or state laws.

The USFWS's Information for Planning and Consultation (IPaC) database (USFWS, 2022I) lists the threatened and endangered species, and trust resources that may occur within the Hugo Lake Federal Fee Boundary (see USFWS Species List and the IPaC Report in Appendix C). Based on the IPaC report, there are 9 federally listed species and one candidate species that could be found within Hugo Lake (USFWS, 2022I). A list of these species is presented in Table 2.2. There is not any Critical Habitat designated within or near Hugo Lake. The species identified as Threatened, Endangered or Candidate Species by ODWC that are not federally listed are included in Appendix C as well as a list of Species of Greatest Conservation Need (SGCN) for the Ouachita Mountains, Arkansas River Valley and West Gulf Coastal Plain Region.

Table 2.1 Federally Listed Threatened & Endangered Species with Potential to Occur at Hugo Lake

Common Name	Scientific Name	Federal Status	State Status
American Burying Beetle	<i>Nicrophorus americanus</i>	Threatened	Not Listed
Indiana Bat	<i>Myotis sodalis</i>	Endangered	Not Listed
Monarch Butterfly	<i>Danaus plexippus</i>	Candidate	Not Listed
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Threatened	Not Listed
Ouachita Rock Pocketbook	<i>Arkansia wheeleri</i>	Endangered	Not Listed
Piping Plover	<i>Charadrius melodus</i>	Threatened	Not Listed
Red Knot	<i>Calidris canutus rufa</i>	Threatened	Not Listed
Red-cockaded Woodpecker	<i>Picoides borealis</i>	Endangered	Not Listed
Scaleshell Mussel	<i>Leptodea leptodon</i>	Endangered	Not Listed
Winged Mapleleaf	<i>Quadrula fragosa</i>	Endangered	Not Listed

The American burying beetle is a member of the family *Silphidae* (carrion or burying beetles) that is listed threatened (USFWS, 2022A). It is the largest species of *Nicrophorus* in North America. Existing populations of this species includes eastern Oklahoma. The American burying beetle is known to inhabit level areas in grasslands, grazed pastures, bottomland forest, open woodlands, and riparian areas. Wetlands with standing water or saturated soils and vegetation typical of hydric soils and wetland hydrology are listed as unfavorable habitats. American burying beetles are habitat generalists; however, it is thought that undisturbed habitat and the availability of carrion is the most likely influence on species distribution. Because of the lack of availability of habitat and the project area being within its known range and the lack of recent sightings, the occurrence of this species is considered uncommon.

The Indiana bat is listed as endangered wherever found (USFWS, 2022B). It is a medium-sized bat with a dull gray to chestnut colored fur dorsally, and pinkish white ventrally. The species primarily is found in the midwestern and eastern United States and has been reported from 23 states. Eastern Oklahoma represents the western limit of its range. Its present range in Oklahoma includes Adair, Delaware, LeFlore, and Pushmataha counties. In Oklahoma, Indiana bats were reported to occur at only Keystone, Eufaula, and Tenkiller Lakes. This species is migratory with approximately 87% of the entire known population hibernating in just seven caves. The species prefers to hibernate in limestone caves, ideally ones with pools. Maternity sites are in trees. During the summer months, they can be found under bridges, in old buildings, under tree bark, or in hollow trees generally associated with streams. Although Hugo Lake contains preferred summer and maternity habitat, the lake is located at the western limit of their known range, thus their occurrence is considered uncommon.

The Monarch butterfly (*Danaus plexippus*) is listed as a candidate species wherever it is found (USFWS, 2022C). It is an orange butterfly with black stripes and white dots on its wings, whose span can be up to 10 cm (NatureServe, 2022D). Its breeding habitat consists primarily of milkweed species (*Asclepias* spp.), which its larvae feed exclusively on. When it is in North America and is migrating, is commonly found wherever blooming flowers are. Hugo Lake and its federal fee boundary does contain an abundance of blooming flowers and milkweed; this along with numerous recent sightings confirms that this species is common within the area when the species is migrating and during breeding season.

The USFWS lists the northern long-eared bat threatened wherever it is found (USFWS, 2022D). The USFWS lists the Hugo Lake Project Area as a location where northern long-eared bats may occur. Northern long-eared bats seasonally migrate between winter hibernacula and summer maternity or bachelor colonies. Roosting may take place in tree bark, tree cavities, caves, mines, and barns. Northern long-eared bats forage along forested hillsides and ridges near roosting and hibernating caves. They emerge at dusk and feed on various insect species such as moths, flies, leafhoppers, caddisflies, and beetles from vegetation and water surfaces (NatureServe, 2020F). The species occurrence is expected to be common within the project area because the project area lies within the known range, preferred habitat exists, and there are formal documented occurrences of the species around Hugo Lake.

The Ouachita rock pocketbook is a freshwater mussel listed by USFWS (2022E) as endangered wherever it is found. Preferred habitat consists of rivers and large creeks, substrate that is stable, large, diversified mussel beds, and areas that are next to sand/gravel/cobble bars, but these must be scoured clean or support emergent aquatic vegetation (NatureServe, 2022A). It is documented to occur within the federal fee boundary of Hugo Lake. Due to the documented occurrence of the species within the project area and that the area still supports the preferred habitat the occurrence of the species is considered to be common within the Hugo Lake federal fee boundary.

The piping plover is a shorebird listed as endangered in the watershed of the Great Lakes of North America and threatened in the remainder of its range, which includes the Northern Great Plains, the Atlantic Coast, the Gulf Coast, the Bahama Islands, and the West Indies (USFWS, 1996). The USFWS (2020C) identifies Hugo Lake as “situated within the probable migratory pathway between breeding and winter habitats [of the Northern Great Plains population] and contain[ing] sites that could provide stopover habitat during migration.”

The Northern Great Plains population of piping plover spends up to 10 months a year on its wintering ground along the Gulf Coast and arrives on prairie breeding grounds in early May. During migration periods, they use large rivers, reservoir beaches, mudflats, and alkali flats (NatureServe 2020C). They feed on a variety of aquatic and terrestrial invertebrates. The sandbars and bare gravel islands along the Arkansas River within the study area could provide suitable habitat during the plovers’ spring and fall migrations. The occurrence of the species within the project area is considered to be rare due to the lack of recent sightings.

The red cockaded woodpecker is a small black and white bird with black beak and legs that is listed by the USFWS (2022F) as endangered wherever it is found. The preferred habitat of the Red-cockaded Woodpecker is that of a broad savanna that consists of mature to old growth pines that are frequently burned (NatureServe 2022E). It is a non-migratory omnivore that primarily feeds on insects but will feed on wild berries and pine seeds. It feeds by sight instead of sound which is characteristic of other species of woodpeckers. The occurrence of the species within the project area is considered to be rare due to lack of recent sightings.

The red knot is a migratory shorebird listed as threatened wherever found (USFWS, 2020D). Although sightings are rare, the project area is listed as a location where the red knot is “known or believed to occur” and is located within the probable migratory path, between breeding in the Arctic tundra and winter habitats in the southern U.S. and Central and South America. Red knots forage along sandy beaches and mud flats, and this species may use the study area for temporary stopover and foraging (NatureServe, 2022E). The sandbars and bare gravel shoreline along Hugo Lake could provide suitable habitat during the red knot’s spring and fall migrations. Although there is available habitat and the project area is within its known range, the species is considered rare at Hugo Lake due to lack of recent sightings.

The scaleshell mussel is freshwater mussel that can grow up to 11 centimeters in length and is listed by the USFWS (2022G) as endangered wherever it found. It has a thin brown shell. The scaley like appearance which the species is known for is only found within females. Preferred habitat consists of rivers with good water quality with stable river channels (NatureServe 2022G). The occurrence of the species within the project area is considered to be rare due to lack of recent sightings as evidenced by the information provided by the Oklahoma Natural Heritage Inventory (ONHI).

The winged mapleleaf is a freshwater mussel that can grow up to 4 inches long and is listed by the USFWS (2022H) as endangered with non-essential experimental populations. It has a thick brown shell with rows of bumps, with smaller sizes being characterized by having rays in addition to the bumps. Preferred habitat consists of clear water with underlying substrate consisting of either rubble, sand, or clean gravel (NatureServe 2022H). These areas are in portions of small rivers and streams that are characterized by rough waters. The occurrence of the species within the project area is considered to be rare due to lack of recent sightings as evidenced by the information provided by the Oklahoma Natural Heritage Inventory (ONHI).

2.11.1 Oklahoma Natural Heritage Inventory

The Oklahoma Natural Heritage Inventory (ONHI), administered by the University of Oklahoma (OU) (2021), manages and disseminates occurrence of information on rare species, native plant communities, and animal aggregations in Oklahoma to help guide project planning efforts. An official request via email was made requesting this information for the Hugo project area. In the inventory given to USACE, ONHI indicates that there are three Federally endangered, threatened, and protected species that are

known to occur within the vicinity Hugo Lake Federal Fee Boundary: American burying beetle, Northern Long-eared Bat, and Ouachita Rock Pocketbook.

2.12 INVASIVE SPECIES

An invasive species is defined as a plant or animal that is non-native (or native nuisance) to an ecosystem and whose introduction causes, or is likely to cause, economic and/or environmental harm, or harm to human health. Invasive species can thrive in areas beyond their normal range of dispersal. These species are characteristically adaptable, aggressive, and have high reproductive capacity. Their vigor, along with a lack of natural enemies or controls, often leads to outbreak populations with some level of negative effects on native plants, animals, and ecosystem functions and are often associated with disturbed ecosystems and human activities.

Table 2.3 lists many of the invasive and noxious native species found at Hugo Lake. Other species are currently being researched for their invasive characteristics.

Table 2.2 Invasive and Noxious Native Species Found at Hugo Lake

Common Name	Scientific Name	Native/Non-native
Birds		
Black Vulture	<i>Coragyps atratus</i>	Native
Cowbirds	<i>Molothrus ater</i>	Native
Mammals		
Wild Boar	<i>Sus scrofa</i>	Non-native
Insects		
Emerald Ash Borer	<i>Agrilus planipennis</i>	Non-native
Red Imported Fire Ant	<i>Solenopsis invicta</i>	Non-native
Plants		
Honey Locust	<i>Gleditsia triacanthos</i>	Native
Johnson Grass	<i>Sorghum halepense</i>	Non-native
Multiflora Rose	<i>Rosa multiflora</i>	Non-native
Musk Thistle	<i>Carduus nutans</i>	Non-native
Sericea Lespedeza	<i>Lespedeza cuneata</i>	Non-native
Sweetgum	<i>Liquidambar styraciflua</i>	Native
Amphibians		
None	None	None
Mollusks		
None	None	None

Common Name	Scientific Name	Native/Non-native
Fish		
Common Carp	<i>Cyprinus carpio</i>	Non-native
Asian Carp	<i>Hypophthalmichthys noblis</i>	Non-native

Because of the lake's relative isolation from metropolitan areas, it does not have as many invasive species compared to those within or directly adjacent to major metropolitan areas. The remoteness protects the lake from the inadvertent release and spread of common landscape plants that could become aggressive colonizers from nearby residential developments.

While currently not present in Hugo Lake, invasive mollusks including zebra mussels (*Dreissena polymorpha*) are an ongoing threat to native aquatic species and infrastructure due to their ability to infest and expand rapidly, and the close proximity to other infested lakes increases the risk at Hugo Lake. Asian Carp are not present within Hugo Lake, however they are found immediately below Hugo Lake Dam.

Emerald Ash Borers (*Agrilus planipennis*) are a growing threat across much of the United States. Emerald Ash Borers are not native to North America but to parts of eastern Asia. All native North American ash species are susceptible to Emerald Ash Borers, including Green Ash (*Fraxinus pennsylvanica*) which is fairly abundant around Hugo Lake. While there have not been any Emerald Ash Borers identified at Hugo Lake, they have been identified in northern Oklahoma as well as every neighboring state except New Mexico. The Oklahoma Department of Agriculture, Food, and Forestry stated that "[Emerald Ash Borers are] now considered the most destructive forest pest ever seen in North America." (ODAFF 2015).

Although native, cowbirds (*Molothrus ater*) have become problematic due to their expanding range associated with agriculture and human development and are considered a nuisance. They often outcompete many other native species while also acting as a brood parasite, introducing their own eggs into the nests of other birds, to the detriment of the other birds' offspring.

2.13 AESTHETIC RESOURCES

Hugo Lake includes many acres of scenic shorelines, lake views, and wildlife viewing areas providing high visual and scenic qualities. Some areas are admired for their scenic attractiveness (intrinsic scenic beauty that evokes a positive response), scenic integrity (wholeness of landscape character), and landscape visibility (how many people view the landscape and for what reasons and how long). Because Hugo Lake is located a short drive away from the Tulsa metropolitan area and the Dallas-Fort Worth metropolitan area, people come from those urban and suburban communities to enjoy the scenic and naturalistic views offered at the lake. Some areas have been designated as Wildlife and Vegetative Management or Environmentally Sensitive Areas to preserve specific animal, plant, or environmental features that also add to the scenic qualities at

the lake. Nearby parks have been designed to access the lake, allow access to hiking trails, and take advantage of scenic qualities at the lake and surrounding areas.

Adjacent landowners are informed that removing trees from USACE property to obtain a view of the lake not only destroys wildlife habitat but also lowers the scenic quality of the shoreline when viewed by the general public from the water surface. Furthermore, unauthorized removal of trees and other vegetation from USACE property could result in fines. Additionally, reasonable measures must be taken to ensure that damage to the natural landscape from invasive species and catastrophic wildfire are minimized. Vegetative management, debris removal, and other shoreline issues are managed by the USACE Hugo Lake Office.

2.14 CULTURAL RESOURCES

Cultural resources preservation and management is an equal and integral part of all resource management at USACE-administered operational projects. The term “cultural resources” is a broad term that includes, but is not limited to, historic and prehistoric archaeological sites, deposits, and features; burials and cemeteries; historic and prehistoric districts comprised of groups of structures or sites; cultural landscapes; built environment resources such as buildings, structures (such as bridges), and objects; Traditional Cultural Properties (TCP) and sacred sites. These property types may be listed on the National Register of Historic Places (NRHP) if they meet the criteria specified by 36 CFR 60.4 as authorized by the National Historic Preservation Act (NHPA), reflecting significance in architecture, history, archaeology, engineering, and culture. Cultural resources that are identified as eligible for listing in the NRHP are referred to as “historic properties,” regardless of category. A TCP is a property that is eligible for inclusion in the NRHP based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. Ceremonies, hunting practices, plant-gathering, and social practices which are part of a culture’s traditional lifeways, are also cultural resources.

Stewardship of cultural resources on USACE Civil Works water resources projects is an important part of the overall Federal responsibility. Numerous laws pertaining to identification, evaluation, and protection of cultural resources, Native American Indian rights, curation and collections management, and the protection of resources from looting and vandalism establish the importance of cultural resources to our Nation’s heritage. With the passage of these laws, the historical intent of Congress has been to ensure that the Federal government protects cultural resources. Guidance is derived from a number of cultural resources laws and regulations, including but not limited to Sections 106 and 110 of the NHPA of 1966 (as amended); Archaeological Resources Protection Act (ARPA) of 1979; Native American Graves Protection and Repatriation Act (NAGPRA); and 36 CFR Part 79, Curation of Federally Owned and Administered Archeological Collections. Implementing regulations for Section 106 of the NHPA and NAGPRA are 36 CFR Part 800 and 43 CFR Part 10, respectively. All cultural resources laws and regulations should be addressed under the requirements of the National Environmental Policy Act (NEPA) of 1969 (as amended), as applicable. USACE summarizes the guidance provided in these laws in ER and EP 1130-2-540.

2.14.1 Cultural History Sequence

Six broad cultural divisions are applicable to a discussion of the culture history of the Hugo Lake region: Paleoindian, Archaic, Woodland, Mississippian/Plains Village, Protohistoric, and Historic. These general adaptation types are adopted in this Master Plan to characterize prehistoric cultural traditions, within the following regional chronology.

- Paleoindian: 30,000 to 7000 BC
- Archaic: 7000 BC to 1 AD
- Woodland: AD 1 to 1000
- Mississippian/Plains Village: AD 1000 to 1500
- Protohistoric (Contact Period): AD 1500 to 1830
- Historic: AD 1830 to present

2.14.2 Paleoindian Period

While it is becoming increasingly evident that humans arrived in the Americas as early as 30,000 years ago, the Paleoindian Period is broadly accepted as spanning the end of the Pleistocene into the Early Holocene. The Clovis complex (9500-8900) is the earliest well substantiated archaeological period in the Central Plains. Paleoindian sites are usually identified by the presence of the remains of extinct Pleistocene megafauna and signature stone tools. The most visible tools are projectile points, and these are used to reference different archaeological complexes. Point types are unnotched lanceolate projectile points, fluted (Clovis and Folsom) and unfluted (Allen-Frederick, Agate Basin, Hell Gap, Meserve, Plainview, Cody, Dalton, Plano, and undesignated "Late Paleoindian"). Long characterized as specialized big game hunters, it has now been demonstrated that the archaeological complexes of the Paleoindian Period represent diversified economies of small bands of hunters and gatherers, some more reliant on megafauna than others, and some hunting megafauna during specific seasons. The Dalton Complex is well represented in Eastern Oklahoma and spans the period from the end of the Paleoindian Period and into the Early Archaic (Ballenger 2001 and Meltzer 2009).

In Oklahoma, the earliest proven evidence of human occupation occurs at sites such as the Domebo site, a Clovis era mammoth kill site in Caddo County, and Jakes Bluff, a bison kill site in Harper County (Gilbert, 2000). Typically in Oklahoma, isolated Paleoindian points have been found on the surface. These points are most often collected, which results in loss of archaeological context. For these reasons a very limited number of Paleoindian sites have been recorded in the project area, though sites with both Paleoindian and Archaic deposits are better represented. The small number of sites from this period is much more a product of archaeological visibility than an actual representation of prehistoric populations and patterns of land use. In eastern Oklahoma sites such as the Packard site in Mayes County, the Quince Site in Atoka County, and the Billy Ross site in Haskell County include large quantities of local chert, which may indicate that later Paleoindian peoples were less nomadic than earlier Paleoindians (Brooks 2021).

2.14.3 Archaic Period

During the Archaic Period, an increase in seasonal variability of resources and increasing populations resulted in changing settlement and subsistence patterns (Gilbert 2000). Repeated occupation of sites, often on a seasonal basis, and features such as rock-lined hearths, roasting pits, and grinding tools reflect intensive plant processing and the cyclical exploitation of resources (Brogan 1981; Brooks 2021). Increasing diversity of stone tools through time reflects the increasing variability of faunal and floral resources and diversity of activities taking place at habitation sites (Thies and Witty 1992). Projectile points from the Middle and Late Archaic are stylistically quite different (typically notched and stemmed) from those of the Paleoindian Period. Archaic assemblages include a variety of large dart points, knives, drills, axes, gouges, scrapers, and grinding implements (such as manos and metates). The Archaic Period is traditionally divided into Early, Middle, and Late Periods, the overall extent of which was approximately 7000 BC to 1 AD.

The Calf Creek Culture was prominent in Oklahoma during the Archaic Period between 7,000 and 4,000 years ago. This group adapted to a long drought period by living in highly mobile bands, hunting bison, and supplementing their diet with edible starchy plant seeds that were more readily available in the dry climate. Calf Creek is distinguished by finely made large spear points with deep notches on the base. Archaeologists believe there were four groups located in the east central, north central, south central, and western areas of the state based on their reliance on local flint found in the four areas (Gilbert 2000).

Prominent Calf Creek sites in Oklahoma include Primrose and Stillman Pit sites in Murray County, the Kubik site in Kay County, the Arrowhead Ditch site in Muskogee County, and the Anthony site in Caddo County. The Anthony site is unique in that it exhibits artifacts from all four Calf Creek groups and was likely a gathering place for the people as a whole (Gilbert 2000). Archaic sites further north along the Kiamachi River than the project area indicate people depended heavily on riverine resources, though sites closer to the Red River demonstrate less cultural diversity (Brooks 2021).

2.14.4 Woodland

The Woodland Period (AD 1 to 1000) in Oklahoma can be defined as one of technological innovation, with ceramics, the bow and arrow, gradual intensification of horticulture, and concomitant social changes differentiating this time period from more residentially mobile hunting and gathering populations of earlier times. As people began domesticating plants during this period, populations became more sedentary in order to cultivate and harvest crops. In North America sunflower, native squash, may grass, marsh elder, goosefoot, and pigweed were first domesticated while South American crops such as corn, beans, squash, and chiles were imported through trade later. Bone tools from bison were commonly used in agricultural practices. People lived in small, seasonal villages with houses made of pole frameworks with grass thatch or cane matting to form walls and circular hearths (Gilbert 2000).

The appearance in the archaeological record of small corner notched projectile points indicates that the bow and arrow was in use. The presence of ceramic sherds indicates that ceramic use in the form of pottery for storage and cooking had become widespread. Projectile points from this period include, in addition to the small corner notched points, large contracting stem points and corner-notched projectile points in a variety of styles, indicating continued use of the atlatl and darts, as well as spears likely employed for symbolic political or religious effect (Gilbert 2000 and Brooks 2021).

Woodland Period sites in Oklahoma continued to follow a north-south, east-west distinction. In eastern Oklahoma north of the Arkansas River the Cooper Culture has been defined in Delaware and Mayes counties. These archaeological assemblages are similar to groups living near Kansas City including spearpoints, ceramics, clay figurines, and the use of rock shelters as seasonal camps. South of the Arkansas River but north of the Ouachita Mountains, the Fourche Maline Culture is prominent and exhibited by the McCutchan-McLaughlin site in Latimer County. In western Oklahoma people continued in nomadic bison hunting communities and were slow to adopt the bow and arrow. The Certain Bison Kill site in Beckham County represents this, though sites such as the Swift Horse site in Roger Mills County demonstrate more adaptation of plant subsistence and bow and arrow use (Brooks 2021).

2.14.5 Mississippian/Plains Village

From 1000 to 1500 AD, two main cultures were present in Oklahoma. The Mississippian to the east, and the Plains Village to the north and west. Although in other regions either the Mississippian or the Plains Village are considered unique cultures and time periods in prehistoric chronology, Oklahoma presents a crossroads where the cultures coexisted in the state around the same time. Both cultures became more reliant upon cultivating crops, and large villages soon became common. Both cultures also began creating more pottery forms and styles including bowls, jars, plates, bottles, and effigies with a wide variety of surface treatments. Ornamentation made from copper and a variety of minerals and textiles were widely used as well (Brooks 2021).

The Mississippian culture in Oklahoma, also known as the Caddoan culture, is the western-most representation of a mound building culture that dominated the southeast during this timeframe. Early Mississippians constructed houses and temples that had square or rectangular floor plans with center posts supporting the roofs. Later structures had only two center posts and some were circular. Large burial mounds surrounded by smaller mounds are defining features of Mississippian culture. Burials included grave goods that became more elaborate over time. The Harlan site in Cherokee County is the earliest known center of Mississippian culture in Oklahoma. Spiro Mounds in Le Flore County is the most famous Mississippian site in Oklahoma. Consisting of at least 12 mounds covering an area of 80 acres, the site contained many well preserved and elaborate objects that yielded a great deal of information about the Mississippian people (Gilbert 2000).

Plains Village people grew crops and hunted and gathered wild resources. Artifact assemblages contain gardening tools along with triangular arrow points for

hunting. Sites from this time are often identified in lowland terraces of waterways where gardening with bone tools was viable. These villages have been found along major rivers and their tributaries including the Arkansas, Canadian, North Canadian, Washita, and Red Rivers (Gilbert 2000). Food was stored in underground cache pits that could be 3-5 feet deep and 3-5 feet wide. Ceramics were used for cooking directly over fire both inside and out and were usually smooth, though some were cord marked. Clay figurines have been found at Plains Village sites as well and may have been used in fertility ceremonies related to agriculture. Usually, Plains Village people still lived in villages of 75-150 people. Houses were square or rectangular and could be over 20 feet long. Rather than mounds, Plains Village people buried their dead in nearby cemeteries (Gilbert 2000). Examples of Plains Village sites in Oklahoma include the Roy Smith Site in Beaver County, the Heerwald site in Custer County, the Arthur site in Garvin County, and the McLemore site in Washita County.

2.14.6 The Protohistoric (Contact) Period

The period from A.D. 1500-1830 is referred to as the Protohistoric (or Contact) Period. During this time, non-native explorers, trappers, and traders visited the region, and land claims by first the Spanish, and then the French brought great changes (Everett 2021a). This was a time of reorganization and relocation by native peoples in response to rapid culture change as European contacts brought new technologies, goods traded throughout the continent, diseases which spread ahead of them, the fur trade, and the horse. The pressures of these rapid changes led to increased inter-group conflict, including conflicts over access to, and control of, resources. People aggregated into large villages situated along major rivers, and in the later part of the period many of these villages were fortified (Vehik 2006). The Tribes first encountered by Europeans in Oklahoma included the Caddo and Wichita in the southern and eastern part of the state, and the Plains Apache, Osage, Pawnee, and other more nomadic groups in the northern and western part of the state. The project area was primarily occupied by the Wichita and the Caddo though the Osage were known to hunt and raid in the area (Everett 2021a).

The first Europeans documented in Oklahoma were part of a Spanish expedition led by Francisco Vazquez de Coronado in 1541. In search of gold they erroneously believed to be in the province of Quivira, the expedition began in New Mexico and ended at a Wichita village in southern Kansas, passing through the panhandles of Texas and Oklahoma (Everett 2021a). Additional Spanish explorations in search of gold were conducted in the region through the early 1600s, though the most valuable finding of these expeditions were the descriptions of the land, animals, and peoples they encountered. Spain eventually lost interest in exploring the area northeast of New Mexico and viewed it as a buffer zone between its territory and the French.

In 1682, Robert Cavelier, Sieur de la Salle, claimed the territory drained by the Mississippi as part of the French Empire in North America. By 1700, French traders were established in the region and had developed trading relationships with Wichita groups in the Arkansas Valley of northern Oklahoma and with the Osage to the east. In 1718 Jean Baptiste Benard Sieur de La Harpe lead a trading expedition with the

eventual goal of establishing a trading post along the Red River in present day Texas. Part way through the expedition, he sent their geographer, Gaston Sieur du Rivage, to explore the Red River. The party traveled westward along the Red River and may have traveled near the project area around 1719 (Everett 2021a).

The Caddoan language speaking Wichita and Affiliated Tribes were historically known as the Wichita Proper, Waco, Taovaya, Tawakoni, and Kichai. The Tribes can be traced back at least 800 years to the Washita River culture of central and western Oklahoma. The Washita River people resided in small villages of rectangular, mud-plastered houses with small gardens nearby. Between 1350 and 1450, some Washita River people began migrating north to the Great Bend of the Arkansas River in southern Kansas. Great Bend villagers lived in large, circular grass houses, grew crops, and hunted bison and small game. The archaeological record documents significant long-distance trade with the southwest. Items such as painted and glazed pottery, turquoise beads and pendants, and shell beads distinctive to the Southwest Pueblo cultures attest to the extent of the trade networks in place. The Wichita used horses from the Spanish colonies to more effectively hunt buffalo and used guns, metal hoes, and buckets from the French in their daily lives and to trade with the Comanche. In the late 1700s, due to increased pressure from the Osage, the Wichita abandoned their homes in northern Oklahoma and traveled south into southern Oklahoma and Texas along the Red River near the project area (Wichita and Affiliated Tribes 2021). The Wichita didn't remain in the area for long. Despite Wichita villages and claims in the area, the U.S. recognized Osage and Quapaw authority to cede land south of the Arkansas River in Indian Territory to resettle displaced Tribes from the southeast (Pool 2021). The Wichita gradually relocated south into what today is northern Texas until 1859, when their reservation was established in Indian Territory west of the project area (Wichita and Affiliated Tribes 2021).

In present-day southeastern Oklahoma, southwestern Arkansas, and northeastern Texas the Caddo developed as a regional variant of the Mississippian tradition between AD 800-1100, and were encountered and described by Europeans during the 1500s and 1600s. The Caddo subsisted on agriculture supplemented with hunting and gathering wild plants. They used digging tools of bone, wood, or shell to cultivate crops such as corn, beans, squash, and other domestic plants including tobacco. The Caddo were also skilled potters and made salt. Agriculture coincided with a dispersal of people into residential, year-round settlements usually containing large circular dwellings with pitched roofs. Elaborate mound burials were common until later in the period (Early 2012). Each Caddo community had a principal leader called a caddi. Caddi was a hereditary position and required years of tutoring in order to keep order in the community and contribute to the peace of the Caddo Nation. Few spiritual leaders, called chenesi, held power superior of the caddi. The chenesi lived in houses built on top of the flat-topped mounds and acted as guardians of sacred fire and communed with Ayo-Caddi-Amay or "Great Leader Above" in order to advise the Caddo people. By 1790, the Caddo had been weakened by European epidemics and raids by their northern enemies, the Osage (Carter 2018). The Caddo abandoned their homes in Arkansas and Oklahoma along the Red River and migrated farther south to the Sabine River into Texas, outside of the project area (Perttula 2020).

The Osage were one of five immigrant Tribes of Dhegiha Siouan speakers who originated in the Ohio River area. Over time the Dhegiha Sioux diffused into different Tribes as they migrated westward, and the Osage were one of the last to split and settle in the central and western portions of Missouri around 1300 (Hunter 2013). Osage villages were physically arranged to reflect the Osage cosmos with a central street running east-west representing the path of the sun. Dwellings were rectangular long houses with domed roofs constructed of poles and woven cattail mats, bark, hides, or some combination thereof. Osages planted crops near their permanent villages, though the entire village would move onto the plains during the summer and autumn buffalo hunts and return to the permanent village locations for the remainder of the year (Bailey and Swan 2004). As the French built trade alliances with the Osage in the late 1600s and early 1700s, the Osage benefited greatly from the influx of guns and other French trade goods, as well their villages' proximity to accessible river trade routes. The Osage became the dominant Tribe in the region and began forcing the Wichita and Caddo further south into the project area. In the 1790s, French trader Rene Auguste Chouteau convinced roughly one third of the Tribe to relocate to the Three Forks region of northeastern Oklahoma where the Arkansas, Verdigris, and Grand Rivers converge near Chouteau's new trading posts. Known as the Arkansas Osage, the group mainly settled at Claremore with other villages nearby. This allowed the Osage to more easily raid into the project area. As eastern Tribes such as the Cherokee were forced to move into Osage territory in Arkansas by the United States in the early 1800s, increased conflict between the Osage and eastern Tribes became more commonplace as the groups competed for natural resources. In an effort to stop the violence the United States signed treaties in 1818 and 1825 with the Osage establishing their reservation in southern Kansas and forcing Osage removal. However, the last Arkansas Osage did not leave the region until 1839, when they became too overwhelmed by eastern Tribes forced into the area by the Indian Removal Act of 1830 (Bailey and Swan 2004).

The first printing press in Oklahoma was established at the Union Mission in 1835, technically ending the Protohistoric era in the state (Everett 2021b).

2.14.7 Historical Resources

What is now the state of Oklahoma was included in the Louisiana Purchase in 1803, becoming part of what was known as the Louisiana Territory. When Louisiana joined the Union as a state in 1812, Louisiana Territory was renamed the Missouri Territory by the U.S. Congress to avoid confusion with the new state. In the 1820s, Oklahoma was designated Indian Territory and closed to white settlement. From that time until 1890 when the Organic Act created the Oklahoma territory and incorporated it into the United States, more than three dozen Tribes had been forced to reside there (Bolton 2021). Fort Towson was first built approximately five miles east of the project area in 1824 as a fortification on the international border with Mexico (present day Texas). The cantonment was renamed Fort Towson in 1830 and several buildings were constructed in anticipation of Choctaw removal, when the fort served as the terminal for the Choctaw Trail of Tears (Tolman 2021).

The Choctaw have two creation myths that differ dramatically, but both are centered around Nanih Waiya mound located in modern-day Mississippi. When the Choctaw were first referenced in the written record in the late 1600s, the Choctaw were a matrilineal community that lived in three geographical districts, with two social divisions and multiple clans within each division that determined social roles and hierarchy (Mould 2018). During the 1700s, their government consisted of local headmen presiding over groups of villages. It was not until the early 1800s that the Choctaw began to coalesce into one nation as a gradual response to pressure from the U.S. Government (Krauthamer 2013). The Choctaw were the first major tribe in the southeast to be removed to modern day Oklahoma. Removal for the Choctaw lasted for over 70 years, with groups periodically being removed from Choctaw homeland until 1903. The biggest group, approximately 12,000 people, made the journey first between 1830-1834 after the Treaty of Dancing Rabbit Creek was signed in 1830.

The Chickasaw homeland was located in portions of modern-day southwestern Kentucky, western Tennessee, northern Mississippi, and northwestern Alabama. (Chickasaw Nation 2021). Descendants of mound building societies, the Chickasaw were a matrilineal society that generally lived in towns containing around 200 households. Towns could move but kept the same names, spreading apart during peacetime but clustering during war. A typical town contained a log-palisaded fort, religious and council buildings, and grounds for councils, festivals, and sports. Individual households usually included a winter house that was circular, approximately twenty-five feet in diameter, and framed with pine logs and poles, with mud-plaster walls and a sunken earthen floor; one or two summer houses, which were rectangular and had two rooms, walls of loosely woven mats, and roofs of grass thatch and bark; and a storage house for crops (Newhall 2018). The Chickasaw were considered great warriors and were instrumental in fighting the French during the French and Indian War (Chickasaw Nation 2021). The Chickasaw were the last major tribe in the southeast to be removed to modern day Oklahoma and were able to negotiate favorable sales of their land in Mississippi. This allowed the Chickasaw to pay for their own removal and select favorable seasons to travel, which saved hundreds of lives.

In 1837 the Chickasaw, who had been traditional enemies of the Choctaw, signed a treaty with the Choctaw to create a Chickasaw district within Choctaw Nation. The Chickasaw would become a part of Choctaw Nation, and the two groups would negotiate with the United States together (Choctaw Nation, February 2021). At this time, Choctaw Nation was divided into three Choctaw districts to the east Moshulatubbee, Apukshunnubbee, and Pushmataha (where the project is located) and the Chickasaw District to the west. Chickasaw and Choctaw families were free to live in any of the four districts despite their tribal affiliation, though the bulk of Chickasaw families lived in the Chickasaw district. In 1855 the Choctaw, Chickasaw, and United States entered into a treaty that split the tribes into two nations once again; and sold Choctaw land holdings west of the Chickasaw district to the United States, reducing the reservation from over 23.7 million acres to 6.688 million acres. During this time the Choctaw prospered economically through small farms and large cotton plantations (Choctaw Nation March 2021 and April 2021). Doaksville, located near Fort Towson approximately five miles to

the east of the project area, became an economic hub and was briefly the Choctaw capital.

Both the Chickasaw and Choctaw had participated in the southern market economy built around chattel slavery. By the time both tribes were removed to Indian Territory, their slave-owning population reflected that of the rest of the deep south; the upper middle class owned anywhere from 1-15 slaves, a handful of extremely wealthy individuals owned hundreds of slaves, and the majority of Chickasaw and Choctaw citizens owned no slaves or would rent out their labor (Krauthamer 2013). Some of the most prominent Choctaw slave owners including Robert M. Jones, the largest slave owner in Indian Territory, had plantations near the project area in order to take advantage of the proximity to the Red River and major trade routes that connected the area to New Orleans' markets (Bruce 2021). Their slaveholdings meant that the majority of Choctaws and Chickasaws sympathized with the south during the Civil War, and that the tribes would ally with the confederacy.

Oklahoma went through a period of instability during the Civil War. Its low population, proximity to Confederate (Texas and Arkansas) and Union (Kansas) neighbors, relatively minor tactical importance to the western campaign focused on the Mississippi River, and the Tribes' smaller militaries ensured the territory became used for troop movements to other locales and a hotspot for small raids and guerilla warfare for both sides. The Five Tribes (Cherokee, Choctaw, Chickasaw, Muskogee Creek, and Seminole) signed treaties with the Confederacy in 1861 as the Confederacy promised to respect Tribal lands and sovereignty, and to not abolish slavery. At this time, approximately 14 percent of Oklahoma's residents were slaves. The Tribes formed regiments that fought in engagements throughout the western theater, most notably at Pea Ridge, Arkansas and Honey Springs, Oklahoma (Huston, 2021). The culminative battle at Honey Springs in 1863 ensured the Union maintained control of the territory for the remainder of the war, though small confederate raids continued. Due to constant marauding, retaliation, and split loyalties, refugee camps became common. Union loyalists were moved to Ft. Riley in Kansas and Ft. Smith in Arkansas, and Ft. Gibson was surrounded by as many as 7,000 refugees. Confederate camps along the Red River (near the project area) held close to 15,000 refugees (Huston 2021). After Fort Towson was abandoned in 1854, it was chosen as the headquarters for Confederate forces in Indian Territory during the Civil War (Tolman 2021). After the Confederacy surrendered, the Five Tribes signed a peace treaty with the United States in 1866. The treaty gave the western half of the territory to other Tribes in Kansas, slavery was abolished, freedmen obtained citizenship and property rights, and the territory was opened to railroads across Tribal lands (Huston 2021).

During Reconstruction, Oklahoma struggled with lawlessness as much as, if not more than during the Civil War. It was difficult to police the region given the turmoil of the Civil War, and Tribal police and courts had no jurisdiction over non-Tribal citizens (Huston 2021). In the 1890s, The Dawes Commission began the process of allotment that would transition communally held Tribal lands into individually owned private property. This led to a large loss of Tribal lands, Tribal citizens who accepted allotments now becoming United State Citizens and allowed the area that had formerly been Indian

Territory to become the territory of Oklahoma, which could then apply for statehood. Oklahoma achieved statehood in 1906 (Kidwell 2021a). Although Tribal governments were generally dissolved when Oklahoma became a state, the Choctaw Nation government continued to exist in order to manage subsurface coal and asphalt deposits located elsewhere in the Choctaw reservation (Kidwell 2021b).

Hugo Lake occupies parts of Pushmataha and Choctaw Counties. Pushmataha County was named after the Choctaw district that occupied the area earlier, and formally organized in 1907 with the town of Antlers as its seat (Milligan 2021a). Choctaw County was organized at statehood in 1907 with the town of Hugo as its seat (Milligan 2021b).

After the railroads bisecting the Choctaw reservation were complete, Hugo developed into a commercial center. Agriculture, ranching, and the lumber industry primarily supported the area's economy. Prior to World War II, cotton was the main crop produced in the area and tenant farmers worked the majority of the farms. Tenants numbered 73 percent of all Choctaw County farm operators in 1930. By the 1930s corn, oats, prairie hay, and peanuts diversified the county's agricultural activities, though the Great Depression hit the area hard and caused the population to decline. Pushmataha also relied heavily on cotton and other crops such as corn, potatoes, and sweet potatoes supplemented by the timber industry. By the end of the twentieth century, soybeans, vegetables, and corn dominated agriculture production. The area was prospected for oil, but the oil industry never took off (Milligan 2021a and 2021b). One unique economic boon to the area was the circus. The region's mild climate and central location attracted circuses to winter and set up headquarters in Hugo. Since 1942, at least 15 different circuses have headquartered in Hugo, and two circuses still utilized the town at the turn of the 20th century (O'Dell 2021).

Hugo Lake dam was authorized by the 1946 and 1962 Flood Control Acts as a comprehensive plan for flood control, water supply, fish and wildlife management, and recreation. Storage for water quality control was added as a project purpose in 1969. Construction began in October 1967 and was completed in January 1974. The dam consists of a rolled earth-filled embankment about 10,200 feet long and its maximum height is 101 feet above the streambed.

Historic site types and related resources expected in the project area include homesteads and ranches, farmsteads, plantations, trails, cemeteries, wells, cisterns, privies, rock walls, foundations or foundation piers, cellar depressions, chimneys (stone or brick), stairs, railroad lines, roads, schools, dumps, and water diversion features.

2.14.8 Cultural Resources at Hugo Lake

There are more than 151 known archaeological sites located wholly or in part on USACE fee lands associated with Hugo Lake. There are 124 precontact sites, 1 known historic site, and 25 multicomponent sites with both historic and precontact components, and 1 unknown site. Of these, five sites have been determined eligible for the NRHP, 32 are ineligible, and 114 sites have not been assessed for the NRHP. No sites are

currently listed on the NRHP, though multiple NRHP properties are within 10 miles of USACE fee lands including the Rose Hill Plantation site, Doaksville Town site, and Fort Towson Cantonment. Ten sites were discussed in earlier publications as being on USACE fee land but are not actually located on USACE fee land. All ten sites are prehistoric. One site is not eligible for the NRHP and nine are unknown. The dam itself was completed in 1974 and is not old enough to be considered for NRHP inclusion. Once the structure is 50 years old it will need to be evaluated for the NRHP. Multiple significant sites at Hugo Lake have been protected through ESA designation.

Under the NHPA properties of traditional, religious, and cultural importance to a living community may be determined to be eligible for inclusion on the NRHP. Commonly known as Traditional Cultural Properties (TCP), these properties are associated with cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continuing cultural identity of the community. Therefore, TCPs must be taken into account in order to comply with federal cultural resources regulations. Additionally, Executive Order 13007 states that each federal agency with responsibility for the management of Federal lands shall accommodate access to and ceremonial use of Native American sacred sites by religious practitioners and avoid adversely affecting the physical integrity of such sacred sites. There have been no TCPs or sacred sites identified at this time at Hugo Lake. If TCPs or sacred sites are identified at Hugo Lake in the future, they could be given additional protected status through ESA designation.

Multiple formal archaeological surveys have been completed at Hugo Lake since the 1960s in response to ongoing activities such as lake construction, inadvertent discoveries, and NHPA Section 106 compliance. This section includes an overview of work conducted in the area. The first archaeological survey known to take place within USACE fee lands of Hugo Lake was conducted by Sherman P. Lawton in 1960 (Lawton 1960). Lawton led a survey of the lake area prior to its inundation in July and August 1960, however there was not enough time allotted for the survey in the project plan, and the crew was forced to focus on areas of highest potential for sites based on terrain. The survey relied heavily on local informants, pedestrian survey, and analysis of informants' collections. Only four sites were tested, and some sites considered of lesser importance were not recorded in the report "since a complete tabulation would, in some areas, include every hilltop" (Lawton 1960). Lawton recommended two sites for excavation, and at least 12 sites for testing though he stated, "a number of other places should be tested further". One of these sites was tested further by Lawton in 1962 when it had been learned that the site was not destroyed by gravel mining as it had been in danger of during the initial survey (Lawton 1962). In 1967 Don Wyckoff was funded by the National Park Service to resurvey 35 previously identified sites including 14 sites recommended for testing by Lawton and 21 other sites Lawton had recorded with large numbers of artifacts. The survey used exposed soil profiles and small test units in order to determine the extent and potential for intact deposits at each site. Wyckoff recommended 12 of these sites for additional testing (Klinger and Cande 1987).

In 1969, a site containing burials was discovered during earth moving activities associated with dam construction. A salvage excavation was performed by Susan

Sasse Burton and the southern portion of the site was excavated, though the northern portion of the site was not excavated. The lake has since inundated the northern portion of the site (Burton 1970). Additional salvage excavations were led by Robert J. Burton in the summer of 1970 at seven sites, three of which had been recommended by Lawton for additional testing (Rohrbaugh et al. 1971). In 1971, excavations continued at one site that had been partially excavated in 1970, and three additional sites were excavated (Rohrbaugh 1972, Lewis 1973). Of those three, one had been specifically recommended for further testing by Lawton in 1960. Both the 1970 and 1971 excavations were conducted as salvage operations during construction of the dam prior to inundation of Hugo Lake.

In 1973, Rohrbaugh conducted further analysis on two of the sites excavated in the 1971 season and described their links to Caddoan culture (Rohrbaugh 1973). Dr. Annetta Cheek was contracted by USACE Tulsa District in 1974 to conduct a 30% sample survey of a proposed water conveyance system from Hugo reservoir to Lake Stanley Draper. The line was first pedestrian surveyed, then if sites were identified, shovel tested. No new sites were recorded in the project area (Cheek 1975). In 1977, W. J. Bennett Jr. and Gregory Perino were contracted by USACE Tulsa District to excavate a site previously identified in 1960 and excavated in 1970, for a portion of the site that was now in danger of erosion from Hugo Lake (Bennett Jr. and Perino 1978). Robert Stewart conducted a brief study on plant materials recovered from the same site in 1977 (Stewart 1977).

USACE Tulsa District considered additional hydropower facilities to the lake which would entail raising the elevation pool five feet, and in 1985 contracted Historic Preservation Associates (HPA) of Fayetteville, Arkansas to survey the approximate 3,200 acres that would be affected. It was determined that a 20% sample of the survey area would be tested, and predictive modeling based on the density and location of previously identified sites would provide a basis for estimating the number of sites that would be impacted. A pedestrian survey of the shoreline was conducted and supplemented with shovel tests in areas of low surface visibility. Field work was conducted in April 1985 and from September through October 1985 under direction of Robert Cande. In total, 56 sites were newly recorded, and four were revisited. HPA also reevaluated sites that had been recommended for further testing and excavation by Lawton and Wyckoff, discrepancies in earlier recordation were noted, and multiple sites were recommended for further investigation and protection. They summarized “based on all work conducted in the reservoir thus far, it is clear that the Lower Kiamichi River Valley is an area of exceptionally high site density... only a comprehensive and detailed management plan will provide adequate protection for these resources” (Klinger and Cande 1987).

James Briscoe of Briscoe Consulting Services conducted a survey for a water treatment plant with a water intake structure and feeder line located on USACE property in March 1994. No cultural resources were located (Briscoe 1994). In August 1995 Dr. Frank Winchell shovel tested one site determined not to be eligible for the NRHP in preparation for a boat ramp (Winchell 1995). Dr. Winchell also surveyed five tracts within Kiamichi Park prior to construction of a marina, motel, cabins, and picnic shelters.

One site not eligible for the NRHP and an isolated find of two flakes were recorded (Winchell 1996). In 2001, ODOT conducted a windshield survey along US-70, which is immediately adjacent to the project area in the vicinity of Hugo Dam. No new sites or historic structures were recorded in the project area during this survey (Bartlett et al. 2001). In advance of a potential land transfer, Wendy Lopez and Associates Inc. under the direction of Rebecca Proctor surveyed 79 acres in May 2001. One site was identified and recommended for further testing (Chester 2002). That site was further delineated in April 2002 by the Lopezgarcia Group, though the site's eligibility for the NRHP remained undetermined (Proctor and Neel 2002). A survey was conducted by Panamerican Consultants Inc. in May 2007 for the removal and replacement of a communications tower. No cultural resources were observed during that survey. In 2009 Cojeen Archaeological Services surveyed 3.65 acres for a proposed waterline and observed no cultural resources (Cojeen 2009). USACE surveyed a 60-foot-wide section on the upstream portion of the dam in order to clear trees from the structure. No cultural resources were observed (Horn 2011). In order to hand clear a boundary fence for installation of new fencing, USACE surveyed approximately 7,000 foot long, 10-foot-wide boundary section and observed no cultural resources in 2014 (Horn 2014). In October 2017 Don Dycus conducted a survey for water system improvements and observed no cultural resources (Dycus 2017). Small surveys have been, and continue to be, conducted in and near Hugo Lake for compliance with Section 106 of the NHPA. When funds are available, surveys and other preservation activities are also conducted in accordance with Section 110 of the NHPA.

2.14.9 Long-term Objectives for Cultural Resources

As funding allows, the Tulsa District will plan and budget for a Historic Preservation Management Plan (HPMP) that shall be developed and incorporated into the Operational Management Plan (OMP) in accordance with EP 1130-2-540. The purpose of the HPMP is to provide a comprehensive program to direct the historic preservation activities and objectives at Hugo Lake and it will be accomplished if future funding is forthcoming. In 1997 a Historic Properties Management Plan was drafted, however a lack of funding kept the HPMP from being finalized or implemented. Completion of a full inventory of cultural resources at Hugo Lake is a long-term objective that is needed for compliance with Section 110 of the National Historic Preservation Act (NHPA). All currently known sites with unknown eligibility and newly recorded sites must be evaluated to determine their eligibility for the NRHP. Identification and evaluation of sites is an ongoing process at Hugo Lake. As more significant sites are identified, they could be protected through ESA designation in the future.

In accordance with Section 106 of the NHPA, any proposed activities or projects at Hugo Lake will require review by District Archaeologists to assess their potential to impact historic properties. These activities may include those described in this master plan or those that may be proposed in the future by others for leases, licenses, right-of-way easements, recreational development, construction, wildlife management, or other activities that can be considered undertakings subject to Section 106 of the NHPA. The need for cultural resource surveys to locate and evaluate historic and prehistoric resources, consultation, or other compliance activities related to Section 106 of the

NHPA shall be determined and coordinated by a qualified District Archaeologist. Resources determined eligible for the NRHP must be protected from proposed project impacts, or the impacts must be mitigated in consultation with appropriate parties.

The Archaeological Resources Protection Act (ARPA) secures the protection of archaeological resources and sites on lands owned and administered by the United States for the benefit of the American people. According to ARPA, it is illegal to excavate, remove, damage, or deface archaeological resources on public lands without a permit issued by the federal agency managing the land. It is also illegal to sell or transport archaeological resources removed from public lands. Tulsa District requires permits for archaeological investigations at Hugo Lake in accordance with ARPA and is increasing surveillance and coordination with law enforcement agencies in the state to enforce ARPA civil and criminal penalties.

According to the Native American Graves Protection and Repatriation Act (NAGPRA), it is the responsibility of a federal agency to inventory human remains and associated funerary objects, as well as summarize any potential sacred objects, that existed within their archaeological collections prior to the passage of the law and, to the extent possible, identify their cultural affiliation in order to repatriate such objects to affiliated Tribes requesting their return. In addition, there are responsibilities related to the inadvertent discovery of human remains or funerary objects that occurred on federal land after the passage of the law that require a separate process of consultation, affiliation determinations, and notifications prior to repatriation. Although NAGPRA compliance has been an ongoing focus of the Tulsa District and many consultations and repatriations have occurred over the past 25-30 years, there is still more work to be done.

In recognition of the significance of the responsibility the Tulsa District has to ensure the proper and respectful treatment of the individuals who have been - or may inadvertently be - disinterred from Tulsa District land and acknowledging the fact that this work requires more than a part-time effort to be accomplished, a new full-time position has been established to focus on the proper execution of this responsibility. The intensive process to verify existing documentation and complete any missing part of the process for all collections of human remains, funerary objects, or sacred objects subject to NAGPRA in Tulsa District archaeological collections is in progress. As a necessity, this renewed effort is starting with research and reorganization of associated records and archaeological collections to ensure the proper identification and initial inventory of all NAGPRA materials that are under the control of Tulsa District. This effort will include NAGPRA collections that have been made – or may yet be discovered – at Hugo Lake, therefore, compliance with NAGPRA is ongoing.

2.15 CURRENT SOCIAL AND ECONOMIC CONDITIONS

2.15.1 Zone of Interest

Hugo Lake is located in southeast Oklahoma, near the Texas-Oklahoma border. The zone of influence for the socio-economic analysis of Hugo Lake is defined as the

county in which the lake lies, Choctaw County, as well as the surrounding counties of Atoka, Bryan, McCurtain, and Pushmataha in Oklahoma, and Fannin, Lamar, and Red River counties in Texas.

2.15.2 Population

The total population for the zone of interest in 2019 was 215,550, as shown in Table 2.4. Approximately 23% of the zone of interest's population resides in Lamar County, 22% in Bryan County, 16% in Fannin County, 15% in McCurtain County. The remaining counties in the zone of interest each account for less than 10% of the zone of interest's population.

Table 2.3 2000 and 2019 Population Estimates and 2050 Projections

Geographical Area	2000 Population Estimate	2019 Population Estimate	2050 Population Projection
Oklahoma	3,450,654	3,932,870	4,860,554
Texas	20,851,820	28,260,856	47,342,105
Atoka County	13,879	13,823	17,428
Bryan County	36,534	46,457	56,014
Choctaw County	15,342	14,807	14,248
McCurtain County	34,402	33,016	38,151
Pushmataha County	11,667	11,128	13,773
Fannin County	31,242	34,537	33,041
Lamar County	48,499	49,611	44,203
Red River County	14,314	12,171	10,484
Zone of Interest Total	205,879	215,550	227,342

Source: U.S. Census Bureau, Population Division (2000 Estimate); U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate); Texas State Data Center, The University of Texas at San Antonio (Texas 2050 Projections); Oklahoma Department of Commerce, 2012 Report (Oklahoma 2050 Projections)

From 2019 to 2050, the population in the zone of interest is expected to increase from 215,550 to approximately 227,000, an annual growth rate of 0.2%. By comparison, the populations of Texas and Oklahoma are expected to increase at an annual rate of 1.7% and 0.8%, respectively. During this timeframe, Atoka, Bryan, McCurtain, and Pushmataha counties in Oklahoma are expected to experience positive growth while Choctaw County and the Texas counties within the zone of interest experience negative growth.

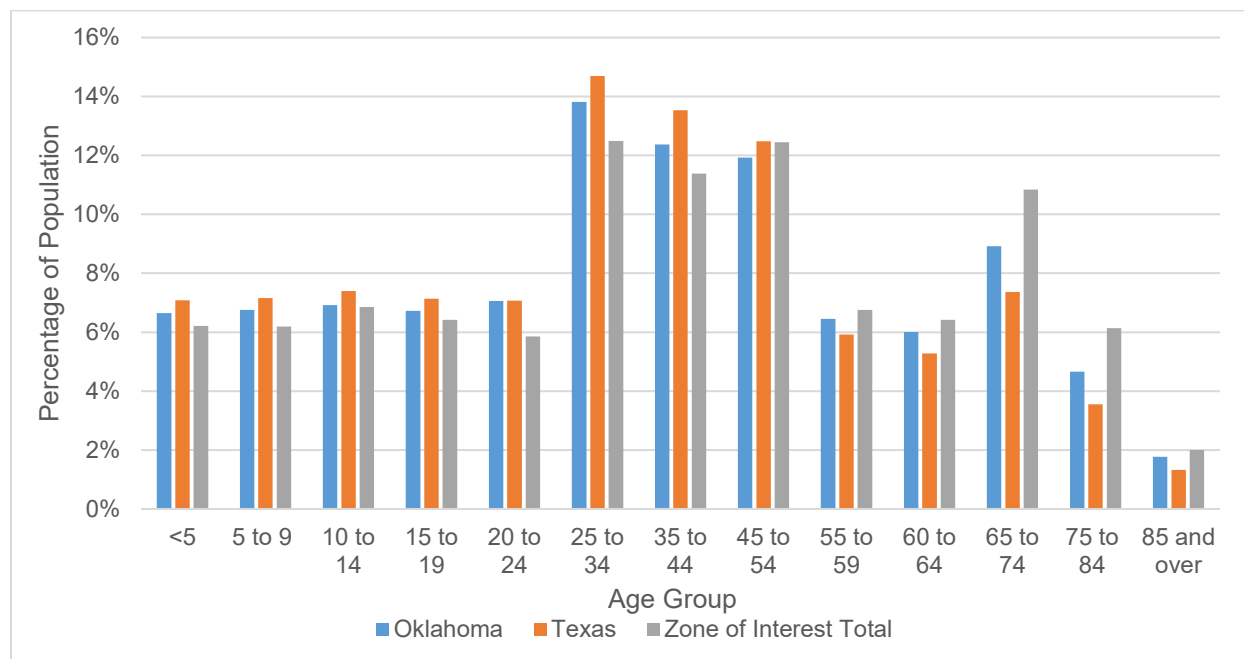
The distribution of the population among gender, as shown in Table 2.5, is approximately 49% male and 51% female in the zone of interest.

Table 2.4 2019 Percent of Population Estimate by Gender

Geographical Area	Male	Female
Oklahoma	1,949,528	1,983,342
Texas	14,034,009	14,226,847
Atoka County	7,289	6,534
Bryan County	22,558	23,899
Choctaw County	7,094	7,713
McCurtain County	16,326	16,690
Pushmataha County	5,436	5,692
Fannin County	18,246	16,291
Lamar County	23,770	25,841
Red River County	5,759	6,412
Zone of Interest Total	106,478	109,072

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

Figure 2.4 shows the population by age group for the states of Texas and Oklahoma and the entire zone of interest. The zone of interest has a slightly smaller population ages 0 to 44 and a larger population age 45 and over when compared to the states of Oklahoma and Texas.

**Figure 2.4 2019 Percent of Population by Age Group**

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

Population by race and Hispanic Origin is displayed in Table 2.6. The zone of interest is approximately 71% White, 8% American Indian or Alaskan Native, 7% Hispanic or Latino, 7% Black, and 6% two or more races. The other race categories each account for 1% or less of the zone of interest population. By comparison, the population in the state of Oklahoma is 66% White, 11% Hispanic or Latino, 7% Black, 7% American Indian or Alaskan Native, 7% two or more races, and 2% Asian.

Table 2.5 2019 Population Estimate by Race/Hispanic Origin

Area	White	Hispanic or Latino	Black	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some other race alone	Two or more races
Oklahoma	2,581,231	417,906	280,944	285,402	84,020	5,629	5,195	272,543
Texas	11,856,336	11,116,881	3,328,707	71,081	1,340,554	21,739	44,465	481,093
Atoka County	9,812	486	492	1,396	99	9	9	1,520
Bryan County	32,997	2,773	815	6,544	284	68	27	2,949
Choctaw County	8,977	649	1,604	2,211	13	25	23	1,305
McCurtain County	20,490	2,001	2,599	4,065	274	368	0	3,219
Pushmataha County	7,900	440	84	1,487	41	16	0	1,160
Fannin County	27,211	3,900	1,944	231	220	13	4	1,014
Lamar County	36,920	3,902	6,324	271	382	56	16	1,740
Red River County	8,932	886	2,039	39	10	0	0	265
Zone of Interest Total	153,239	15,037	15,901	16,244	1,323	555	79	13,172

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

2.15.3 Education and Employment

Table 2.7 displays the highest level of education attained by the population ages 25 and over. In the zone of interest, 5% of the population has less than a 9th grade education, and another 11% has between a 9th and 12th grade education; 37% has a high school diploma or equivalent, and another 24% has some college and no degree; 7% has an Associate degree; 11% has a bachelor's degree, and 6% has a graduate or professional degree. In Oklahoma, 4% of the population has less than a 9th grade education; another 8% has between a 9th and 12th grade education; 31% has at least a high school diploma or equivalent; 23% has some college; 8% has an Associate degree; 17% has a bachelor's degree; and 9% has a graduate or professional degree.

Table 2.6 2019 Population Estimate by Highest Level of Educational Attainment, Population 25 Years of Age and Older

Area	Highest Level of Educational Attainment							
	Population 25 years and over	Less than 9th grade	9th to 12th grade, no diploma	High school graduate (includes equivalency)	Some college, no degree	Associate degree	Bachelor's degree	Graduate or professional degree
Oklahoma	2,592,088	104,449	206,004	812,102	604,637	203,387	436,601	224,908
Texas	18,131,554	1,482,952	1,475,007	4,525,099	3,918,815	1,309,005	3,534,714	1,885,962
Atoka County	9,641	426	1,192	3,881	2,157	542	1,001	442
Bryan County	31,065	1172	3,055	10,174	7,941	1932	4,349	2442
Choctaw County	10,145	615	1,193	3,889	2,422	669	942	415
McCurtain County	21,866	1299	2,432	9,406	4,217	1572	2,069	871
Pushmataha County	7,869	504	820	3,341	1,640	441	684	439
Fannin County	24,275	1,161	2,369	8,551	6,350	1,620	2,684	1540
Lamar County	33,821	1679	3,627	11,191	8,541	2464	4,362	1957
Red River County	8,921	416	889	3,600	2,209	695	854	258
Zone of Interest Total	147,603	7,272	15,577	54,033	35,477	9,935	16,945	8,364

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

Employment by sector is presented in Figure 2.5 and Table 2.8. Figure 2.5 shows that the largest percentage of the zone of interest is employed in the Educational services, and health care and social assistance sector at 24%, followed by 14% in Manufacturing, 11% in Retail Trade, 10% in the Arts, entertainment, and recreation, and accommodation and food services, 8% in Construction, and 6% in the Professional, scientific, and management, and administrative and waste management services. The remainder of the employment sectors each comprise 5% or less of the zone of interest's labor force.

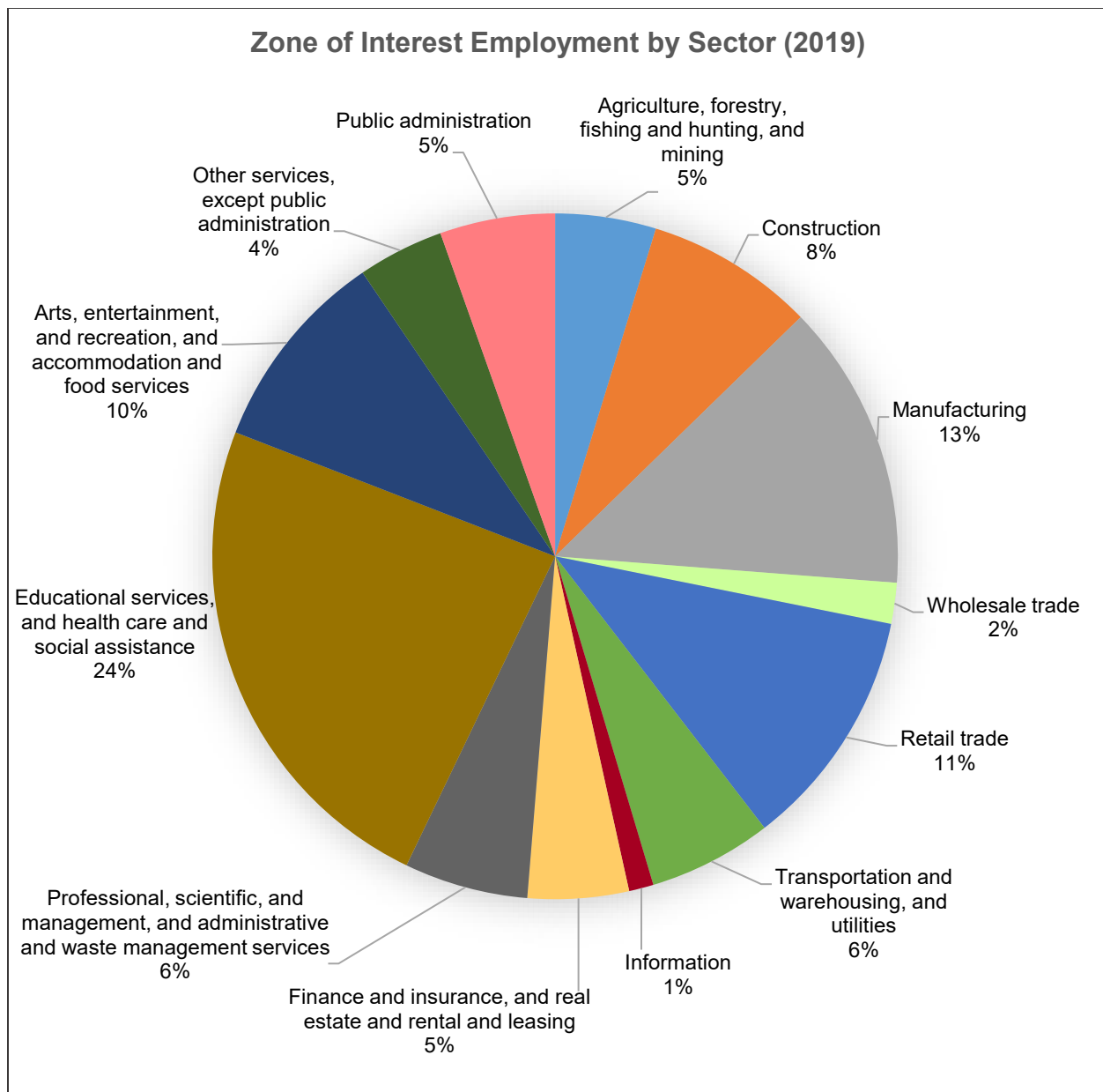


Figure 2.5 Zone of Interest Employment by Sector (2019)

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

Table 2.7 Annual Average Employment by Sector (2019)

Employment Sector	Geographic Area										
	Oklahoma	Texas	Atoka County	Bryan County	Choctaw County	McCurtain County	Pushmataha County	Fannin County	Lamar County	Red River County	Zone of Interest Total
Civilian employed population 16 years and over	1,772,123	13,253,631	4,753	19,896	5,171	12,682	3,975	13,998	21,502	5,012	86,989
Agriculture, forestry, fishing and hunting, and mining	82,013	397,032	417	719	330	642	306	668	742	309	4,133
Construction	126,029	1,137,958	408	1,105	470	1,197	427	1,277	1,679	364	6,927
Manufacturing	168,207	1,125,176	407	2,120	493	2,521	215	1,927	3,260	815	11,758
Wholesale trade	44,602	378,542	65	382	49	201	39	445	398	99	1,678
Retail trade	205,201	1,507,002	500	2,175	499	1,373	504	1,324	3,210	316	9,901
Transportation and warehousing, and utilities	95,177	777,044	315	901	478	724	269	722	1,416	247	5,072
Information	29,207	227,928	24	259	75	143	44	262	180	22	1,009
Finance and insurance, and real estate and rental and leasing	97,129	884,408	214	1,074	235	477	130	829	890	296	4,145
Professional, scientific, and management, and administrative and waste management services	152,395	1,524,750	242	1,350	271	580	254	913	1,262	209	5,081
Educational services, and health care and social assistance	397,126	2,863,828	1,062	4,632	1,171	2,588	954	3,577	5,263	1,413	20,660
Arts, entertainment, and recreation, and accommodation and food services	172,799	1,216,771	504	3,009	593	1,197	310	717	1,712	325	8,367
Other services, except public administration	92,823	684,780	191	1,022	242	544	184	473	689	188	3,533
Public administration	109,415	528,412	404	1,148	265	495	339	864	801	409	4,725

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

A summary of the civilian labor force in the zone of interest is displayed in Table 2.9. In 2019, the zone of interest had an unemployment rate of 3.7%, slightly higher than the 3.1% unemployment rate in Oklahoma and the 3.5% rate in Texas that same year.

Table 2.8 Labor Force, Employment and Unemployment Rates, 2019 Annual Averages

Geographic Area	Civilian Labor Force	Number Employed	Number Unemployed	Unemployment Rate
Oklahoma	1,845,657	1,788,375	57,282	3.1%
Texas	14,037,537	13,541,936	495,601	3.5%
Atoka County	4,910	4,709	201	4.1%
Bryan County	21,427	20,810	617	2.9%
Choctaw County	5,423	5,175	248	4.6%
McCurtain County	14,388	13,618	770	5.4%
Pushmataha County	4,275	4,076	199	4.7%
Fannin County	17,349	16,873	476	2.7%
Lamar County	23,936	23,128	808	3.4%
Red River County	5,078	4,844	234	4.6%
Zone of Interest Total	96,786	93,233	3,553	3.7%

Source: Bureau of Labor Statistics, 2019 Annual Averages

2.15.4 Households, Income and Poverty

Table 2.10 displays the number of households and average household sizes in the state and zone of interest. There were approximately 83,000 households in the zone of interest with an average household size of 2.6.

Table 2.9 2019 Households and Household Size

Area	Total Households	Average Household Size
Oklahoma	1,480,061	2.58
Texas	9,691,647	2.85
Atoka County	5,284	2.34
Bryan County	17,253	2.64
Choctaw County	5,971	2.45
McCurtain County	12,646	2.58
Pushmataha County	4,477	2.46
Fannin County	12,453	2.52
Lamar County	19,793	2.47
Red River County	4,963	2.41
Zone of Interest Total	82,840	2.60

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

The median household income in the zone of interest ranged from \$34,489 in Choctaw County to \$54,648 in Fannin County in 2019, as displayed in Table 2.11. Per capita income in the zone of interest was \$27,330 in 2019, lower than both the states of Oklahoma and Texas, which had per capita incomes of \$28,422 and \$31,277, respectively.

Table 2.10 2019 Median and Per Capita Income

Geographic Area	Median Household Income	Per Capita Income
Oklahoma	\$52,919	\$28,422
Texas	\$61,874	\$31,277
Atoka County	\$39,316	\$20,443
Bryan County	\$44,212	\$23,979
Choctaw County	\$34,489	\$21,277
McCurtain County	\$37,061	\$20,671
Pushmataha County	\$37,692	\$22,435
Fannin County	\$54,648	\$27,112
Lamar County	\$45,117	\$25,038
Red River County	\$39,142	\$22,689
Zone of Interest Total	N/A	\$27,330

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

Table 2.12 displays the percentage of persons and families whose incomes fell below the poverty level in the past twelve months as of 2019. Within the zone of interest, Choctaw County had the greatest share of people with incomes below the poverty level at 27.7%, followed by McCurtain County at 22.7%. In terms of families below the poverty level, most counties in the zone of interest have a greater share with incomes below the poverty level when compared to the states of Texas and Oklahoma.

Table 2.11 Percent of Families and People Whose Income in the Past 12 Months is Below the Poverty Level (2019)

Geographic Area	All Persons	All Families
Oklahoma	15.7%	11.3%
Texas	14.7%	11.3%
Atoka County	20.6%	16.1%
Bryan County	17.1%	11.1%
Choctaw County	27.7%	22.8%
McCurtain County	22.7%	18.4%
Pushmataha County	20.4%	15.7%
Fannin County	12.0%	8.3%
Lamar County	17.4%	13.1%
Red River County	19.7%	17.8%
Zone of Interest Total	21.8%	N/A

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (2019 Estimate)

2.16 RECREATION FACILITIES, ACTIVITIES, NEEDS, AND TRENDS

Hugo Lake offers a variety of recreational opportunities along the Kiamichi River Basin. The narrow valley characterized by dense forest provides a relaxing setting for camping, hunting, fishing, boating, hiking or horseback riding. The northern half of Hugo Lake consists of flooded timber which provides exceptional fishing. Recreational boaters enjoy the open water on the southern section of the lake with beautiful limestone rock walls and sandy banks. Ten public use areas offer an assortment of facilities making it easy to find something for everyone.

Table 2.13 provides a listing of areas as well as a general summary of the primary recreation facilities provided.

Table 2.12 Recreational Facilities and Operating Agencies

FACILITIES	Managing Entity	Designated Campsites	Boat Launching Ramps	Restrooms	Marina	Group Shelter	Fishing Facilities	Designated Picnic Area	Dump Stations	Swimming Area	Electrical (30 amp)	Electrical (50 amp)	Trails	Playground
LOCATION														
Bridgeview	U		*	*			P							
Frazier Point	U		*											
Mahafee Point	U			*		*		G	*					*
Kiamichi Park	U			*			P							
Hugo Lake State Park	O	E N	*	*		*		A G	*	BE	*	*	H Q	*
Overlook	U			*			P							
Rattan Landing	U	N	*	*	*				*	BE			M	*
Salt Creek	U	E T	*	*				A	*		*			
Sawyer Bluff	U		*											
Virgil Point	U		*											
Wilson Point	U	E	*	*					*		*	*		

* Exists at lake	Fishing	Trails
Managing Entity	C Fish Cleaning Stations	B Bike Trails
O Other	D Fishing Docks	Q Equestrian Trails
U USACE	P Fishing Piers	H Hiking Trails
Camping	Picnic	I Interpretive Hiking Trails
E Electric Campsites	A Picnic Area	R Off-Road Vehicle Trails
N Non-electric Campsites	G Group Picnic	F Fitness Trails
T Pull-through Campsites	GS Group Picnic Shelter	W Water Trails
G Group Camping	Swimming	S Snow Mobile Trails
D Dump Station	BE Beach	CC Cross Country Skiing
	P Swimming Pool	M Multipurpose Trails

Source: USACE

2.16.1 Fishing and Hunting

Hugo Lake provides over 25,000 acres of public hunting land for a multitude of wildlife species. Bow hunting is permitted in and around most of the park areas. Kiamichi Park contains an archery practice range and is now a 3,000-acre Quality Deer Management Area, providing a rare archery hunting area within walking distance of camping. Hugo Lake also offers thousands of acres of water for fishing, including about 5,000 acres of uncleared timber in the upper half of the lake. Both hunting and fishing are described in more detail in Chapter 5 under Multiple Resource Management Lands Wildlife Management Areas.

2.16.2 Camping and Picnicking

Hugo Lake has quiet campgrounds with plenty of elbow room. Campsites range from primitive nonelectric sites to paved camping pads with water and electricity for fully equipped recreational vehicles. The Corps of Engineers manages nine parks for your enjoyment. The large parks and miles of paved roads are ideal for cycling or jogging. These areas include showers, overnight camping pads, electric hookups, playgrounds, fresh water, picnic tables, group shelters and grills.

2.16.3 Water Sports

The lake offers plenty of recreational opportunities for boater and non-boater alike. Water lovers can enjoy skiing, tubing, kayaking, swimming, or simply relaxing on or around Hugo Lake. Eight boat launching ramps are located at convenient sites around the lake and three designated swim beaches have been developed in Kiamichi Park, Wilson Point and the Group Camping Area. The marina within the Kiamichi Park offers a full range of services and supplies.

Boating on the lake is in accordance with Oklahoma boating laws and Corps of Engineers' regulations. Just like traffic laws, boating laws exist to help prevent accidents.

2.16.4 Hiking and Equestrian Trails

Hugo Lake provides multiuse trails around the lake including some specialized to equestrian riders at Kiamichi Park. Those equestrian trails provide opportunities for visitors to hike or bring their horses for a scenic jaunt around the boundary of the park. Several horse stalls for equestrian campers are provided a short distance from equestrian trailheads. Several multipurpose trails can be found within Kiamichi Park which include special interest markers identifying various tree types and animal information.

2.16.5 Commercial Concession Leases

Concessionaires provide valuable services to the public at USACE lakes across the United States. USACE makes efforts to attract concessionaires that are able to establish suitable, well-maintained businesses that will offer desirable water-related services to the general public. Presently, there are no Commercial Concession Leases on Hugo Lake. A Marina operates in conjunction with the Recreation - Public Park Lease to LIFT Community Action Agency, Inc. For more details on the provided services and hours of operation, please visit the Agency website at <https://liftca.org/hugo-lake-state-park/>.

2.16.6 Recreation Analysis – Trends and Needs

The Statewide Comprehensive Outdoor Recreation Plan (SCORP) was referred to extensively in preparing the Plan. Preparation of the SCORP included two statewide surveys of cities and towns in Oklahoma and two Recreation Rallies, one in Tulsa and one in Oklahoma City, that were open to members of the public and representatives of public and private recreation service providers. The SCORP also summarized the results of a survey conducted by the USACE in 2010 to garner public input on public preferences for lake usage and development in Oklahoma. The USACE survey was required by Section 3134 of the Water Resources Development Act of 2007 which established what is referred to as the Oklahoma Lakes Demonstration Program. In addition, the SCORP assessed public preferences through cited research pertinent to the recreation needs and issues of the people of Oklahoma and those who visit the state for recreational experiences.

The SCORP references data from the 2012 National Survey on Recreation and the Environment (NSRE) conducted by the U.S. Forest Service. The following are a list of Findings from USACE Recreation Survey Pursuant to Oklahoma Lakes Demonstration Program in the SCORP:

- 456 individuals responded to (1) receipt of invitations at a USACE lake in Oklahoma, or (2) a newspaper, radio, or television announcement.
- 416 responses were complete and usable for analysis. Other respondents chose to answer a limited number of questions (while leaving many others incomplete) or failed to limit their responses to a single lake.

- The sample on which this analysis is based was (1) better educated than the adult population in Oklahoma, (2) over-representative of the older adult population and under-representative of the adult population ages 18 – 25, (3) predominantly white and non-Hispanic, although the respondents did include minority voices, and (4) representative of the adult population of males and females.
- People have favorite lakes and favorite locations on those lakes. Knowledgeable lake visitors also avoid specific areas on their favorite lakes and have good, personal reasons for avoiding those locations.
- Personal preference for specific lakes and locations is motivated by aesthetic appearance of the property, quiet experience, safety and security of the property, friendly staff, special events, and tradition. Respondents rarely mentioned commercial development or private support services as motivators for preference of a recreation location.
- People desire public access locations, campgrounds, and public day use recreation sites at USACE lakes. They do not desire or support private development to the same extent as they do public development.
- Respondents want more development and more day use at some USACE managed lakes. By contrast, respondents do not want more development at Birch Lake and Canton Lake – except as restoration of dated or damaged facilities.
- One-half of the respondents believe present facilities at USACE lakes are inadequate. The structured survey responses revealed desires for changes related to physical aspects of USACE lakes, while the open-ended responses revealed desires for changes related to policies.
- The changes related to facilities desired by respondents were by level of importance from most important: (1) hiking trails, (2) swim beaches, (3) bike trails, (4) playgrounds, (5) campgrounds, (6) equestrian trails and canoe trails.
- Crowding at these lakes is neither perceived nor an issue as related to number and location of docks, number of people, number of boats, or presence of structures.
- Respondents desire more parking, improved access roads, increased law enforcement, and retention of fee revenue at the lakes of origin.

The SCORP and NSRE document national and regional trends showing the highest demand for unpaved trails for walking and hiking with demand expected to increase in the near future. Given the outdoor recreation trends, it is evident that future recreation development at Hugo Lake should focus less on campgrounds and more on providing increased trail opportunities (of all kinds), more facilities for family and group gatherings, and more wildlife and nature-related viewing opportunities. With the popularity of hunting in Wildlife Management Areas, trails can be developed for hiking and nature viewing during non-hunting seasons and provide parking and trailheads that can be used for both types of activities. The USACE should also place a high priority on the protection and retention of large, undeveloped parcels of public land. Doing so responds to outdoor recreation needs expressed in the SCORP and NSRE. These large

expanses of natural habitat on public land are held in high regard by the citizens throughout the zone of interest. This Plan responds to these needs through revised land classifications, new management objectives, and conceptual management plans for each land classification.

2.17 REAL ESTATE

A total of 40,085 acres of land were acquired in fee simple title for the Hugo Lake project. USACE policy at the time was, in general, to obtain fee title to lands up to the full pool elevation level of the reservoir. Instead of closely following the contour of the full pool elevation, property lines were blocked out allowing for a small buffer of land above the flood pool to accommodate shoreline erosion and to have a more manageable boundary line. Additional lands needed for operations or recreational development purposes were also acquired in fee. In addition, 3,459 acres of flowage easement were purchased in accordance with USACE policy. Later land disposals of fee title acres have led to a current total of 38,438 acres of fee simple title for the Hugo Lake project.

2.17.1 Outgrants

The term “outgrant” is a broad term used by the USACE to describe a variety of real estate instruments wherein an interest in real property has been conveyed by the USACE to another party. Outgrants at Hugo Lake include leases, licenses, easements, consents, permits, and others which include the following (including consents):

- 1 Public Park Lease (with Commercial Activity) to LIFT Community Action Agency, Inc. = 238.0 acres
- ODWC (1 Lease & 2 Licenses) = 20,158.14 acres
- 1 Agriculture and Grazing Lease = 38.6 acres
- 24 Easements = 324.03 acres
- 1 License (excluding ODWC)
- 1 Permit = 0.16 acres
- 3 Consents

The demand for real estate outgrants at Hugo Lake ranks fairly low among all USACE lake projects in terms of the total number and complexity of real estate outgrants. Management actions related to outgrants include routine inspections to ensure compliance with the terms of the outgrant, public safety requirements, and environmental compliance such as proper solid waste disposal and storage of pesticides. Additional actions include review of maintenance and construction proposals made by grantees. Leases are generally inspected annually for overall compliance, whereas minor outgrants are inspected approximately every five years or as needed. The management of outgrants is a major responsibility shared by the Operations and Real Estate Divisions of Tulsa District.

2.17.2 Guidelines for Property Adjacent to Public Land

It is the policy of the USACE to manage the natural, cultural, and developed resources of Hugo Lake to provide the public with safe and healthful recreational opportunities, while protecting and enhancing those resources. The boundary at Hugo Lake is typically unfenced due to limited access and difficult topography.

While private exclusive use of public land is not permitted, property owners adjacent to public lands do have all the same rights and privileges as any other citizen on their own property. Therefore, the information contained in these guidelines is designed to acquaint the adjoining landowner and other interested persons with the types of property involved in the management of government land at Hugo Lake.

2.17.3 Trespass and Encroachment

Government property is monitored by USACE personnel to identify and correct instances of unauthorized use, including trespasses and encroachments. The term “trespass” includes unauthorized transient use and occupancy, such as mowing, tree cutting and removal, livestock grazing, cultivation and harvesting crops, and any other alteration to Government property done without the USACE approval. Unauthorized trespasses may result in a Title 36 citation requiring violators to appear in Federal Magistrate Court, which could subject the violator to fines or imprisonment (See 36CFR Part 327 Rules and Regulations Governing Public Use of Water Resources Development Projects Administered by the Chief of Engineers). More serious trespasses will be referred to the USACE Office of Counsel for enforcement under state and federal law, which may require restoration of the premises and collection of monetary damages.

The term “encroachment” pertains to an unauthorized structure or improvement on Government property. When encroachments are discovered, lake personnel will attempt to resolve the issue at the project level. Where no resolution is reached, or where the encroachment is a permanent structure, the method of resolution will be determined by the USACE Real Estate Division, with recommendations from Operations Division and Office of Counsel. The USACE’s general policy is to require removal of encroachments, restoration of the premises, and collection of appropriate administrative costs and fair market value for the term of the unauthorized use. Incidents of unauthorized tree removal and mowing have occurred as well as the placement of personal property items such as outdoor furniture, firewood, boats, vehicles, and structures on USACE land. Trash dumping is an especially difficult and expensive problem at many USACE lakes. Efforts are continuously underway to resolve these unauthorized acts, but the sheer volume creates a workload that is difficult to accomplish.

CHAPTER 3 – RESOURCE GOALS AND OBJECTIVES

3.1 INTRODUCTION

The terms “goal” and “objective” are often defined as synonymous, but in the context of this Master Plan goals express the overall desired end state of the Master Plan whereas resource objectives are specific task-oriented actions necessary to achieve the overall Master Plan goals.

3.2 RESOURCE GOALS

The following statements, paraphrased from EP 1130-2-550, Chapter 3, express the goals for the Hugo Lake Master Plan:

GOAL A. Provide the best management practices to respond to regional needs, resource capabilities and capacities, and expressed public interests consistent with authorized project purposes.

GOAL B. Protect and manage the project’s natural and cultural resources through sustainable environmental stewardship programs.

GOAL C. Provide public outdoor recreation opportunities that support project purposes and public interests while sustaining the project’s natural resources.

GOAL D. Recognize the project’s unique qualities, characteristics, and potentials.

GOAL E. Provide consistency and compatibility with national objectives and other State and regional goals and programs.

In addition to the above goals, USACE management activities are guided by USACE-wide Environmental Operating Principles as follows:

- Strive to achieve environmental sustainability. An environment maintained in a healthy, diverse, and sustainable condition is necessary to support life.
- Recognize the interdependence of life and the physical environment. Proactively consider environmental consequences of USACE programs and act accordingly in all appropriate circumstances.
- Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.
- Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.

- Seek ways and means to assess and mitigate cumulative impacts to the environment; bringing systems approaches to the full life cycle of our processes and work.
- Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work.
- Respect the views of individuals and groups interested in USACE activities; listen to them actively and learn from their perspective in the search to find innovative win-win solutions to the nation's problems that also protect and enhance the environment.

3.3 RESOURCE OBJECTIVES

Resource objectives are defined as clearly written statements that respond to identified issues and that specify measurable and attainable activities for resource development and/or management of the lands and waters under the jurisdiction of the Tulsa District, Hugo Lake Project Office. The objectives stated in this Master Plan support the goals of the Master Plan, the USACE Environmental Operating Principles (EOPs), and applicable national performance measures. They are consistent with authorized project purposes, federal laws and directives, regional needs, resource capabilities, and they take public input into consideration. Recreational and natural resources carrying capacities are also accounted for during development of the objectives found in this Master Plan, as well as regional and state planning documents including:

- Oklahoma Comprehensive Wildlife Conservation Strategy – Cross Timbers Region
- Oklahoma Statewide Comprehensive Outdoor Recreation Plan

The objectives in this Master Plan are intended to provide project benefits, meet public needs, and foster environmental sustainability for Hugo Lake to the greatest extent possible. The following tables list the objectives for Hugo Lake.

Table 3.1 Recreational Objectives

Recreational Objectives	Goals				
	A	B	C	D	E
Renovate existing facilities to provide a quality recreation experience for visitors while protecting natural resources for use by others. Examples include development of high impact zones at campsites, provision of universally accessible facilities, separation of day use and camping facilities, improved electrical service at campsites.	*		*		
Provide opportunities for day use activities, especially picnicking. Provide enough campsites in popular areas.	*		*		

Monitor boating traffic and evaluate the need to conduct a comprehensive recreation boating use study to ensure visitor safety and enjoyment.	*		*		
Manage recreation facilities in accordance with public demand. Examples include universally accessible fishing docks, fish cleaning stations near boat ramps, playground equipment in day use and camping areas.	*		*		
Work with partners to expand existing trails and develop new ones.	*		*		*
Consider flood/conservation pool to address potential impact to recreational facilities (i.e., campsites, boat ramps, courtesy docks, etc.).	*	*	*	*	
Ensure consistency with USACE Natural Resource Management (NRM) Strategic Plan.					*
Monitor the Oklahoma SCORP to ensure that USACE is responsive to outdoor recreation trends, public needs and resource protection within a regional framework. All plans by others will be evaluated considering USACE policy and operational aspects of Hugo Lake.			*		*

*Denotes that the objective helps to meet the specified goal.

Table 3.2 Natural Resource Management Objectives

Natural Resource Management Objectives	Goals				
	A	B	C	D	E
Give priority to the preservation and improvement of wild land values in public use planning, design, development, and management activities. Give high priority to examining project lands for the presence of old growth forests characteristic of the Level III South Central Plains and Level IV Cretaceous Dissected Uplands and Blackland Prairie.	*	*		*	*
Work with Tribal Nations to provide access to any culturally significant plants and natural resources.		*		*	*
Consider flood/conservation pool levels to ensure that natural resources are managed in ways that are compatible with project purposes.	*	*		*	
Actively manage and conserve fish and wildlife resources, especially threatened and endangered species and Species of Greatest Conservation Need, by implementing ecosystem management principles. Key among these principles is the use of native species adapted to the Level IV Cretaceous Dissected Uplands and Blackland Prairie in restoration and mitigation plans.	*	*		*	*
Manage high density and low-density recreations lands in ways that enhance benefits to wildlife.					*
Optimize resources, labor, funds, and partnerships for protection and restoration of fish and wildlife habitats.		*			*

Minimize activities which disturb the scenic beauty and aesthetics of the lake.	*	*	*	*	
Implement prescribed fire, timber harvests, and removal of targeted species as a management tool to promote the vigor and health of forests, woodlands, and prairies.	*	*			*
Stop unauthorized uses of public lands such as off-road vehicle (ORV) use, trash dumping, unauthorized fires, fireworks, poaching, clearing of vegetation, agricultural trespass, timber theft, unauthorized trails and paths, and placement of advertising signs that create negative environmental impacts.	*	*	*	*	*
Monitor lands and waters for invasive, non-native, and aggressively spreading native species and take action to prevent and/or reduce the spread of these species.	*	*		*	*
Protect and/or restore important native habitats such as prairies, bottomland hardwoods, riparian zones, and wetlands, where they occur, or historically occurred on project lands. Special emphasis should be taken to protect and/or restore special or rare plant species. Emphasize actions that promote butterfly and /or pollinator habitat, migratory bird habitat, habitat for birds listed by USFWS as Birds of Conservation Concern, and potential habitat for American Burying Beetle.	*	*		*	*
As funding permits, complete an inventory of timber resources and prepare a Forest Management Plan.	*	*		*	*

*Denotes that the objective helps to meet the specified goal.

Table 3.3 Visitor Information, Education, and Outreach Objectives

Visitor Information, Education, and Outreach Objectives	Goals				
	A	B	C	D	E
Provide opportunities (i.e., comment cards, updates to local municipalities, web page) for communication with agencies, special interest groups, and the general public. Utilize social media to inform visitors.	*			*	*
Provide educational, interpretive, and outreach programs at the lake office and around the lake. Topics to include history, lake operations (flood risk management and water supply), water safety, recreation, cultural resources, ecology, and USACE missions.	*	*	*	*	*
Promote USACE Water Safety message.	*		*	*	*
Educate adjacent landowners on policies and permit processes in order to reduce encroachment actions.	*	*	*	*	*
Work with Tribal Nations to engage the public and provide educational and informational opportunities to the general public.	*	*	*	*	*

*Denotes that the objective helps to meet the specified goal.

Table 3.4 General Management Objectives

General Management Objectives	Goals				
	A	B	C	D	E
Resurvey and maintain the public lands boundary line to ensure it is clearly marked and recognizable in all areas to reduce habitat degradation and encroachment actions.	*	*		*	
Identify safety hazards or unsafe conditions; correct infractions and implement safety standards in accordance with EM 385-1-1.					*
Ensure green design, construction, and operation practices, such as the Leadership in Energy and Environmental Design (LEED) criteria for government facilities, are considered as well as applicable Executive Orders.					*
Manage non-recreation outgrants such as utility and road easements in accordance with national guidance set forth in ER and EP 1130-2-550 and applicable chapters in ER 405-1-12.	*				*
Manage project lands and recreational programs to advance broad national climate change mitigation goals, including but not limited to climate change resilience and carbon sequestration, as set forth in Executive Order 13990 and related USACE policy.					*
The USACE will continue to monitor both current and projected climate change impacts to operations and the authorized project purposes within USACE federal fee boundary and react through adaptation and resiliency projects, as funding becomes available.	*	*	*		*

*Denotes that the objective helps to meet the specified goal.

Table 3.5 Cultural Resources Management Objectives

Cultural Resources Management Objectives	Goals				
	A	B	C	D	E
As funding permits, complete an inventory in accordance with Section 110 NHPA and prepare a Cultural Resources Management Plan.	*	*		*	*
Increase public awareness and education of regional and local Tribal histories.		*		*	*
Monitor and enforce Title 36 and ARPA to prevent unauthorized excavation and removal of cultural resources.		*		*	*
Provide access by Tribal Nations to any cultural resources, sacred sites, or other Traditional Cultural Properties.	*	*			
Preserve and protect cultural resources sites in compliance with existing federal statutes and regulations.	*	*	*	*	*

*Denotes that the objective helps to meet the specified goal.

CHAPTER 4 – LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE, AND PROJECT EASEMENT LANDS

4.1 LAND ALLOCATION

All lands at USACE water resource development projects are allocated by USACE into one of four categories in accordance with the congressionally authorized purpose for which the project lands were acquired: Operations, Recreation, Fish and Wildlife, and Mitigation. At Hugo Lake, the only land allocation category that applies is Operations, which is defined as those lands that are required to operate the project for the primary authorized purposes of flood risk management, water supply, recreation, water quality, and fish and wildlife. The remaining allocations of Recreation, Fish and Wildlife, and Mitigation would apply only if lands had been acquired specifically for these purposes.

The USACE recognizes that some of the lands acquired were above elevation 437.5 NGVD29 which is the top of the flood control pool. Some of these lands were acquired for recreational purposes, but under the rules in place at the time of acquisition, these lands are not considered “separable” recreation lands in that the acquisition of separable lands normally requires a cost sharing sponsor, a non-federal operator, or were acquired by separate congressional authorization. The extent of federal land acquisition above the top of the flood control pool was often designed to develop a blocked perimeter which provides a more manageable boundary and provides a buffer against shoreline erosion that inevitably occurs during major flood events.

4.2 LAND CLASSIFICATION

4.2.1 General

The objective of classifying project lands is to identify how a given parcel of land shall be used now and in the foreseeable future. Land classification is a central component of this plan, and once a particular classification is established any significant change to that classification would require a formal process including public review and comment.

4.2.2 Prior Land Classifications

The previous version of the Hugo Lake Master Plan included land classification criteria that were similar, but not identical to the current criteria. In the Plan, these prior land classifications were called both Land Classifications and Land Management Areas. It further subdivided these categories into Land Use Priorities which were based on managing entities or lease areas. In the years since the previous Master Plan was published, wildlife habitat values, surrounding land use, and regional recreation trends have changed giving rise to the need for revised classifications. Refer to Table 8.1 in Chapter 8 for a summary of land classification changes from the prior classifications to the current classifications. The previous land classifications were as follows:

- **Project Operations:** Lands acquired for project operations and allocated for the safe and efficient operation of the project for those authorized purposes other than fish and wildlife. In all cases this included, but was not restricted to, land on which the operational structures are located. Agricultural uses of this land are permitted on an interim basis only when it is not in conflict with use for an authorized purpose.
- **Operations: Recreation-Intensive Use:** Lands acquired for operations and allocated for use as developed public use areas for intensive recreational activities by the visiting public, including areas for concession and quasi-public developments. No agricultural uses are permitted on this land except on an interim basis.
- **Operations: Low-Density:** Lands acquired for project operations and allocated for low density recreational activities by the visiting public as required as open space between intensive recreational developments or between an intensive recreational development and land which, by virtue of use, is incompatible with the recreational development and would detract from the quality of the public use. Such incompatible land may be located either on the project or adjacent to the project. Land required for ecological workshops and forums, hiking trails, primitive camping, or similar low density recreational use available for a significant role in shaping public understanding of the environment will be under this allocation. No agricultural uses are permitted on this land except on an interim basis.
- **Operations: Wildlife Management:** Lands acquired for project operations and allocated as habitat for fish and wildlife or for propagation of such species. Such lands should be continuously available for low density recreation. When the Master Plan was written, the wildlife management lands at Hugo Lake along with 2,307 surface acres of water were licensed to the Oklahoma Department of Wildlife Conservation for management.

4.2.3 Current Land and Water Surface Classifications

USACE regulations require project lands and waters to be classified in accordance with the primary use for which project lands are managed. There are six classifications and four subcategories of classification identified in USACE regulations, as well as four water designations which are as follows:

- Project Operations
- High Density Recreation
- Mitigation
- Environmentally Sensitive Areas
- Multiple Resource Management Lands
 - Low Density Recreation
 - Wildlife Management
 - Vegetative Management
 - Future/Inactive Recreation

- Water Surface
 - Restricted Areas
 - Designated No Wake Areas
 - Fish and Wildlife Sanctuary
 - Open Recreation

The land and water surface classifications for Hugo Lake were established after considering public comments, input from key stakeholders and lessees operating on USACE land, as well as USACE expert assessment. Additionally, wildlife habitat values and the trends analysis provided in the SCORP was used in decision making. Furthermore, the USACE consulted with Tribal Nations who have cultural and historical interests in the lands at Hugo Lake. Maps showing the various land classifications can be found in Appendix A. Each of the land classifications, including the acreage and description of allowable uses, is described in the following paragraphs.

4.2.4 Project Operations

This classification includes the lands managed for operation of the dam, stilling basin, project office, maintenance compound, and levee, all of which must be maintained to carry out the primary authorized purposes of flood risk management, water supply, navigation, recreation, and fish and wildlife. In addition to the operational activities taking place on these lands, limited recreational use may be allowed for activities such as public fishing access below the discharge outlet works. Regardless of any limited recreation use allowed on these lands, the primary classification of Project Operations will take precedent over other uses. There are 259 acres of Project Operations land specifically managed for this purpose.

4.2.5 High Density Recreation (HDR)

The following sections describe the various types of areas that are included in the HDR classification. The areas include leased lands to public entities, quasi-public and private club organizations, as well as USACE-managed public parks and privately managed commercial concessions that are open to the public.

Public, Quasi-Public, and Private Club Leases

These are lands developed, or available to be developed for intensive recreational activities including day use areas, campgrounds, marinas, and related concession areas. Comprehensive resorts, as defined in ER 1130-2-550, Chapter 16, are also suitable for development in HDR areas. At Hugo Lake, HDR areas include three categories described below that are each managed to serve specific outdoor recreation purposes.

- **Public Use Areas:** This is the largest category of HDR areas and includes the parks listed in Section 5. These areas are operated by USACE and grantees including the state of Oklahoma and are open to the public at large. These areas provide amenities such as picnic areas, campgrounds, boat launching ramps, and trails.

- Commercial Marinas/Resorts: There is one marina under lease at Hugo Lake Kiamichi Park.
- Quasi-public Use Areas: These areas operate under non-profit lease agreements with USACE and include camps for boy scouts, girl scouts, church groups, civic groups and other incorporated, non-profit organizations. These areas provide recreational opportunities to the public at large but are also routinely reserved by the respective lessees to serve their organizational needs.

At Hugo Lake, there are 3,297 acres classified as High Density Recreation land. Each of the High Density Recreation Public Use Areas is described briefly in Chapter 5 of this Plan.

Status of Quasi-public and Private Club Leases

In general, the quasi-public use areas and private club sites at Hugo Lake were established to serve a valid recreation need at the time. Recent national USACE policy in ER 1130-2-550, Chapter 16, and ER 1130-2-540, Appendix D place significant restrictions on any new or expanded leases for quasi-public areas and private club sites as follows:

- Quasi-public Areas - ER 1130-2-550, Chapter 16, clearly states that new recreation outgrants (leases), or proposed new development within existing recreation outgrants must be dependent on the project's natural resources and, typically, must accommodate or support water-based activities, marinas, campgrounds, picnic areas, trails, swimming beaches, boat launching ramps or comprehensive resort facilities that offer these amenities. The following quote is taken from the regulation:

"The primary rationale for any future recreation development must be dependent on the project's natural or other resources. This dependency is typically reflected in facilities that accommodate or support water-based activities, overnight use, and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches, boat launching ramps, and comprehensive resort facilities. Examples that do not rely on the project's natural or other resources include theme parks or ride-type attractions, sports or concert stadiums, and standalone facilities such as restaurants, bars, motels, hotels, non-transient trailers, and golf courses. Normally, the recreation facilities that are dependent on the project's natural or other resources, and accommodate or support water-based activities, overnight use, and day use, are approved first as primary facilities followed by those facilities that support them. Any support facilities (e.g., playgrounds, multipurpose sports fields, overnight facilities, restaurants, camp stores, bait shops, comfort stations, and boat repair facilities) must also enhance the recreation experience, be dependent on the resource-based facilities, be secondary to the original intent of the recreation development...."

- Private Club Leases – ER 1130-2-540, Appendix D, defines private clubs as private exclusive use and states that no new private exclusive use, or expansion of existing private exclusive use will be permitted except in accordance with regional policy at the USACE division office level. This policy within the USACE Southwestern Division, which has jurisdiction over Hugo Lake, is that new or expanded private club sites will not be allowed.

The quasi-public and private recreation leases in effect at Hugo Lake as of the publication of this Plan will be renewed for the foreseeable future, as long as each lease remains compliant with lease conditions and the areas are not needed for a higher public use or project operations.

4.2.6 Mitigation

This classification is used only for lands set aside for mitigation for the purpose of offsetting losses associated with the development of the project. This is not the same as allocated lands that are purchased for the purpose of mitigation. There are no lands at Hugo Lake with this classification.

4.2.7 Environmentally Sensitive Areas (ESA)

These are areas where scientific, ecological, cultural, and aesthetic features have been identified. Several areas are designated as ESAs at Hugo Lake primarily for the protection of a combination of sensitive habitats, aesthetics, and legally protected cultural resources. Each of these areas is discussed in Chapter 5 of this Plan and illustrated on the maps in Appendix A. Some areas which were previously classified as Wildlife Management Area have been changed to Environmentally Sensitive Areas. Within those areas, hunting and other wildlife management activities are still permitted, but protection of sensitive resources takes priority over any other activity. The process of correspondence with Tribal Nations to designate ESAs is briefly described as a special topic in Chapter 6 of this Plan. There are 3,232 acres classified as ESA at Hugo Lake.

4.2.8 Multiple Resource Management Lands (MRML)

This classification is divided into four sub-classifications identified as: Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. A given tract of land may be classified using one or more of these sub-classifications, but the primary sub classification should reflect the dominant use of the land. Typically, Multiple Resource Management Lands support only passive, non-intrusive uses with very limited facilities or infrastructure. Where needed, some areas may require basic facilities that include, but are not limited to minimal parking space, a small boat ramp, and/or primitive sanitary facilities. There are 27,048 acres of land under this classification at Hugo Lake which includes the Low Density Recreation and Wildlife Management sub-classifications. The following paragraphs list each of the sub-classifications, and the number of acres and primary uses of each.

Low Density Recreation (LDR)

These are lands that may support passive public recreational use (e.g., fishing, hunting, wildlife viewing, natural surface trails, hiking, etc.). Under prior land classifications, numerous areas with passive recreational use were classified wildlife management. The planning process resulted in most of these areas remaining classified as Wildlife Management rather than LDR. There are 4,414 acres under this classification at Hugo Lake.

Wildlife Management (WM)

This land classification applies to lands managed primarily for the conservation of fish and wildlife habitat. These lands generally include comparatively large contiguous parcels, most of which are located within the flood pool of the lake. Passive recreation uses such as natural surface trails, fishing, hunting, and wildlife observation are compatible with this classification unless restrictions are necessary to protect sensitive species or to promote public safety. There are 15,846 acres of land included in this classification at Hugo Lake.

Vegetative Management (VM)

These are lands designated for stewardship of forest, prairie, and other native vegetative cover. Passive recreation activities previously described may be allowed in these areas. There are no acres under this classification at Hugo Lake.

Future or Inactive Recreation

These are lands with site characteristics compatible with High Density Recreation development but have been undeveloped or planned for very long-range recreation needs. There are no acres classified as Future or Inactive Recreation.

4.2.9 Water Surface

USACE regulations specify four possible sub-categories of water surface classification. These classifications are intended to promote public safety, protect resources, or protect project operational features such as the dam and spillway. These areas are typically marked by the USACE or lessees with navigational or informational buoys or signs or are denoted on public maps and brochures. The Water Surface Classification map can be found in Appendix A of this Plan. The four sub-categories of water surface classification are as follows:

Restricted

Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety, and security purposes. The areas include the water surface immediately surrounding the gate control tower upstream of the Hugo Lake Dam, around the water intake structures, just below the dam, upstream

of the controlled spillway, and at designated swim beaches. There are 17 acres of restricted water surface at Hugo Lake.

Designated No-Wake

Designated No-Wake areas are intended to protect environmentally sensitive shorelines and improve boating safety near key recreational water access areas such as boat ramps. There are ten boat ramps and one marina at Hugo Lake where no-wake restrictions are in place for reasons of public safety and protection of property. There are 141 acres of designated no-wake water surface at Hugo Lake. No-wake areas are typically denoted by buoys in appropriate areas.

Fish and Wildlife Sanctuary

This water surface classification applies to areas with annual or seasonal restrictions to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. Hugo Lake has no acres of water surface designated as a Fish and Wildlife Sanctuary.

Open Recreation

Open Recreation includes all water surface areas available for year-round or seasonal water-based recreational use. This classification encompasses the majority of the lake water surface and is open to general recreational boating. Boaters are advised through maps and brochures, or signs at boat ramps and marinas, that navigational hazards may be present at any time and at any location in these areas. Operation of a boat in these areas is at the owner's risk. Specific navigational hazards may or may not be marked with a buoy. Approximately 11,232 acres of water surface at Hugo Lake are designated as Open Recreation.

4.2.10 Project Easement Lands

Project Easement Lands are primarily lands on which easement interests were acquired. Fee title was not acquired on these lands, but the easement interests convey to the Federal government certain rights to use and/or restrict the use of the land for specific purposes. Easement lands are typically classified as Operations Easement, Flowage Easement, and/or Conservation Easement.

At Hugo Lake the only easement lands are those lands where a flowage easement was acquired. A flowage easement, in general, grants to the government the perpetual right to temporarily flood/inundate private land during flood risk management operations and to prohibit activities on the flowage easement that would interfere with flood risk management operations such as placement of fill material or construction of habitable structures. There are 3,459 acres of flowage easements lands around Hugo Lake.

CHAPTER 5 – RESOURCE PLAN

5.1 RESOURCE PLAN OVERVIEW

This chapter describes the management plans for each land use classification within the Master Plan. Management plans describe how the project lands and water surface will be managed in broad terms. A more descriptive plan for managing these lands can be found in the Hugo Lake Operations Management Plan (OMP). The OMP is an annually updated, task and budget-oriented plan identifying tasks necessary to implement the Resource Plan and achieve the goals and objectives of the Master Plan. Management of all lands, recreation facilities, and related infrastructure must take into consideration the effects of pool fluctuations associated with authorized project purposes. Management actions are dependent on congressional appropriations, the financial capability of lessees and other key stakeholders, and the contributions of labor and other resources by volunteers. Acreages shown for the various land classifications were calculated using GIS technology and may not agree with lease documents, prior publications, or official land acquisition records.

5.2 PROJECT OPERATIONS

The Project Operations (PO) classification is land associated with the dam, spillway, levees, lake office, maintenance facilities, and other areas managed solely for the operation and fulfillment of the primary mission of the project. There are 259 acres of lands under this classification, all of which are managed by the USACE. The Project Operation land management plan consists of continuing to provide physical security necessary to ensure continued operation of the critical operational structures.

Public access to Project Operations lands is restricted although limited recreational access is permitted when lake operations allow. Regardless of any authorized public recreational use of lands that are classified as Project Operations, the operation, maintenance, and safety requirements of the dam and associated lands and infrastructure take priority over any recreational access.

5.3 HIGH DENSITY RECREATION

Hugo Lake has 4,022 acres classified as High Density Recreation (HDR). These lands are developed for intensive recreational activities for the visiting public including day use and campgrounds. Depending on available space, funding, and public demand, those HDR lands managed as Public Parks, Commercial Concession leases, and Quasi-Public leases may support additional outdoor recreation development in the future. These areas have been developed to support concentrated visitation. Future development on HDR lands will take into consideration protection of natural resources and scenic quality as specified in the management objectives set forth in Chapter 3. National USACE policy set forth in ER 1130-2-550, Chapter 16, limits recreation development on USACE lands to those activities that are dependent on a project's natural resources and typically include water-based activities, overnight use, and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches, boat

launching ramps and comprehensive resorts. Examples of activities that are not dependent on a project's natural resources include theme parks or ride-type attractions, sports or concert stadiums, and stand-alone facilities such as restaurants, bars, motels, hotels, and golf courses.

5.3.1 Recreation Areas and Facilities

Hugo Lake offers a variety of recreational opportunities along the Kiamichi River Basin and includes facilities managed by the USACE and other managing entities. The following section describes each USACE managed High Density Recreation Area followed by those that are outgranted to another organization.

5.3.2 USACE Managed High Density Recreation Areas

Bridgeview

Bridgeview is a free access point located below the Hugo dam with access to the east side of the stilling basin. For vessels that need access to the outlet channel and the Kiamichi River, a single lane concrete boat ramp is provided. A fishing berm located along the outlet channel with multiple stairways for access provides first-rate fishing opportunities. Drinking water and primitive restroom facilities are also available. Continued maintenance of existing facilities is planned. Any proposed betterments will be limited to available funding.

Frazier Point

Frazier Point is located on the upper east side of Hugo Lake with access off State Highway 93. A single lane boat ramp allows watercraft entry to Frazier Creek and the upper portion of the Kiamichi River. Paved parking is available in this heavily wooded public use area. There are no future plans for any major improvements to the area; however, continued maintenance of the existing facilities is scheduled.

Mahafee Point

Mahafee Point offers a group camp experience for lake visitors. The camp is perched along the banks of Hugo Lake. There are four group camping sites that can accommodate up to 25 guests each. Each group site offers electrical hook-ups for multiple camping units as well as a large picnic shelter. A shared playground is also available. The gentle sloping shoreline along the southern edge of the camp offers easy lake access for swimming or fishing. Mahafee Point is a fantastic location for celebrations, youth trips or family functions. The area currently does not offer drinking water; however, this improvement is included in future development of the area dependent on available funds. The USACE will continue to maintain the existing facilities.

Kiamichi Park

Kiamichi Park is a large campground with multiple camping loops that offers a variety of amenities to visitors. Overnight guests can relax and enjoy lake views from any of the 85 spacious modern campsites. A separate group camping loop is available for RV clubs or family gatherings. The park boasts a well maintained boat ramp with a courtesy dock to aid in the comfort of loading and unloading of passengers and equipment. A playground and designated swim beach are an added benefit for groups that reserve one of the two group day use shelters. Horse enthusiasts will appreciate the scenic beauty of the equestrian trail and horse stalls along Raccoon Road. Miles of paved roadways provide the perfect outdoor setting for cyclists and joggers. Future development and improvements are planned for this highly utilized facility as well as routine maintenance.

Overlook

The Overlook is located on the west side of the stilling basin. Visitors can view the dam, surrounding lake area and the Kiamichi River Valley downstream. Ample parking is provided as well as a fishing berm with dual stairways for access. Restroom facilities and interpretive information are available. Continued upkeep of the area is scheduled, and any proposed improvements are dependent on available funding.

Rattan Landing

Rattan Landing is a small, peaceful campground located on the left bank of the Kiamichi River on the northern end of the Hugo Reservoir. The campground is easily accessible off State Highway 3. This quiet getaway offers 13 campsites with grand river views and spectacular sunsets. Fishermen proclaim the area a perfect all-in-one location with a multi-laned boat ramp, plenty of paved parking and easy access to the riverbank. Maintenance of the existing facilities will occur. Any upgrades or improvements are dependent on future funding levels.

Salt Creek

Conveniently located off State Highway 93, Salt Creek caters to the outdoorsman with excellent fishing and hunting opportunities with a multi-laned boat ramp and courtesy dock. Paved parking provided. Located on the western shores of Hugo Lake, visitors can enjoy the rolling terrain and limestone outcroppings. No major improvements are planned for Salt Creek; however, routine maintenance will continue.

Sawyer Bluff

The land surrounding Sawyer Bluff is characterized by sharp drop-offs and exposed layers of limestone. The drop-offs produce plateaus which provide visitors excellent vantage points to view the lake. The boat ramp is nestled amongst the trees on the west side of Hugo Lake with an expansive paved parking lot. Maintenance of the existing facilities will continue.

Virgil Point

Virgil Point is a relatively flat campground surrounded by dense hardwood forest that provides a tranquil setting for camp visitors. The 51 campsites are grouped in two separate camping loops with spacious accommodations. A boat ramp and courtesy dock located in the southern camping loop facilitate access to the water. Visitors are pleased with the modern restroom and shower facilities. Due to the heavy usage of Virgil Point, upgrades and improvements are planned as well as normal routine maintenance.

Wilson Point

Wilson Point is a popular day use area conveniently located off OK 147. The natural sandy beach provides a pleasant atmosphere for swimming or soaking up some rays. Visitors are encouraged to pack a lunch and enjoy the use of Individual covered picnic tables. Large groups can take advantage of the large group picnic shelter, playground and kids fishing pond. Many youth groups and family reunions reserve the shelter throughout the summer. A boat ramp with a large, paved parking area provides the perfect launch point for various recreation vessels. Improvements are planned based on public demand and funding. Existing facilities will be maintained.

5.3.3 Outgranted High Density Recreation Areas

Hugo Lake State Park Operated by LIFT Community Action Agency, Inc.

Once leased by the State of Oklahoma as Hugo Lake State Park, the area is now managed by the LIFT Community Action Agency, Inc. (formerly Little Dixie Community Action Agency, Inc.) as a Public Park lease with commercial activity. Located in scenic southeastern Oklahoma, this long-established recreation destination offers family fun, boating, and spectacular sunsets. The park features several amenities including 16 Resort Cabins, 10 Primitive Cabins, Hospitality Center as well as modern and primitive campsites. The marina within the park offers 56 boat slips, boat ramp, and the ship's store serve as a Visitor Center and Cabin Check-in station. Several nature trails including a paved handicap accessible trail allow visitors to explore the park at their own pace.

5.3.4 Commercial Concession Leases

Concessionaires provide valuable services to the public at USACE lakes across the United States. USACE makes efforts to attract concessionaires that are able to establish suitable, well-maintained businesses that will offer desirable water-related services to the general public. Presently, there are no Commercial Concession Leases on Hugo Lake. Hugo Lake Marina operates in conjunction with the Recreation - Public Park Lease to LIFT Community Action Agency, Inc. For more details on the provided services and hours of operation, please visit the Agency website at <https://liftca.org/hugo-lake-state-park/>.

5.4 MITIGATION

The Mitigation classification is applied to lands that were acquired specifically for the purpose of offsetting losses associated with the development of the project. There are no acres at Hugo Lake under this classification. USACE lands at Hugo Lake where environmental mitigation activities have taken place in association with real estate easements or other outgrants are not included in lands classified for Mitigation.

5.5 ENVIRONMENTALLY SENSITIVE AREAS

Nine (9) distinct areas totaling 3,232 acres are designated as Environmentally Sensitive Areas (ESA). These are areas where scientific, ecological, cultural, or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the National Historic Preservation Act (NHPA), or applicable state statutes. The primary management objective for ESAs is to allow existing uses to continue but to protect sensitive resources from intensive development, use, or disturbance beyond that which currently exists. In general, these areas must be managed to ensure that they are not adversely impacted. With the exception of natural surface pedestrian trails and minimal visitor parking areas, limited or no development of public use facilities is allowed on these lands and no real estate outgrants for easements should be granted unless disturbance can be confined to the boundaries of existing easements. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as prairie restoration or provision of supplemental browse and forage for wildlife. An ESA classification provides the highest level of ecological protection among the various land use classifications. Future management of ESAs includes monitoring and surveillance of cultural resource sites to ensure they are not damaged or destroyed. For a brief description of consultation with Tribal Nations for ESA and land classification changes, see Chapter 6.

The ESAs listed and described in Table 5.1 provide the number of acres for each ESA and a brief description of the ESA. See Appendix A for the map that identifies the ESAs around the lake. Many of the ESAs were designated to protect culturally and/or historically significant sites. Since the purpose of the ESA designation is to protect those sites, many of the ESAs have been expanded well beyond the known cultural site, as to not identify the exact location and due to the likelihood that there may be additional unidentified sites adjacent to those which are being protected. Typically, the ESA table would provide a more detailed description of each ESA and why it is being protected, but due to the sensitivity and significance of many of the sites and the desire to obscure the specific details of the sites, the table only provides a more general description.

Table 5.1 ESA Listing

ESA#	Acres	Location and Description
ESA 1	267	This area is located to the southeast of the Rattan Landing Public Use Area. It contains some wetlands and bottomland hardwood habitats along Mill Creek and is partially managed for wildlife. The ESA was designated to protect sensitive resources in the area.

ESA#	Acres	Location and Description
ESA 2	1,430	ESA 2 is located along the Kiamichi River and One Creek within the larger Wildlife Management Area. It contains a mix of habitats including grassland, wetlands, and bottomland hardwood forest and much of the area is managed for wildlife. The ESA was designated to protect sensitive resources in the area.
ESA 3	225	ESA 3 is located along the northeastern shoreline to the southeast of OK 93. Part of the shoreline is narrow and prone to erosion. The area contains mostly hardwood forest and small pond and wetland area and is managed for wildlife. The ESA was designated to protect sensitive resources in the area.
ESA 4	217	Located on the southwest shoreline to the south of OK 93, ESA 4 contains a mix of habitat types including some areas that are occasionally flooded. The area is popular for hunting and is managed for wildlife. The ESA was designated to protect sensitive resources in the area.
ESA 5	156	ESA 5 is located between Ballpark Road and Long Creek, along Miller Creek to the west of the lake. The area is mostly dense hardwood forest and is managed for wildlife. The ESA was designated to protect sensitive resources in the area.
ESA 6	408	Located on a peninsula to the east of the Long Creek confluence, ESA 6 is mostly wetlands and is often flooded. This area is managed for wildlife and was designated as an ESA to protect sensitive resources in the area.
ESA 7	215	On the east side of the lake, along the shoreline where E 2030 Road joins USACE property, ESA 7 contains a mix of habitat types including upland and bottomland hardwood forests, wetlands, and a small pond. This area is managed for wildlife and was designated as an ESA to protect sensitive resources in the area.
ESA 8	256	ESA 8 is located on the southeast side of the lake to the east of Virgil Point Campground. It is located along both sides of OK 147, partially along Cedar Creek, and includes wetlands, bottomland forest, and upland forest habitats. The ESA is located within a larger Low Density Recreation Area that could include soft surface trails and other passive recreation. All activities including recreation will be managed to protect the sensitive resources in the area.
ESA 9	58	This area is located to the east of Kiamichi Park High Density Recreation, to the northwest of the dam, and adjacent to Low Density Recreation areas. ESA 9 includes shoreline that is often flooded as well as some upland forest habitat. The area has historically been managed to include passive recreation including soft surface trails. All activities including recreation will be managed to protect the sensitive resources in the area.

5.6 MULTIPLE RESOURCE MANAGEMENT LANDS

Multiple Resource Management Lands (MRML) are, as the name implies, lands that serve multiple purposes, but that are sub-classified and managed for a predominant use. There are no lands sub-classified as Vegetation Management (VM) or Future or Inactive Recreation Areas at Hugo Lake. The following paragraph describes the sub-classification, how they are managed, and provides the number of acres in each sub-classification.

5.6.1 Wildlife Management

There are 15,846 acres of MRML – Wildlife Management, which is the dominant land classification at Hugo Lake. These are lands designated primarily for the stewardship of fish and wildlife resources but are available for passive recreation use such as natural surface trails, hiking, and nature study. The USACE goals and objectives for these lands is to continue working with USFWS and ODWC partners to ensure their wildlife management practices, as well as USACE management practices, are ecologically sustainable and providing the intended public benefits. In general, this land classification calls for managing the habitat to support native, ecologically adapted vegetation, which in turn supports native game and non-game wildlife species, with special attention given to federal and state-listed threatened and endangered species (see Table 2.3). Future management may include such activities as placement of nesting structures, construction of water features or brush piles, prescribed fire, fencing, removal of invasive species, and planting of specific food-producing plants that may be necessary to support wildlife needs. Additional best management practices may include use of erosion control blankets that do not pose entrapment hazards to wildlife; elimination of open-top vertical pipes that pose an entrapment hazard to wildlife; minimize nighttime lighting and only use down-shielded lighting to prevent disorientation of night-migrating birds; follow USFWS guidelines for building glass to prevent bird collisions; preserve and restore wildlife habitat; ensure that mowing practices provide standing tallgrass over winter to provide essential cover for wintering birds; and report sightings of state-listed species and presence of rare vegetative communities to USFWS and ODWC. Priority will be given to the improvement or restoration of existing wetlands, or the construction of wetlands where topography, soil type, and hydrology are appropriate.

Use of available funds for wildlife management must be prioritized to meet legal mandates and regional priorities. While exceptions can occur, management actions will be guided by the following, in order of priority: 1) Protect federal and state-listed threatened and endangered species. 2) Meet the needs of species protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. 3) Meet the needs of rare species and Species of Greatest Conservation Concern. 4) Meet the needs of resident species not included in the above priorities.

Additionally, agricultural leases for grazing or hay production may be employed when such actions are beneficial to long-term ecological management goals. Hunting and fishing activities are regulated by federal and state laws and special restrictions

proposed by the USACE and approved through state regulatory processes. Natural surface pedestrian trails are appropriate for most Wildlife Management Areas.

ODWC-Managed Wildlife Management Area

The USACE has licensed and leased a total of 20,158 acres of land to ODWC for wildlife management and facilities related to the operations of the Hugo Wildlife Management Area (WMA). The ODWC manages lands located in Pushmataha and Choctaw County. The Lyndol Fry Waterfowl Refuge is located along the northern portion of the Kiamichi River. Habitat consists of mature stands of hardwoods and mixed pine forest. Much of the area is old farm field habitat. Management efforts focus on producing native wildlife foods as well as nesting and foraging habitat. Prescribed burns are conducted when conditions permit, and approximately 200 acres of food plots are planted annually. Primitive camping areas are offered within the WMA.

Fishing and Hunting Opportunities

Hugo Lake is known for quality deer hunting; however, sportsmen can explore over 25,000 acres of public hunting land for a multitude of wildlife species. Kiamichi Park features an archery practice range, a shooting range and a 3,000-acre Quality Deer Management Area.

Lands open to hunting include 7,785 acres managed by the USACE and 20,158 acres licensed to the Oklahoma Department of Wildlife Conservation. Hunting maps are available at the Lake Office and on the US Army Corps of Engineers Tulsa District website. Available game includes deer, turkey, rabbit, beaver, quail, squirrel, duck, and dove.

Bass and catfish tournaments on Hugo Lake are touted as some of the best in the state. With nearly 5,000 acres of flooded timber, anglers can experience prime fishing with healthy populations of bass, catfish, crappie, and bluegill. State of Oklahoma hunting and fishing laws are enforced on project lands.

5.6.2 Low Density Recreation

There are 3,690 acres of MRML – Low Density Recreation at Hugo Lake. These lands have minimal development or infrastructure that support passive public use such as hiking, nature photography, bank fishing, and hunting. Since these lands are typically adjacent to private residential developments, hunting is only allowed in select areas that are a reasonable and safe distance from adjacent residential properties. These lands are typically open to the public, including adjacent landowners, for pedestrian traffic and are frequently used by adjacent landowners for access to the shoreline near their homes. Prevention of unauthorized use on this land, such as trespassing or encroachment, is an important management and stewardship objective for all USACE lands but is especially important for lands in close proximity to private development. Future management of these lands calls for maintaining a healthy, ecologically adapted

vegetative cover to reduce erosion and improve aesthetics. Maintenance of an identifiable property boundary is also a high priority in these areas.

5.7 WATER SURFACE

At conservation pool level of 404.5 NGVD29 there are 11,390 acres of water surface. The USACE and is the primary agency responsible for managing the recreational use of the water surface at Hugo Lake. Enforcement of water surface rules and regulations is a shared responsibility between the USACE, ODWC, and the Marine Enforcement Division of the Oklahoma Highway Patrol (OHP). Zoning of the water surface is intended to ensure the security of key operations infrastructure, promote public safety, and protect habitat. In accordance with national USACE policy set forth in EP 1130-2-550, the water surface of the lake at the conservation pool elevation may be designated using the following classifications:

5.7.1 Restricted

Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations and safety and security purposes. Vessels are not allowed to enter Restricted water surface. The total acreage of Restricted water surface is approximately 17 acres. The Restricted water surface at Hugo Lake includes the area around the intake gate control tower near the dam, immediately below the dam which is restricted for safety and security concerns, controlled spillway, and small areas around designated swimming beaches. Future management calls for one or more of the following management measures: placement of buoys; placement of signs near boat ramps and swimming beaches; and describing the areas on maps available to the public.

5.7.2 Designated No-wake

Designated No-Wake areas are intended to protect environmentally sensitive shorelines and improve visitor safety near key recreation water access areas such as boat ramps, swim beaches, and marinas. Designated No-Wake areas at Hugo Lake include approximately 141 acres. The following measures to be taken in No-wake Areas: placement of buoys, placement of signs near boat ramps, and describing the areas on maps available to the public

5.7.3 Open Recreation

Open Recreation includes all water surface areas available for year-round or seasonal water-based recreational use. Approximately 11,232 acres of Hugo Lake water surface is designated as Open Recreation. Signs at boat ramps warn boaters that navigation hazards such as standing dead timber, shallow water, and floating debris may be present at any time and location and it is incumbent upon boat operators to exercise caution. Boating on the lake is in accordance with USACE regulations and water safety laws of Oklahoma. The USACE encourages all boaters and swimmers to wear lifejackets at all times and to learn to swim well.

5.7.4 Recreational Seaplane Operations

Recreation seaplane landings and takeoffs may occur on water surface areas where this activity is not prohibited. A map depicting areas where seaplane landings and takeoffs are prohibited can be found in Appendix A. The USACE imposed restrictions that apply to seaplane operations are published by the Federal Aviation Administration in their Notice to Airmen and are also set forth in Title 36 of the Code of Federal Regulations, Chapter III, Section 327.4.

CHAPTER 6 – SPECIAL TOPICS/ISSUES/CONSIDERATIONS

6.1 COMPETING INTERESTS ON THE NATURAL RESOURCES

Hugo Lake is a multi-purpose project with numerous authorized purposes. The authorized purposes accommodate the needs of federal, state, and municipal users which have developed over time and have contractual rights that must be honored. The benefits provided by virtue of authorized purposes are critical to the local and regional economies and are of great interest to the public. Aside from operating the reservoir to meet the needs of those entities with contractual rights, there are many competing interests for the utilization of federal lands including recreational users, adjacent landowners, those who own mineral rights, utility providers, and all entities that provide and maintain public roads. A growing population and increasing urbanization places additional stresses on these competing interests through increased demand for water resources and recreation spaces as well as diminishing quality and space for natural habitat and open spaces. Balancing the interests of each of these groups to ensure that valid needs are met while at the same time protecting natural and cultural resources is a challenge. The purpose of this Plan is to guide management into the foreseeable future to ensure responsible stewardship and sustainability of the project's resources for the benefit of present and future generations.

6.2 UTILITY CORRIDORS

USACE policy allows for the establishment of designated corridors on project lands, where feasible, to serve as the preferred location for future outgrants such as easements for roads or utility lines. After obtaining public input and examining the location of existing roads and utility lines on project lands, and due to the relatively low demand for easements at Hugo Lake, the USACE decided that the creation of utility corridors would not be necessary. Any utility seeking an easement to cross USACE property will still need to research alternate routes around USACE property and demonstrate that a feasible alternative does not exist and would need to undergo the required NEPA permitting process.

6.3 FLUCTUATING WATER LEVEL

The USACE often receives comments from the public noting how water levels fluctuate rapidly or for long periods, negatively affecting recreation. The Master Plan cannot provide a solution to the problem since water management is outside the scope of master planning, but the Plan acknowledges that the water level has negatively affected water-based recreation. Recreation is one of the authorized purposes of the lake, but the other authorized purposes are also a priority, and the lake must be managed with all authorized purposes in mind and hopefully creates the right balance where the public can still enjoy water-based recreation in spite of less-than-ideal water level throughout the year. The other project purposes are flood risk management, water supply, water quality, and fish and wildlife management, in addition to recreation.

6.4 PUBLIC HUNTING ACCESS

Many public lands operated by ODWC as wildlife management are located on land owned and managed by the USACE. Partnering with ODWC allows for an improved user experience and greater access to the public. Oklahoma has less public land available for hunting than many states, so public access on USACE lands are often the best opportunity for many Oklahoma residents. Hunting at all USACE projects is in accordance with applicable Federal and State regulations. Generally, all USACE hunting areas are open for public hunting of all legal species with the use of any legal weapon for that open season except in areas designated for restricted hunting. Hunting is prohibited in developed recreational areas, lands around dams, and around other structures. Vehicles must remain on established roads, and camping is allowed in designated areas only. Individuals interested in hunting on USACE lands should visit the Tulsa District Hunting Information webpage or visit the Hugo Lake Office for more information. Hunting maps, guidelines, and restrictions are available at the Tulsa District Website and Hugo Lake Office.

6.5 THREATENED AND ENDANGERED SPECIES

Section 7(a)(2) of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by such agency is not likely to: 1) jeopardize the continued existence of any endangered or threatened species, or 2) result in the destruction or adverse modification of critical habitat. The term, "jeopardize the continued existence of" means to reduce appreciably the likelihood of both the survival and recovery of listed species in the wild by reducing the species' reproduction, numbers, or distribution. Jeopardy opinions must present reasonable evidence that the project will jeopardize the continued existence of the listed species or result in destruction or adverse modification of critical habitat.

While the action of revising a Master Plan is not likely to jeopardize the continued existence of a federally listed species and is not likely to destroy or adversely modify their habitat, it is possible that management and operation of Hugo Lake could result in incidental take. Since incidental take may adversely affect a federally listed species, formal consultation between the USACE Tulsa District and USFWS on actions within Tulsa District, including those at Hugo Lake, was conducted in accordance with Section 7(a)(2) of the ESA.

6.6 CULTURAL RESOURCES AND CONSULTATION WITH TRIBAL NATIONS

It is required for federal agencies to consult with affiliated Native American Tribes on activities that take place on federal land under federal guidance including but not limited to Sections 106 and 110 of the National Historic Preservation Act (NHPA) of 1966 (as amended); Archaeological Resources Protection Act (ARPA) of 1979; Native American Graves Protection and Repatriation Act (NAGPRA); and 36 CFR Part 79, Curation of Federally-Owned and Administered Archeological Collections. Implementing regulations for Section 106 of the NHPA and NAGPRA are 36 CFR Part 800 and 43 CFR Part 10, respectively. All cultural resources laws and regulations should be

addressed under the requirements of the National Environmental Policy Act (NEPA) of 1969 (as amended), as applicable. USACE summarizes the guidance provided in these laws in ER and EP 1130-2-540. Additionally, Executive Order 13007 states that each federal agency with responsibility for the management of Federal lands shall accommodate access to and ceremonial use of Native American sacred sites by religious practitioners and avoid adversely affecting the physical integrity of such sacred sites.

The Tulsa District takes its responsibilities for consultation on a government-to-government basis very seriously and consulted extensively with Native American Tribes on the Hugo Lake Master Plan. The Tulsa District consulted with Tribes primarily on developing ESA's and ensuring areas of Tribal concern were addressed. This process has allowed Tribes to become more familiar with Corps property at Hugo Lake, and has increased USACE staff awareness of Tribal histories, sites, and concerns in the area. This exchange of knowledge from developing the master plan will allow USACE staff to better engage with Tribes on future projects at Hugo Lake and will likely lead to more efficient reviews and better outcomes meeting objectives for both parties.

CHAPTER 7 – PUBLIC AND AGENCY COORDINATION

7.1 PUBLIC AND AGENCY COORDINATION OVERVIEW

The USACE is dedicated to serving the public interests in support of the overall development of land uses related to land management for cultural, natural, and recreational resources of Hugo Lake. An integral part of this effort is gathering public comment and engaging stakeholders in the process of planning. USACE policy guidance in ER and EP 1130-2-550 requires thorough public involvement and agency coordination throughout the master plan revision process including any associated NEPA process. Public involvement is especially important at Hugo Lake to ensure that future management actions are environmentally sustainable and responsive to public outdoor recreation needs. The following milestones provide a brief look at the overall process of revising the Hugo Lake Master Plan.

The USACE began planning to revise the Hugo Lake Master Plan in the spring of 2021. The objectives for the Master Plan revision are to (1) revise land classifications to reflect changes in USACE land management policies since the 1971 Public Use Plan Revision, (2) prepare new resource goals and objectives, and (3) revise the Master Plan to reflect new agency requirements for Master Plan documents in accordance with ER 1130-2-550, Change 7, January 30, 2013 and EP 1130-2-550, Change 5, January 30, 2013.

7.2 INITIAL STAKEHOLDER AND PUBLIC MEETINGS

In the interest of public health and well-being due to the Covid-19 pandemic, the public input process was changed from a face-to-face public meeting to a virtual presentation detailing the specifics of the master plan revision. The presentation and public input process remained open for 30 days. The public comment period began May 26, 2021 and ran through June 26, 2021.

The presentation included a description and definition of a master plan, descriptions of the new land use classification options, and instructions for commenting on the master plan. Presentation topics included:

- Public involvement process
- Project overview
- Overview of the National Environmental Policy Act (NEPA) process
- Master Plan and current land classifications
- Instructions for submitting comments

For Hugo Lake, the USACE received one comment from the City of Hugo and none from the general public.

Table 7.1 Comments from Initial Comment Period

Comment	Response
COMMENTS FROM CITY OF HUGO	
Will the revision effect our lake level? Will it impact our storage contract?	Water level management and water supply are not addressed in the Master Plan. The Master Plan will not impact the storage contract or effect the water level in the lake.

7.3 PUBLIC AND AGENCY REVIEW OF DRAFT MASTER PLAN, EA, AND FONSI

The Draft Master Plan and EA were made available for public and agency review, hosted virtually on the USACE Tulsa District Website. The website provided the Draft Master Plan, EA, news release, comment form, and a virtual presentation. The presentation and public input process remained open for 30 days. The public comment period began April 28, 2022 and ran through May 31, 2022. A total of one comment was received from the public and is provided with the USACE response to the comment in Table 7.2. Upon review of the public comment, the final Master Plan, EA, and FONSI will be prepared and signed by the District Engineer for implementation. The final versions will be posted on the Tulsa District website.

Table 7.2 Comments from Draft Release Comment Period

Comment	Response
Restricted waters below the dam should be extended further downriver to comply with prior engineering studies showing a disabled boat or person in the water will be swept towards the dam, instead of downriver, during high discharge from the dam gates. Or, at a minimum, the lone boat ramp at Bridgeview should simply be closed during periods of high discharge from the gates. Either action would increase safety for recreational users below the dam during dangerous flow. Furthermore, closing the boat ramp temporarily will not prevent fishing during these times because this can be done safely and effectively from either bank.	The 1971 Hugo Lake Master Plan did not include water surface classifications, but this 2022 Master Plan designates restricted water surfaces, both upstream and downstream of the dam, to ensure the security of key operations infrastructure, promote public safety, and protect habitat. The area immediately below the dam has been classified as restricted for safety and security concerns. Additionally, the USACE abides by current policy and regulation regarding signage and buoys around structures.

CHAPTER 8 – SUMMARY OF RECOMMENDATIONS

8.1 SUMMARY OVERVIEW

The preparation of this Master Plan for Hugo Lake followed the recent USACE master planning guidance in ER 1130-2-550 and EP 1130-2-550, both dated 30 January 2013. Three major requirements set forth in the new guidance include the preparation of contemporary Resource Objectives, Classification of project lands using the newly approved classification standards, and the preparation of a Resource Plan describing in broad terms how the land in each of the land classifications will be managed into the foreseeable future. Additional important requirements include rigorous public involvement throughout the process, consideration of regional recreation and natural resource management priorities identified by other federal, state, and municipal authorities, and consultation with local Tribal Nations. The study team endeavored to follow this guidance to prepare a Master Plan that will provide for enhanced recreational opportunities for the public, improve environmental quality, and foster a management philosophy conducive to existing and projected USACE staffing levels at Hugo Lake. Factors considered in the Plan development were identified through public involvement and review of regional and statewide planning documents including the 2012 Oklahoma SCORP, Mobility Plans by ODOT, EPA Ecoregion Handbook and descriptions, and the USFWS IPAC website. This Master Plan will ensure the long-term sustainability of the outdoor recreation program and natural resources associated with Hugo Lake.

8.2 LAND CLASSIFICATION PROPOSALS

A key component in preparing this Master Plan was examining prior land classifications and addressing the needed transition to new land classification standards that reflect how lands are being managed now and will be managed in the foreseeable future. The new land classification standards will also comply with current USACE standards. Public comment was solicited to assist in making these land reclassification decisions. Consultation was also conducted with Tribal Nations to provide input on cultural and natural resources to help inform the land classification decisions. Chapter 7 of this Plan describes the public involvement process and Appendix E provides a summary of public comments received. After analyzing public comment, examining recreational trends, and taking into account regional natural resource management priorities, USACE team members reclassified the Federal lands associated with Hugo Lake as described in Table 8.1 and changes to the water surface are provided in Table 8.2.

Table 8.1 Change from 1971 Land and Water Surface Classifications to New 2022 Land and Water Surface Classification

Prior Land Classifications (1971)	Acres	New Land Classifications (2022)	Acres	Net Difference
Project Operations	227	Project Operations (PO)	259	32
Recreation – Intensive Use	4,528	High Density Recreation (HDR)	4,022	(506)
		Environmentally Sensitive Areas (ESA)	3,232	3,232
Recreation – Low Density	3,834	Multiple Resource Management – Low Density Recreation (LDR)	3,690	(144)
Wildlife Management	18,246	Multiple Resource Management – Wildlife Management (WMA)	15,846	(2,400)
TOTAL	26,835		27,048	213*
Prior Water Surface Classifications (1986)	Acres	New Water Surface Classifications (2022)	Acres	Net Difference
Permanent Pool	13,250	Open Recreation	11,232	(2,018)
		Designated No-Wake	141	141
		Restricted	17	17
TOTAL	13,250		11,390	(1,860)
TOTAL FEE	40,085		38,438	(1,647)*

* Total Acreage differences from the 1971 total to the 2022 totals are due to improvements in measurement technology, deposition/siltation, and erosion. Totals also differ due to rounding while adding parcels.

Table 8.2 lists the descriptions and justifications for the reclassification of USACE lands at Hugo Lake. The team examined numerous parcels that ranged from a few acres to hundreds of acres, and rather than describing how each individual parcel was reclassified, the changes are grouped by classification category. A few examples of changes made to individual parcels are provided to assist in understanding how and why changes were made. The prior land classification Recreation – Intensive Use is similar to the current HDR classification; the prior Recreation – Low Density is similar to the current MRML – LDR classification; and the prior Wildlife Management classification is similar to the current MRML – WMA classification. The following table shows changes from the prior classification to current but combines the similar classifications for ease of showing changed acres.

Table 8.2 Changes and Justifications for New Land Classifications ⁽¹⁾

New Land Classification	Description of Changes ⁽²⁾	Justification
Project Operations (PO)	<p>The net increase in PO lands from 227 acres to 259 acres was due to the following:</p> <ul style="list-style-type: none"> ▪ 14 acres from Recreation – Intensive Use (similar to HDR) to PO ▪ 10 acres Recreation – Low Density (similar to LDR) reclassified to PO. ▪ 8 acres NULL³ reclassified to PO. 	<p>Intensive and Low Density Recreation acres were reclassified to capture PO components that were previously not classified as PO near the dam. Acres previously unclassified and defined as NULL were reclassified to PO at the dam structure. Some areas north of the dam north of Sawyer Rd. are not needed for PO and have changed to LDR to match existing usage including soft surface trails.</p>
High Density Recreation (HDR)	<p>The net decrease in Recreation – Intensive Use to HDR lands from 4,528 to 4,022 was due to the following:</p> <ul style="list-style-type: none"> ▪ 277 acres Intensive Recreation reclassified as ESA. ▪ 14 acres Intensive Recreation reclassified as PO. ▪ 159 acres Intensive Recreation reclassified to LDR. ▪ 1 acre Recreation – Low Density reclassified to HDR. ▪ 9 acres NULL³ reclassified to HDR. ▪ 64 acres Intensive Recreation sold. 	<p>HDR acres were reclassified to LDR to capture changes in the level of park uses that were not realized as envisioned in the 1971 Public Use Plan and includes areas of narrow shoreline not suitable for HDR. HDR acres were also reclassified to ESA to protect areas where scientific, ecological, cultural, or aesthetic features have been identified. HDR acres were reclassified to PO components that were previously not classified as PO near the dam structure. At various locations, small areas previously unclassified and defined as NULL were reclassified to HDR near parks. Some acres that did not contain intensive recreation usage or facilities were sold.</p>

New Land Classification	Description of Changes ⁽²⁾	Justification
Environmentally Sensitive Areas (ESA)	<p>The net increase in ESA of 3,232 acres was due to the following:</p> <ul style="list-style-type: none"> 277 acres Intensive Recreation reclassified as ESA. 351 acres Recreation – Low Density reclassified as ESA. 2,604 acres WM reclassified as ESA. 	ESA areas were not designated in the 1971 Public Use Plan thus all the ESA areas are created to protect areas where scientific, ecological, cultural, or aesthetic features have been identified for the long-term protection of those resources.
MRML – Low Density Recreation (LDR)	<p>The net decrease in Recreation – Low Density (similar to LDR) from 3,834 acres to 3,690 acres was due to the following:</p> <ul style="list-style-type: none"> 159 acres Intensive Recreation reclassified as LDR. 351 acres Recreation – Low Density reclassified as ESA. 1 acres Recreation – Low Density reclassified as HDR. 10 acres Recreation – Low Density reclassified as PO. 55 acres NULL³ reclassified as LDR. 	Areas previously classified as HDR in the 1971 Public Use Plan were reclassified to LDR as the prior classifications failed to appropriately reflect current use of the area. LDR acres were reclassified to ESA to protect areas where scientific, ecological, cultural, or aesthetic features have been identified. LDR acres were reclassified to PO components that were previously not classified as PO near the dam structure. Previously unclassified and defined as NULL areas were reclassified to LDR.
MRML – Wildlife Management (WM)	<p>The net decrease in WM from 18,246 acres to 15,846 acres was due to the following:</p> <ul style="list-style-type: none"> 2,604 acres WM reclassified as ESA. 204 acres NULL³ reclassified as WM. 	WM acres were reclassified to ESA areas to protect areas where scientific, ecological, cultural, or aesthetic features have been identified. Land classification to WM was necessary for areas previously NULL to align with current and future use.

(1) The land classification changes described in this table are the result of changes to individual parcels of land ranging from a few acres to several hundred acres. New acreages were measured using more accurate GIS technology, thus total changes will not equal individual changes. The acreage numbers provided are approximate.

(2) Acreages are based on GIS measurements and may vary from net difference detailed in Table 8-1.

(3) NULL is defined as land that did not have a land classification assigned in the 1971 Public Use Plan

CHAPTER 9 – BIBLIOGRAPHY

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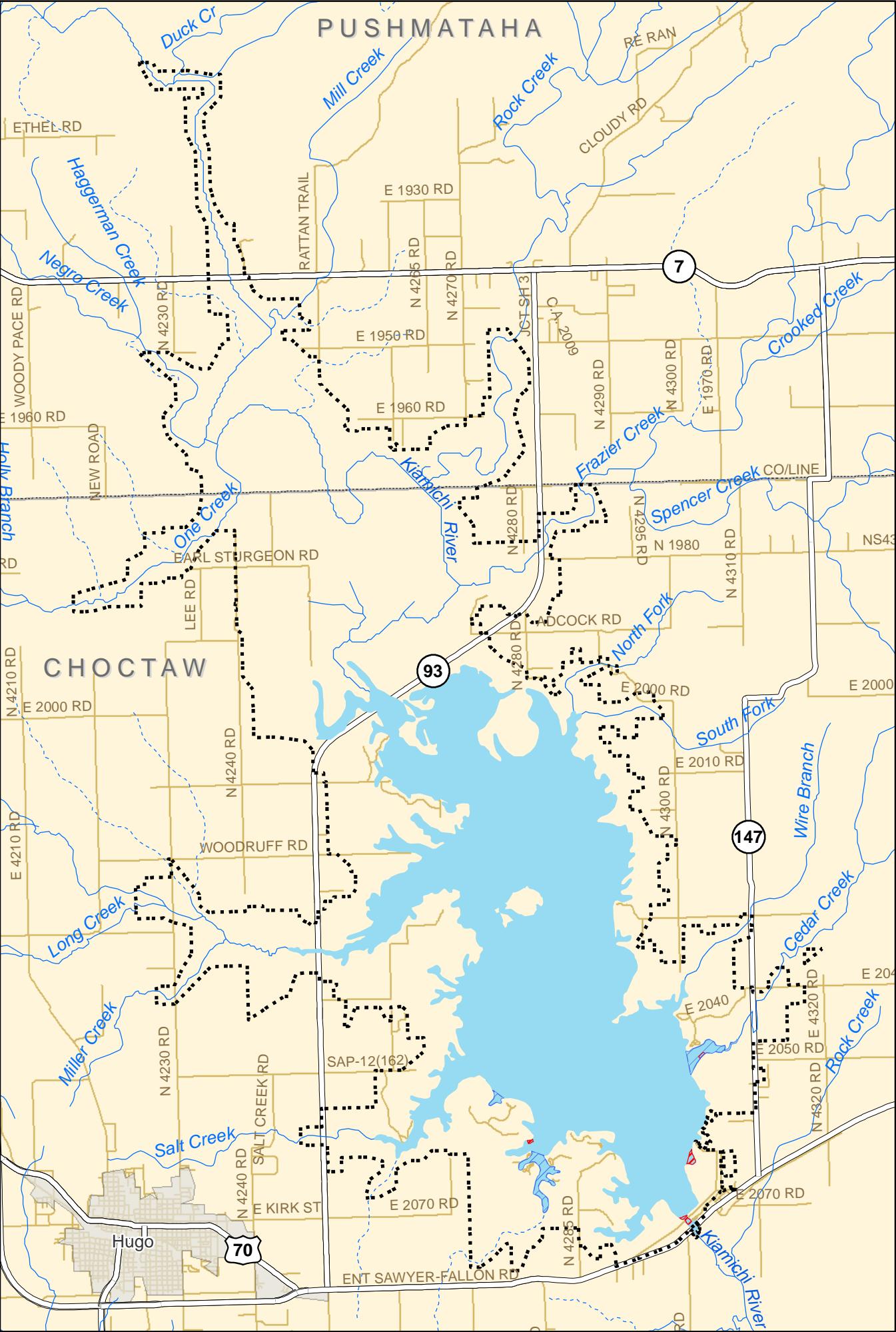
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APPENDIX A – LAND CLASSIFICATION, MANAGING AGENCIES, AND RECREATION MAPS



INDEX TO MASTER PLAN MAPS

GENERAL

MAP NO.	TITLE
HL21MP-OI-00	PROJECT LOCATION & INDEX TO MAPS
HL21MP-OM-01	LAND MANAGING ENTITIES
HL21MP-OP-01	SEA PLANE GUIDE
HL21MP-OW-01	WATER SURFACE CLASSIFICATIONS AND MARINAS

LAND CLASSIFICATION


MAP NO.	TITLE
HL21MP-LC-01	MASTER PLAN REVISION LAND CLASSIFICATION CHANGES
HL21MP-OC-00	LAND AND WATER CLASSIFICATIONS (00)
HL21MP-OC-01	LAND AND WATER CLASSIFICATIONS (01)
HL21MP-OC-02	LAND AND WATER CLASSIFICATIONS (02)


RECREATIONAL AREAS


MAP NO.	TITLE
HL21MP-OR-0A	MANAGED RECREATIONAL AREAS
HL21MP-OR-0B	PARK PLATE INDEX
HL21MP-OR-01	RATTAN LANDING
HL21MP-OR-02	FRAZIER POINT
HL21MP-OR-03	MAHAFFEY POINT
HL21MP-OR-04	VIRGIL POINT
HL21MP-OR-05	WILSON POINT
HL21MP-OR-06	SAWYER BLUFF
HL21MP-OR-07	BRIDGE VIEW
HL21MP-OR-08	LITTLE DIXIE PARK AND MARINA
HL21MP-OR-09	LILLY DAY USE AREA
HL21MP-OR-10	PINE GROUP CAMPING AREA
HL21MP-OR-11A	KIAMICHI PARK (SHEET A)
HL21MP-OR-11B	KIAMICHI PARK (SHEET B)
HL21MP-OR-12	SALT CREEK COVE

THIS PRODUCT IS REPRODUCED FROM GEOSPATIAL INFORMATION PREPARED BY THE U.S. ARMY CORPS OF ENGINEERS. GIS DATA AND PRODUCT ACCURACY MAY VARY. THEY MAY BE DEVELOPED FROM SOURCES OF DIFFERING ACCURACY. ACCURATE ONLY FOR CERTAIN SCALES, BASED ON MODELING OR INTERPRETATION, INCOMPLETE WHILE BEING CREATED OR REVISED. USING GIS PRODUCTS FOR PURPOSES OTHER THAN THOSE FOR WHICH THEY WERE CREATED MAY YIELD INACCURATE OR MISLEADING RESULTS.



 WATER SURFACE

 FEE BOUNDARY




**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

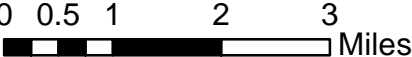
HUGO LAKE

KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

PROJECT LOCATION AND MAP INDEX



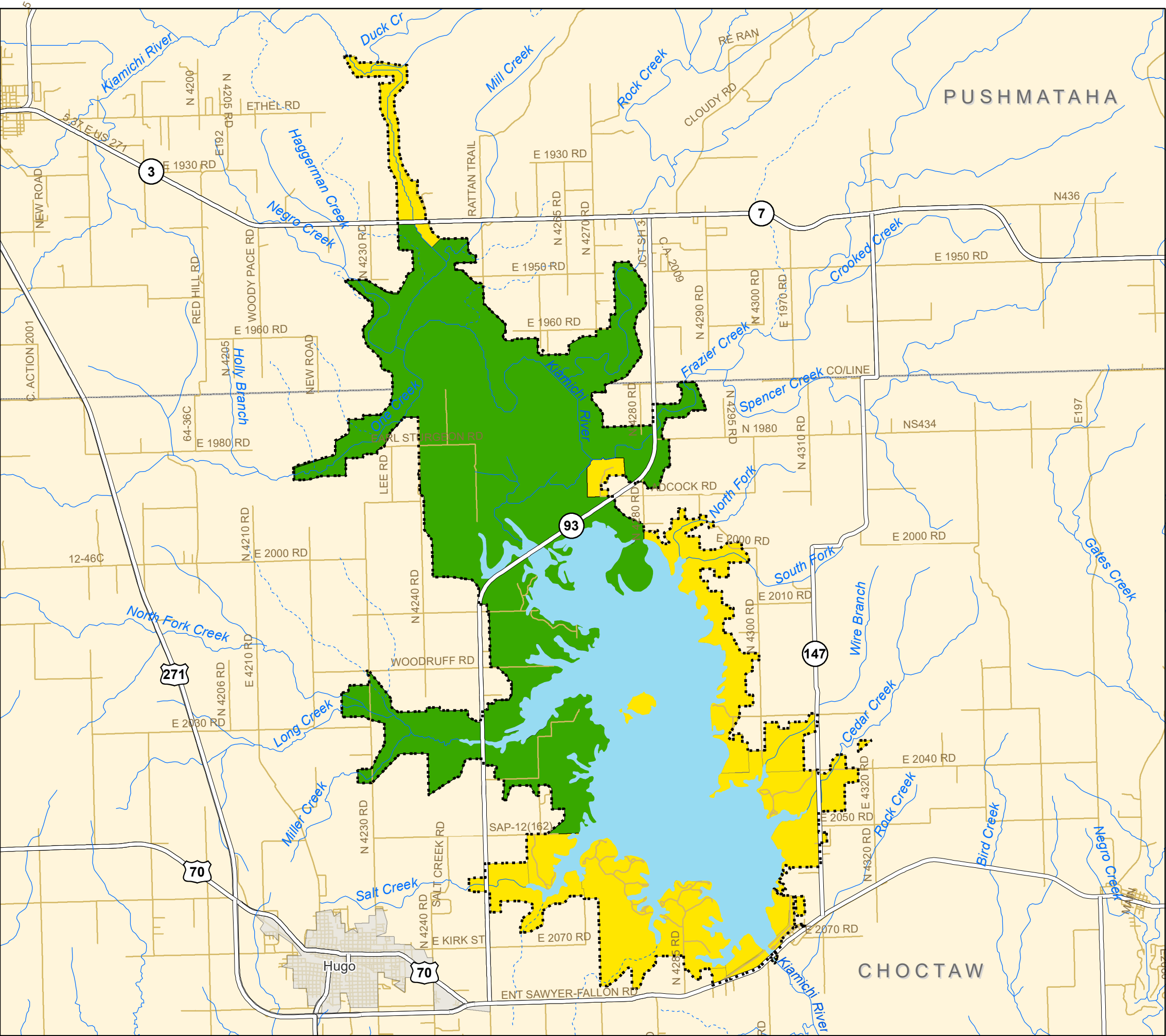


DATE:

AUGUST 2022

MAP NO.

HL21MP-OI-00



- OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION
- US ARMY CORPS OF ENGINEERS
- WATER SURFACE
- FEE BOUNDARY



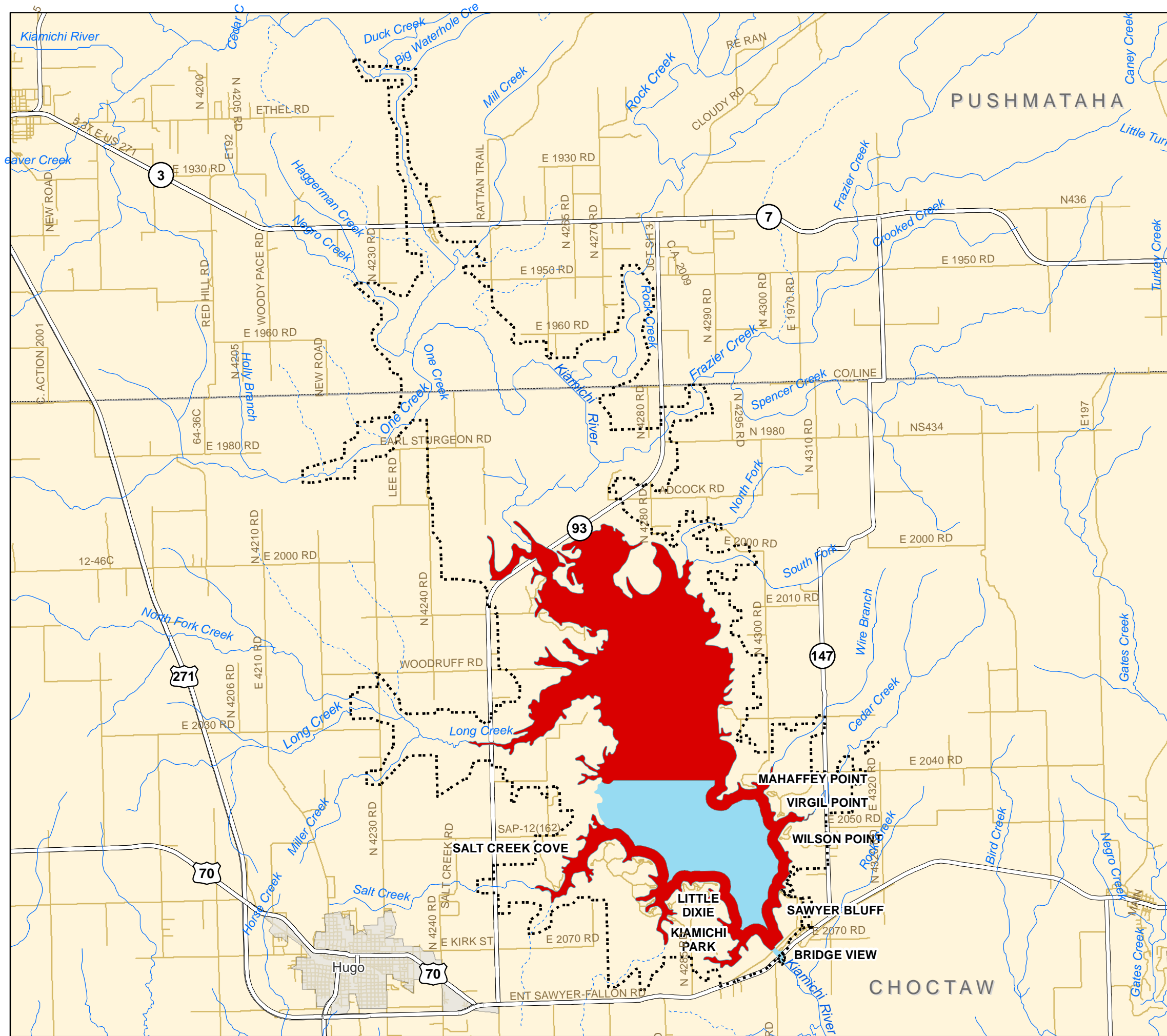
**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**




HUGO LAKE KIAMICHI RIVER, OKLAHOMA

**HUGO LAKE MASTER PLAN
LAND MANAGING ENTITIES**



DATE: AUGUST 2022	MAP NO. HL21MP-OM-01
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-  RESTRICTED AREA
-  WATER SURFACE
-  FEE BOUNDARY

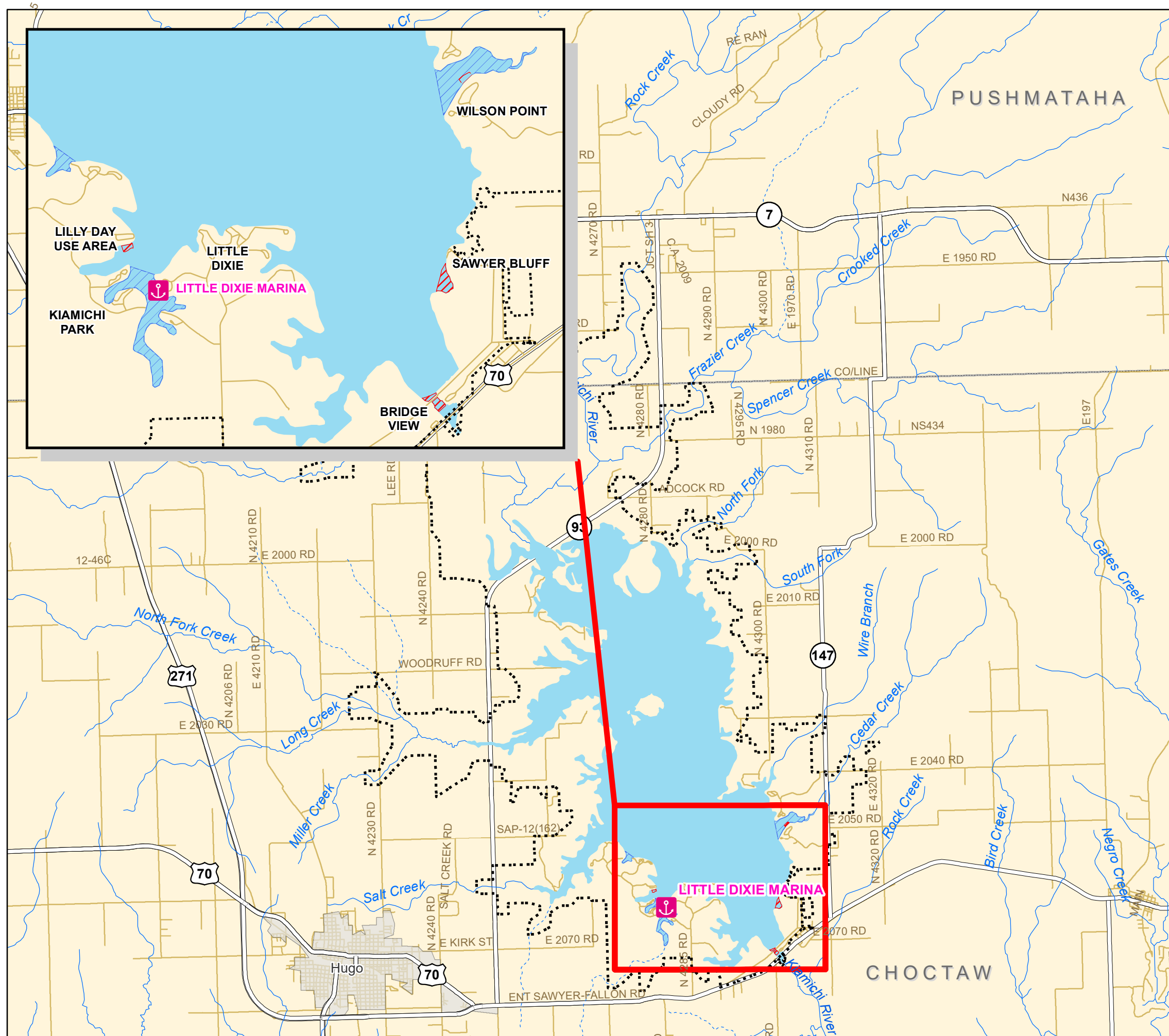
**TAKE OFF AND LANDING PROHIBITED
WITHIN 1,000' OF DAM STRUCTURE,
BRIDGES, AND UNCLEARED AREAS
OF THE LAKE**






**OPERATION OF A SEAPLANE AT CORPS
PROJECTS IS AT THE RISK OF THE
PLANE'S OWNER, OPERATOR,
AND / OR PASSENGERS**



**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

HUGO LAKE		KIAMICHI RIVER, OKLAHOMA	
<h3>HUGO LAKE MASTER PLAN</h3>			
<h3>SEA PLANE GUIDE</h3>			
			
			
DATE: AUGUST 2022		MAP NO. HL21MP-OP-01	



-  MARINA / CONCESSION
-  WATER SURFACE: NO WAKE
-  WATER SURFACE: RESTRICTED
-  WATER SURFACE: OPEN RECREATION
-  FEE BOUNDARY



**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

HUGO LAKE KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

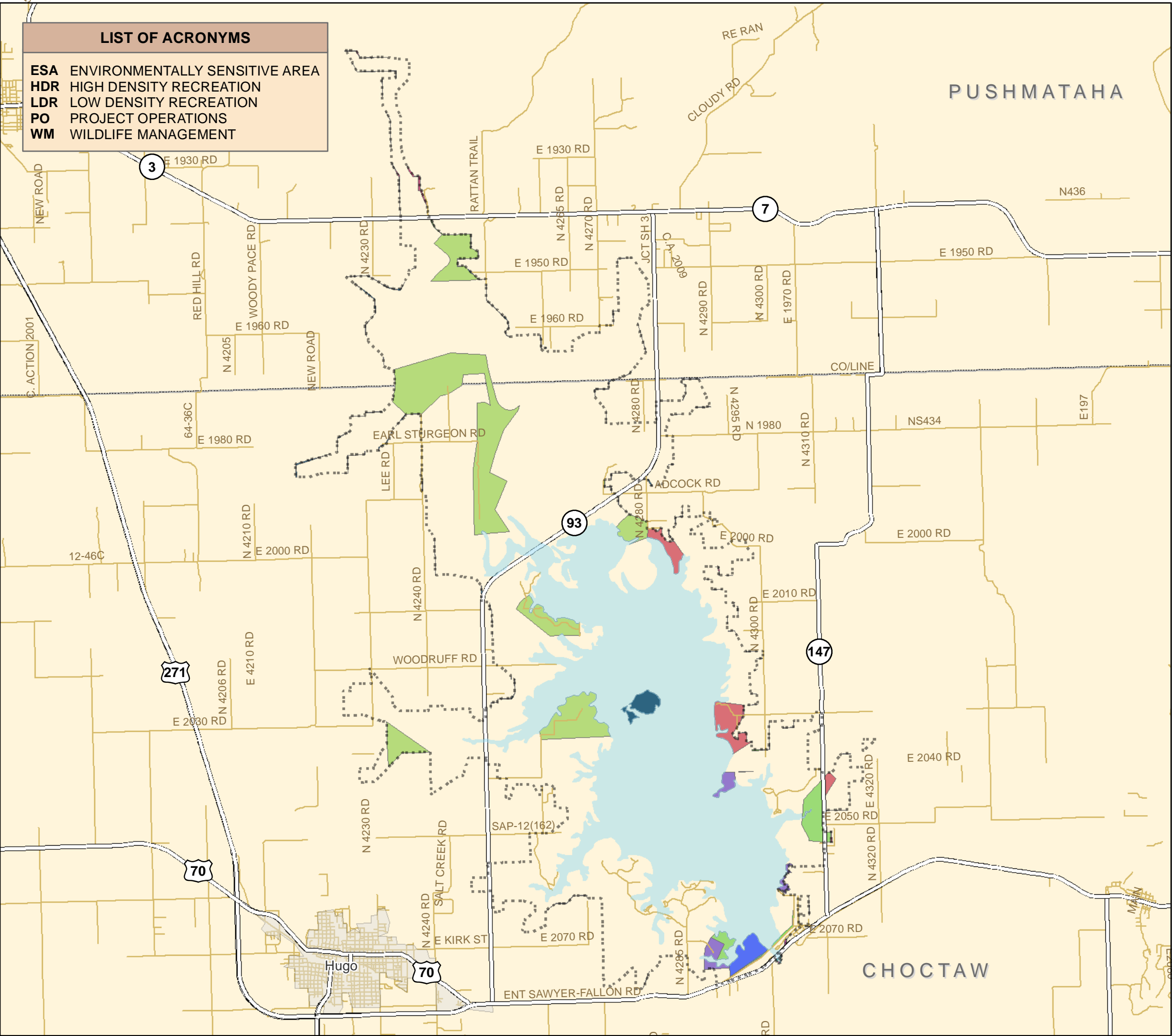
WATER SURFACE CLASSIFICATIONS AND MARINAS



0 0.5 1 2 3 Miles

DATE:
AUGUST 2022

MAP NO.
HL21MP-OW-01



LAND CLASSIFICATION CHANGES FROM 1971 MASTER PLAN TO 2021

- FROM HDR TO ESA
- FROM HDR TO LDR
- FROM HDR TO PO
- FROM LDR TO ESA
- FROM LDR TO HDR
- FROM LDR TO PO
- FROM NULL TO HDR
- FROM NULL TO LDR
- FROM NULL TO PO
- FROM NULL TO WM
- FROM PO TO LDR
- FROM WM TO ESA

USACE BASE MAP LAYERS

- WATER SURFACE
- FEE BOUNDARY



**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

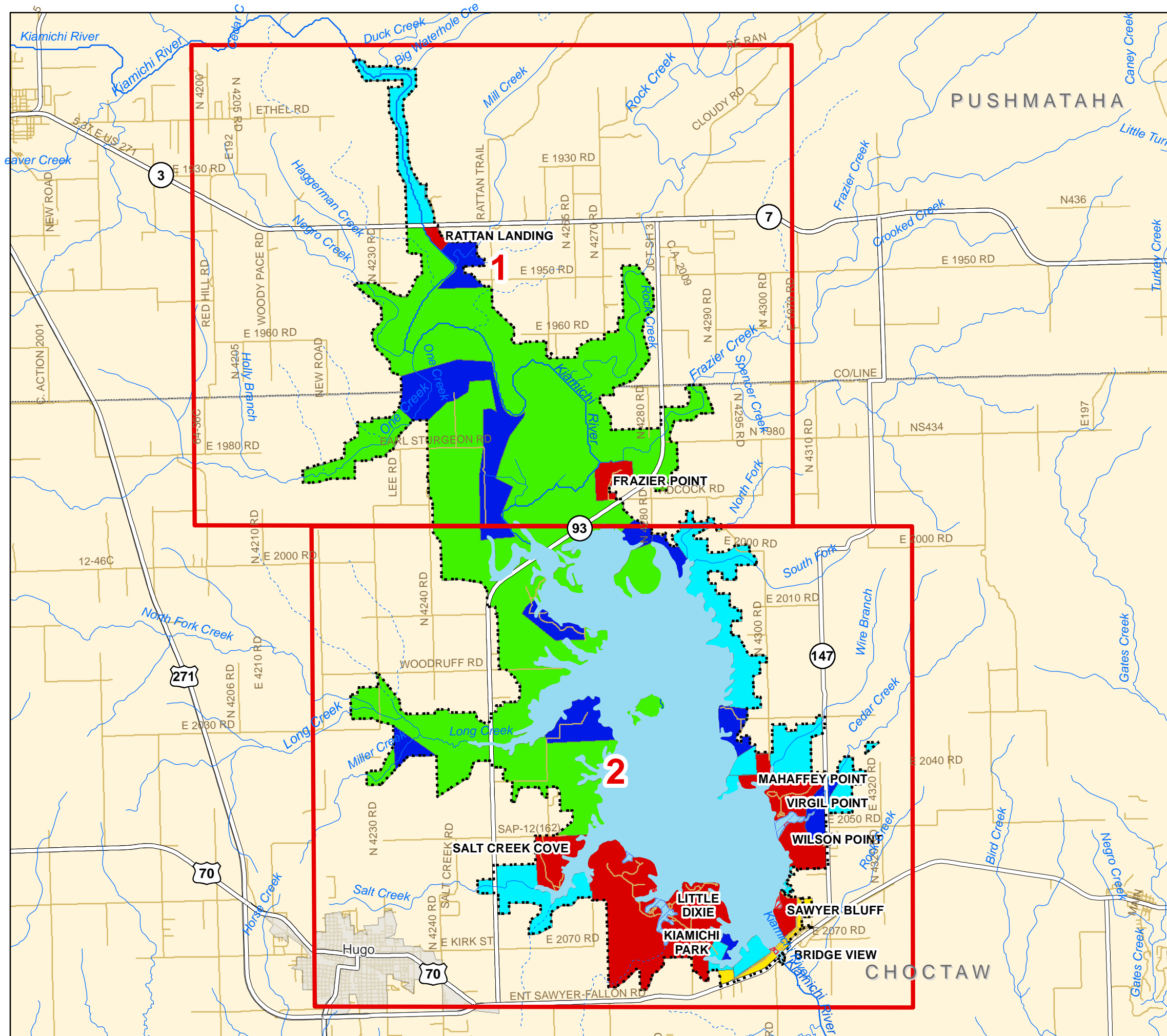
HUGO LAKE KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

**MASTER PLAN REVISION LAND
CLASSIFICATION CHANGES**



DATE:	MAP NO.
AUGUST 2022	HL21MP-LC-01



- INDEX GRID
- ENVIRONMENTALLY SENSITIVE AREA
- HIGH DENSITY RECREATION
- LOW DENSITY RECREATION
- PROJECT OPERATIONS
- WILDLIFE MANAGEMENT
- WATER SURFACE: NO WAKE
- WATER SURFACE: RESTRICTED
- WATER SURFACE: OPEN RECREATION
- FEE BOUNDARY



**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

HUGO LAKE KIAMICHI RIVER, OKLAHOMA

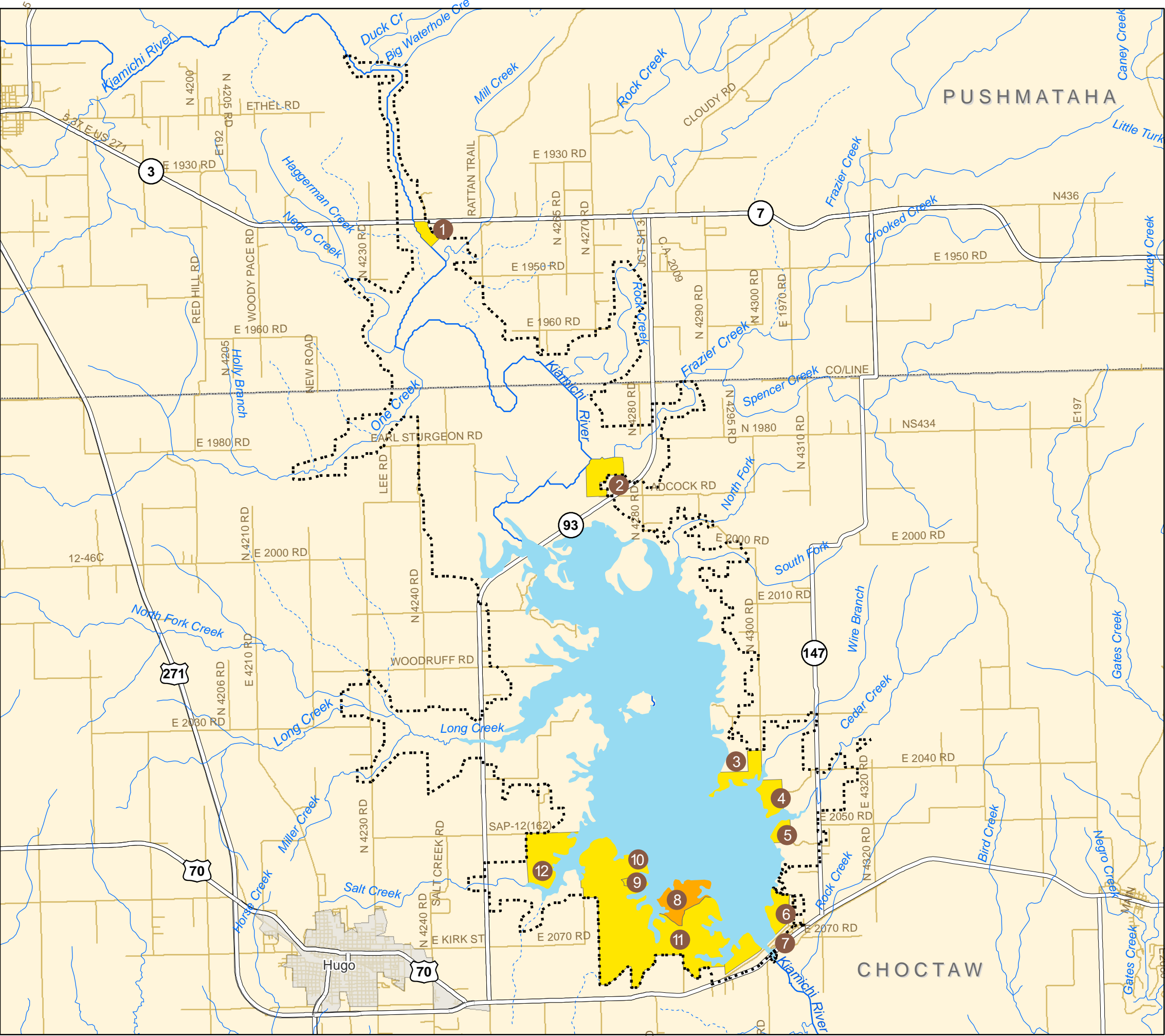
HUGO LAKE MASTER PLAN

LAND AND WATER CLASSIFICATIONS
(INDEX SHEET 00)



0 0.5 1 2 3 Miles

DATE: AUGUST 2022	MAP NO. HL21MP-OC-00
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- LEASE, US ARMY CORPS OF ENGINEERS
- US ARMY CORPS OF ENGINEERS

- KEY TO PARKS**
- 1 RATTAN LANDING
 - 2 FRAZIER POINT
 - 3 MAHAFFEY POINT
 - 4 VIRGIL POINT
 - 5 WILSON POINT
 - 6 SAWYER BLUFF
 - 7 BRIDGE VIEW
 - 8 LITTLE DIXIE PARK & MARINA
 - 9 LILLY DAY USE AREA
 - 10 PINE GROUP CAMPING AREA
 - 11 KIAMICHI PARK
 - 12 SALT CREEK COVE



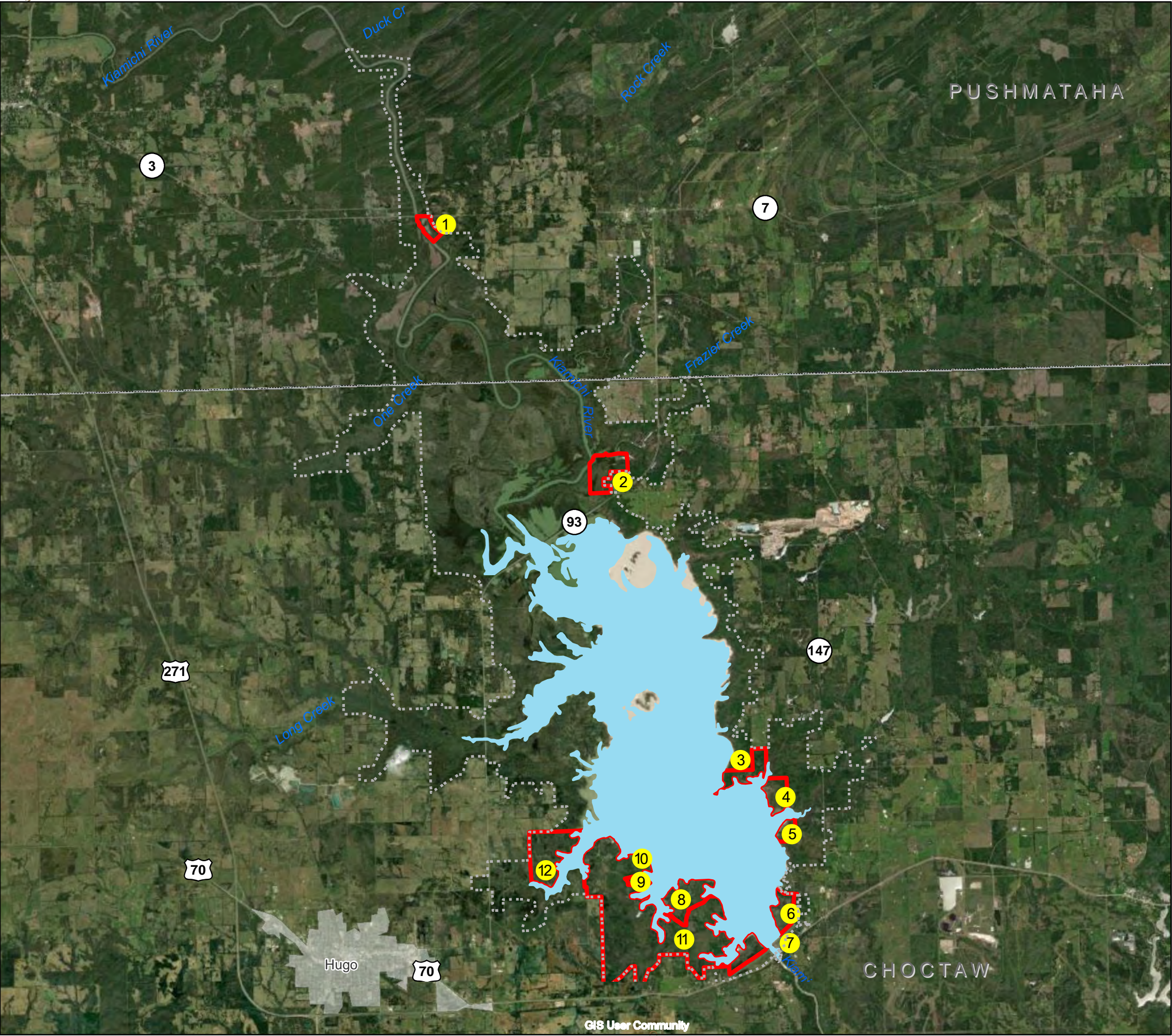
**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

HUGO LAKE KIAMICHI RIVER, OKLAHOMA


**HUGO LAKE MASTER PLAN
MANAGED RECREATIONAL AREAS**



DATE: AUGUST 2022 MAP NO. HL21MP-OR-0A



RECREATION AREAS		
ID #	NAME	SHEET #
1	RATTAN LANDING	HL21MP-OR-01
2	FRAZIER POINT	HL21MP-OR-02
3	MAHAFFEY POINT	HL21MP-OR-03
4	VIRGIL POINT	HL21MP-OR-04
5	WILSON POINT	HL21MP-OR-05
6	SAWYER BLUFF	HL21MP-OR-06
7	BRIDGE VIEW	HL21MP-OR-07
8	LITTLE DIXIE PARK & MARINA	HL21MP-OR-08
9	LILLY DAY USE AREA	HL21MP-OR-09
10	PINE GROUP CAMPING AREA	HL21MP-OR-10
11	KIAMICHI PARK	HL21MP-OR-11A & B
12	SALT CREEK COVE	HL21MP-OR-12




**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

HUGO LAKE

KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

PARK PLATE INDEX



00.5123

Miles

DATE:








AUGUST 2022


MAP NO.

HL21MP-OR-0B



ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	13
ELECTRICAL HOOK-UP	13
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	1

-  BOAT RAMP
-  CAMPSITE
-  PARK HOST
-  PARKING
-  SANITARY DUMP STATION
-  VAULT TOILET
-  FEE BOUNDARY




**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

HUGO LAKE

KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

RECREATIONAL AREAS (RATTAN LANDING)



0125250375500

Feet

DATE:

AUGUST 2022

MAP NO.




HL21MP-OR-01



NOTE: Satellite imagery shows the lake during flood stage which does not reflect the water level at normal conservation pool.

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	
RESTROOMS	
SHOWERS	
DUMP STATION	

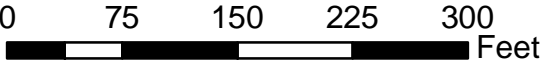
-  BOAT RAMP
-  PARKING
-  FEE BOUNDARY



U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT

HUGO LAKE KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN
RECREATIONAL AREAS
(FRAZIER POINT)






DATE:	MAP NO.
AUGUST 2022	HL21MP-OR-02


NOTE: Satellite imagery shows the lake during flood stage which does not reflect the water level at normal conservation pool.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	4
PICNIC SITES	
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	

-  GROUP SHELTER
-  PARK HOST
-  PLAYGROUND
-  VAULT TOILET
-  FEE BOUNDARY




**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

HUGO LAKE

KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

RECREATIONAL AREAS
(MAHAFFEY POINT)



0150300450600

Feet

DATE:

AUGUST 2022

MAP NO.

HL21MP-OR-03



ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	52
ELECTRICAL HOOK-UP	52
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	2
RESTROOMS	1
SHOWERS	1
DUMP STATION	1

- BOAT RAMP
- CAMPSITE
- COURTESY DOCK
- ENTRANCE GATE
- PARK HOST
- PARKING
- RESTROOM W/ SHOWERS
- SANITARY DUMP STATION
- VAULT TOILET
- WATER SURFACE: NO WAKE AREA
- FEE BOUNDARY



**U.S. ARMY CORPS
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TULSA DISTRICT**

HUGO LAKE KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN
RECREATIONAL AREAS
(VIRGIL POINT)














0 175 350 525 700 Feet

DATE:	MAP NO.
AUGUST 2022	HL21MP-OR-04



ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	1
PICNIC SITES	16
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	

-  BOAT RAMP
-  CHILDRENS' FISHING POND
-  GROUP SHELTER
-  PARKING
-  PICNIC SITE
-  PLAYGROUND
-  SWIM BEACH
-  VAULT TOILET
-  WATER SURFACE: NO WAKE AREA
-  WATER SURFACE: RESTRICTED
-  FEE BOUNDARY



U.S. ARMY CORPS
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TULSA DISTRICT

HUGO LAKE KIAMICHI RIVER, OKLAHOMA





HUGO LAKE MASTER PLAN
RECREATIONAL AREAS
(WILSON POINT)



DATE:	MAP NO.
AUGUST 2022	HL21MP-OR-05

NOTE: Satellite imagery shows the lake during flood stage which does not reflect the water level at normal conservation pool.

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	
RESTROOMS	
SHOWERS	
DUMP STATION	

-  BOAT RAMP
-  PARKING
-  WATER SURFACE: RESTRICTED
-  FEE BOUNDARY



**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

HUGO LAKE KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN
RECREATIONAL AREAS
(SAWYER BLUFF)









0 50 100 150 200
Feet

DATE:	MAP NO.
AUGUST 2022	HL21MP-OR-06



ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	
RESTROOMS	1
SHOWERS	
DUMP STATION	

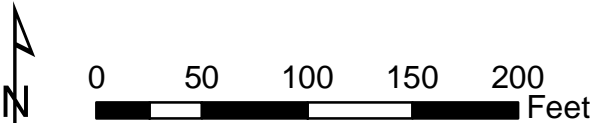
-  BOAT RAMP
-  PARKING
-  RESTROOM
-  SPILLWAY
-  WATER SURFACE: RESTRICTED
-  FEE BOUNDARY



U.S. ARMY CORPS
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TULSA DISTRICT

HUGO LAKE KIAMICHI RIVER, OKLAHOMA











HUGO LAKE MASTER PLAN
RECREATIONAL AREAS
(BRIDGE VIEW)



DATE:	MAP NO.
AUGUST 2022	HL21MP-OR-07

NOTE: Satellite imagery shows the lake during flood stage which does not reflect the water level at normal conservation pool.



-  BOAT RAMP
-  CAMPSITES, TENT
-  GROUP SHELTER
-  HOSPITALITY
-  MARINA
-  PARKING
-  PRIMITIVE CABIN
-  RESORT CABIN
-  WATER SURFACE: NO WAKE AREA
-  FEE BOUNDARY



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TULSA DISTRICT**

HUGO LAKE KIAMICHI RIVER, OKLAHOMA

**HUGO LAKE MASTER PLAN
RECREATIONAL AREAS
(LITTLE DIXIE)**




DATE:	MAP NO.
AUGUST 2022	HL21MP-OR-08

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



ITEM	EXISTING
BOAT RAMP	
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	2
PICNIC SITES	2
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	

- GROUP SHELTER
- PARKING
- PICNIC SITE
- PLAYGROUND
- SWIM BEACH
- VAULT TOILET
- WATER SURFACE: RESTRICTED
- FEE BOUNDARY




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TULSA DISTRICT**

HUGO LAKE

KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

RECREATIONAL AREAS
(LILLY DAY USE AREA)



075150225300

Feet

DATE:




AUGUST 2022

MAP NO.

HL21MP-OR-09



ITEM	EXISTING
BOAT RAMP	
COURTESY DOCK	
GROUP CAMPSITES	11
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	
RESTROOMS	
SHOWERS	
DUMP STATION	

-  CAMPSITE
-  GROUP CAMP SITE
-  FEE BOUNDARY

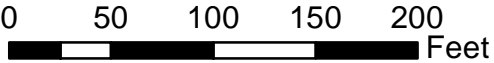


U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT

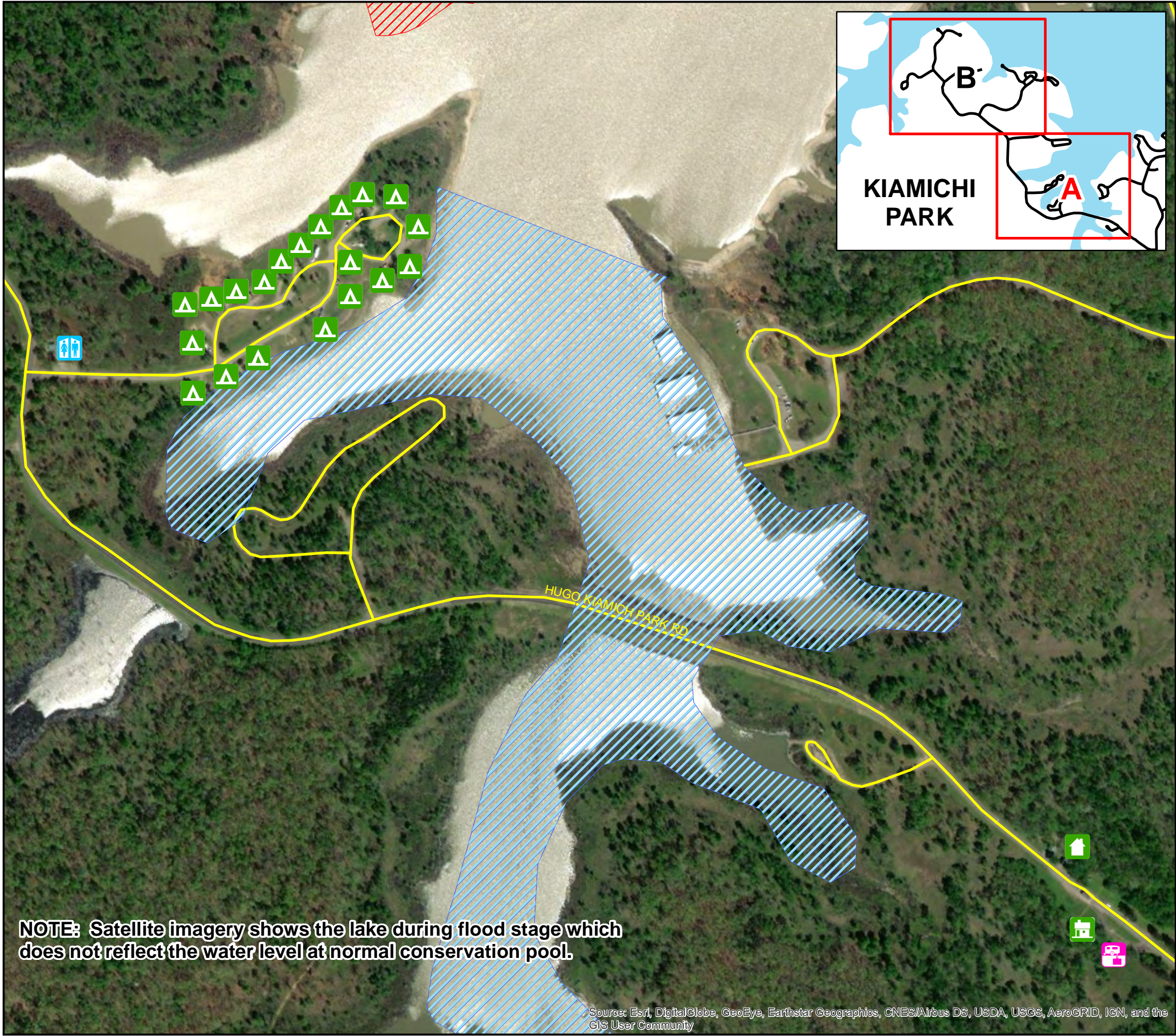
HUGO LAKE KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

RECREATIONAL AREAS
(PINE GROUP CAMPING AREA)











DATE:	MAP NO.
AUGUST 2022	HL21MP-OR-10



NOTE: Satellite imagery shows the lake during flood stage which does not reflect the water level at normal conservation pool.

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	21
ELECTRICAL HOOK-UP	21
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	
RESTROOMS	1
SHOWERS	1
DUMP STATION	1

-  CAMPSITE
-  ENTRANCE GATE
-  PARK HOST
-  RESTROOM W/ SHOWERS
-  SANITARY DUMP STATION
-  WATER SURFACE: NO WAKE AREA
-  WATER SURFACE: RESTRICTED
-  FEE BOUNDARY

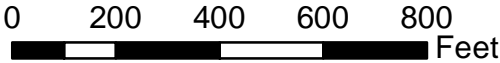


**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

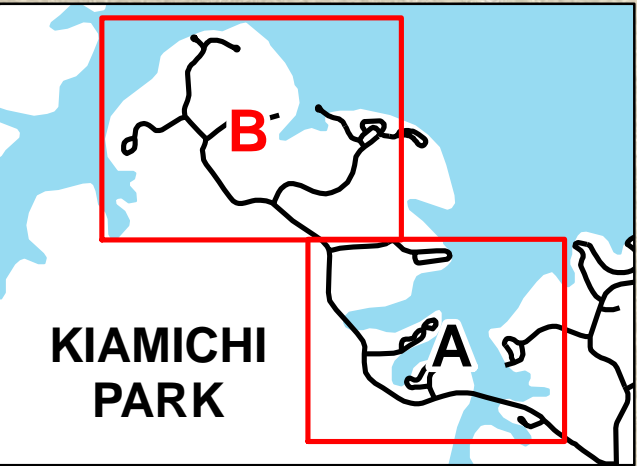
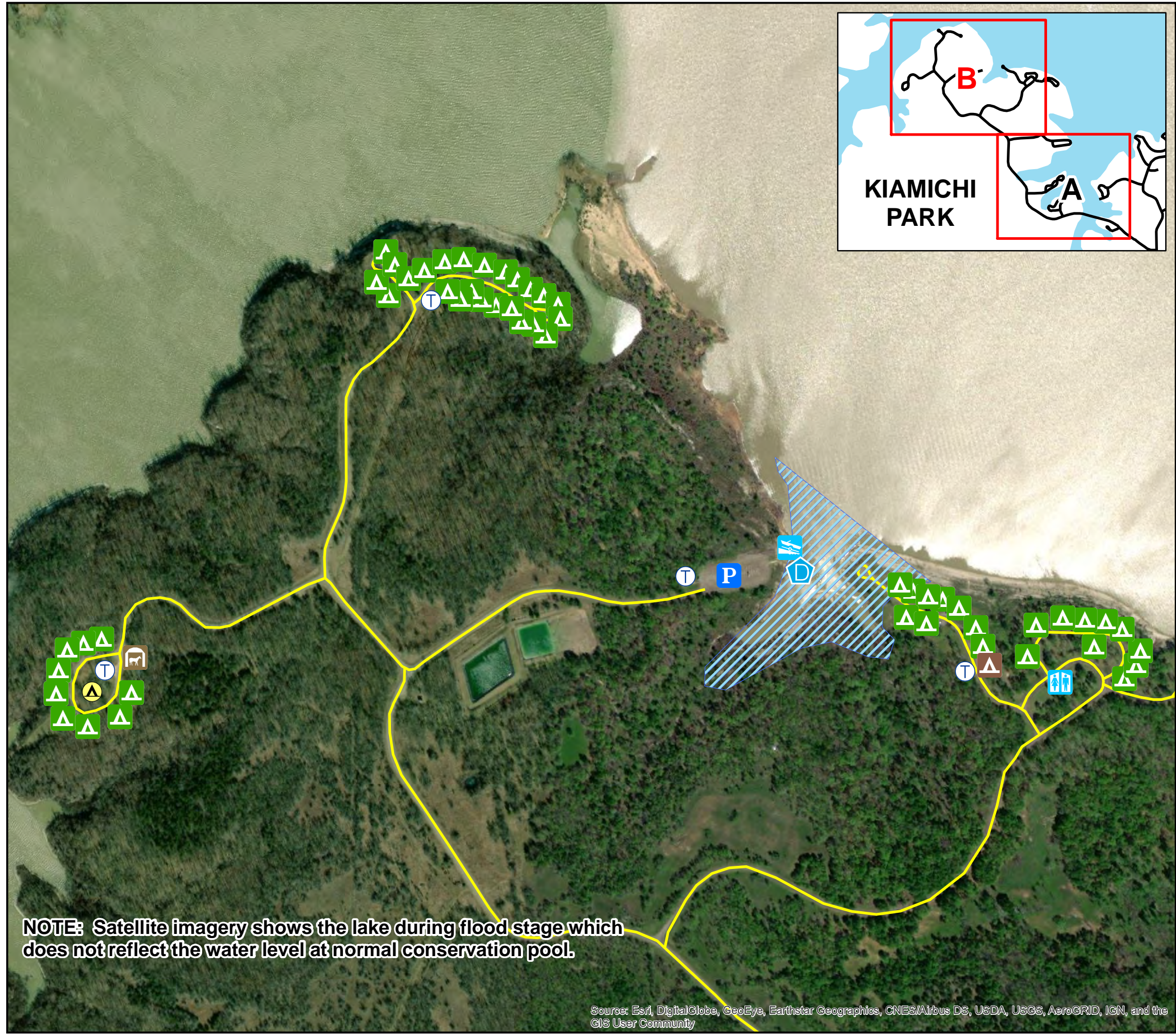
HUGO LAKE KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

**RECREATIONAL AREAS
(KIAMICHI PARK - SHEET A)**



DATE:	MAP NO.
AUGUST 2022	HL21MP-OR-11A



ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	52
ELECTRICAL HOOK-UP	52
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	4
RESTROOMS	1
SHOWERS	1
DUMP STATION	

- BOAT RAMP
- CABIN
- CAMPSITE
- COURTESY DOCK
- EQUESTRIAN CAMPING
- HORSE STABLES
- PARKING
- RESTROOM W/ SHOWERS
- VAULT TOILET
- WATER SURFACE: NO WAKE AREA
- FEE BOUNDARY

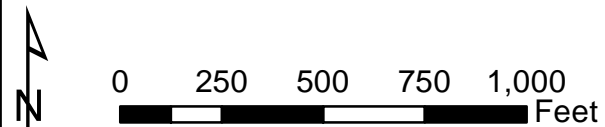


U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT

HUGO LAKE KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

RECREATIONAL AREAS
(KIAMICHI PARK - SHEET B)







DATE:	MAP NO.
AUGUST 2022	HL21MP-OR-11B


NOTE: Satellite imagery shows the lake during flood stage which does not reflect the water level at normal conservation pool.

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	
RESTROOMS	
SHOWERS	
DUMP STATION	

-  BOAT RAMP
-  COURTESY DOCK
-  PARKING
-  FEE BOUNDARY




**U.S. ARMY CORPS
OF ENGINEERS
TULSA DISTRICT**

HUGO LAKE

KIAMICHI RIVER, OKLAHOMA

HUGO LAKE MASTER PLAN

RECREATIONAL AREAS
(SALT CREEK COVE)



075150225300

Feet

DATE:

AUGUST 2022

MAP NO.

HL21MP-OR-12

APPENDIX B – NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DOCUMENTATION

Environmental Assessment for the 2022 Hugo Lake Master Plan

Red River Basin, Kiamichi River, Kiamichi Watershed,
Choctaw and Pushmataha Counties, Oklahoma



August 2022



US Army Corps
of Engineers®
Tulsa District

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ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) evaluates the potential environmental and socioeconomic impacts of the Hugo Lake Master Plan 2022 revision. This EA will facilitate the decision process regarding the Proposed Action and alternatives.

SECTION 1	INTRODUCTION of the Proposed Action summarizes the purpose of and need for the Proposed Action, provides relevant background information, and describes the scope of the EA.
SECTION 2	PROPOSED ACTION AND ALTERNATIVES examines alternatives for implementing the Proposed Action and describes the recommended alternative.
SECTION 3	AFFECTED ENVIRONMENT describes the existing environmental and socioeconomic setting. ENVIRONMENTAL CONSEQUENCES identifies the potential environmental and socioeconomic effects of implementing the Proposed Action and alternatives. MITIGATION summarizes mitigation actions required to enable a Finding of No Significant Impact for the Proposed Action.
SECTION 4	Reasonably Foreseeable Future describes the impact on the environment that may result from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions.
SECTION 5	COMPLIANCE WITH ENVIRONMENTAL LAWS provides a listing of environmental protection statutes and other environmental requirements.
SECTION 6	IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES identifies any irreversible and irretrievable commitments of resources that will be involved in the Proposed Action.
SECTION 7	PUBLIC AND AGENCY COORDINATION provides a listing of individuals and agencies consulted during preparation of the EA.
SECTION 8	REFERENCES provides bibliographical information for cited sources.
SECTION 9	ACRONYMS/ABBREVIATIONS
SECTION 10	LIST OF PREPARERS identifies persons who prepared the document and their areas of expertise.
ATTACHEMENT A	National Environmental Policy Act (NEPA) Coordination and Scoping

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ENVIRONMENTAL ASSESSMENT

2022 Master Plan

Hugo Lake Choctaw and Pushmataha Counties, Oklahoma

SECTION 1:INTRODUCTION

This Environmental Assessment (EA) has been prepared by the United States Army Corps of Engineers (USACE) to evaluate the Hugo Lake Master Plan 2022 (MP). A Master Plan is a programmatic document that is subject to evaluation under the National Environmental Policy Act (NEPA) of 1969, (Public Law [PL] 91-190). This EA is an assessment of potential impacts that could result with the implementation of either the No Action or Proposed Action and has been prepared in accordance with 33 Code of Federal Regulations (CFR) Part 230 and the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508) as amended in 2020.

The MP is a strategic land use management plan that provides direction to the orderly development, administration, maintenance, preservation, enhancement, and management of all natural, cultural, and recreational resources of a USACE water resource project, which includes all government-owned lands in and around a reservoir. It is a vital tool for responsible stewardship and sustainability of the project's natural and cultural resources, as well as the provision of outdoor recreation facilities and opportunities on Federal lands associated with Hugo Lake for the benefit of present and future generations. The MP identifies conceptual types and levels of activities, but does not include designs, project sites, or estimated costs. All actions carried out by USACE, other agencies, and individuals granted leases to USACE lands must be consistent with the MP. Therefore, the MP must be kept current in order to provide effective guidance in USACE decision-making. The original Hugo Lake Master Plan was approved in 1971 and supplemented in 1991.

1.1 PROJECT DESCRIPTION

Hugo Lake is located in the Kiamichi River watershed in the Red River Basin. The Kiamichi River originates near the Oklahoma/Arkansas border in the Ouachita Mountains within Le Flore County, Oklahoma, and flows generally southwest until it reaches Pine Valley where it starts to flow southeast until it joins the Red River. The basin is crescent-shaped, 169 miles long, and varies in width from 5 to 30 miles. The total drainage area of the basin is 92,600 square miles, with 1,708 square miles above Hugo Lake. There are numerous tributaries, with some of the larger ones being Jackfork, Buck, Tenmile, and Cedar Creeks.

The upper two-thirds of the Kiamichi River Basin is in rugged Kiamichi Mountains of the Ouachita Mountain system with the lower one-third consisting of gently rolling hills of the Gulf Coastal Plains region. The channel of the Kiamichi River in the upper one-third is shallow and poorly defined, with the middle third varying from 10 to 30 feet in depth

and the lower third V-shaped, averaging about 30 feet in depth and 300 feet wide. The stream flows through a succession of widely contrasting reaches, alternating from comparatively wide valleys to steep gorges having banks 80 to 90 feet high. The stream consists of a series of pools and shoals during low flows. The southern part of the Kiamichi River meanders along a wide alluvial valley.

Hugo Lake was authorized for construction by the Flood Control Act of 1946 (Public Law [PL] 526, 79th Congress, 1946) and modified by the Rivers and Harbors Act of 1962 (PL 87-874, Senate Document No. 145, 87th Congress, 2d session, 1962). Although originally authorized for just flood control, other authorized purposes and missions were added later. The construction of Hugo Lake and Dam began 6 September 1968; the final storage began 18 January 1974; and the conservation pool was filled for the first time on 12 March 1974.

Hugo Dam and Lake Project is an integral part of the USACE plan for flood control and water conservation in the Red River Basin. The larger Red River Basin plan presently consists of the following thirteen major flood control projects: Altus Lake, Kemp Lake, Tom Steed Lake, Foss Lake, Ft. Cobb Lake, Waurika Lake, Arbuckle Lake, Hugo Lake, Pat Mayse Lake, Sardis Lake, McGee Creek Reservoir, Broken Bow Lake and Pine Creek Lake.

1.2 PURPOSE OF AND NEED FOR THE ACTION

The purpose of the Proposed Action is to ensure that the conservation and sustainability of the land, water, and recreational resources on Hugo Lake are in compliance with applicable environmental laws and regulations and to maintain quality lands for future public use. The MP is intended to serve as a comprehensive land and recreation management plan with an effective life of approximately 25 years.

The MP must be kept current in order to provide effective guidance in decision-making that responds to changing regional and local needs, resource capabilities and suitabilities, and expressed public interests consistent with authorized project purposes and pertinent legislation and regulations. The 1971 Hugo Lake Master Plan is over 45 years old and does not currently reflect ecological, socio-political, and socio-demographic changes that are currently affecting Hugo Lake, or those changes anticipated to occur through 2045. Changes in outdoor recreation trends, regional land use, population, current legislative requirements and USACE management policy have indicated the need to revise the MP. Additionally, increasing fragmentation of wildlife habitat, national policies related to climate change and growing demand for recreational access and protection of natural resources are all factors affecting Hugo Lake and the surrounding region in general. In response to these continually evolving trends, the USACE determined that a full revision of the 1971 plan is needed.

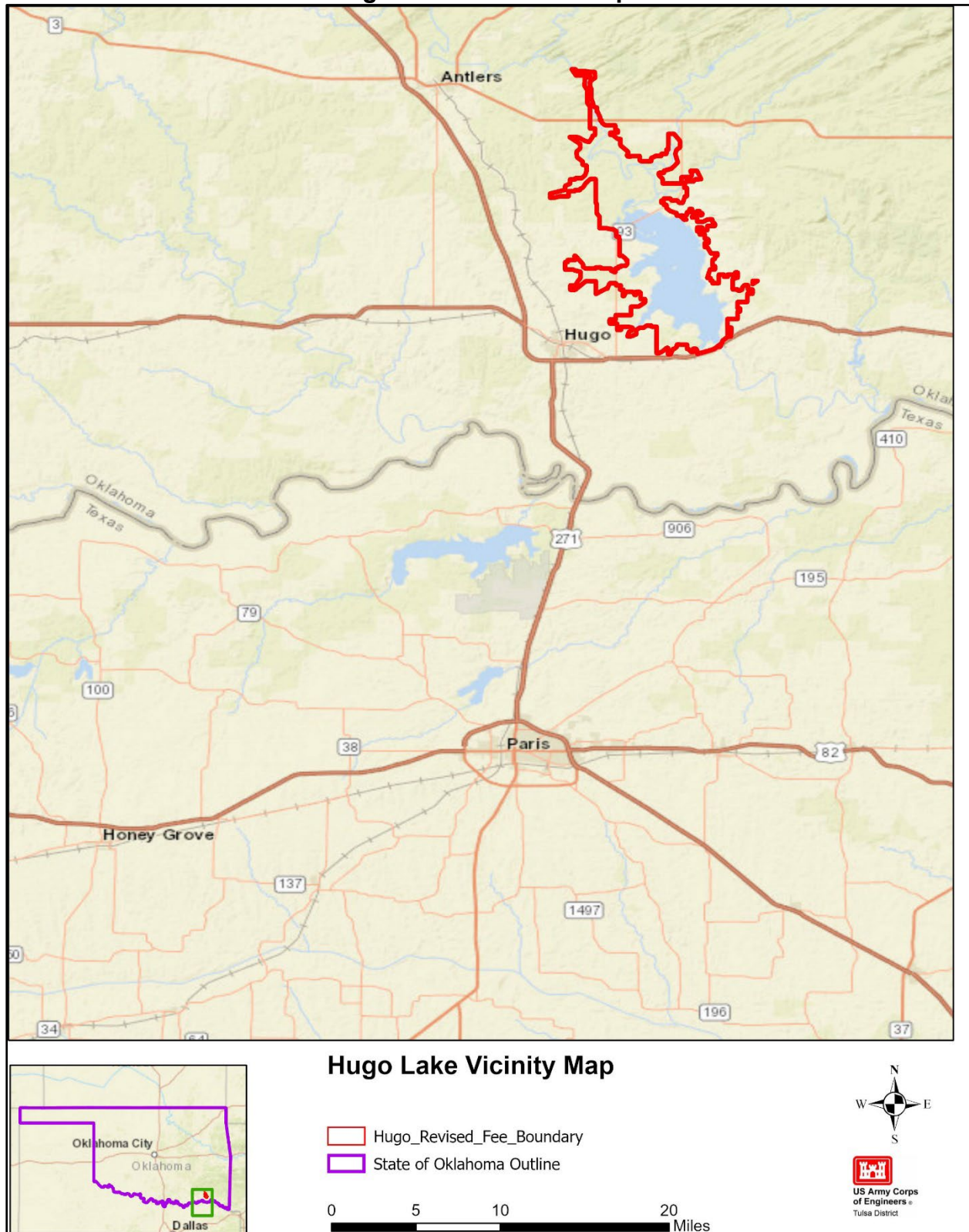
The following factors may influence reevaluation of management practices and land uses:

- Changes in national policies or public law mandates;
- Operations and maintenance budget allocations;
- Recreation area closures;
- Facility and infrastructure improvements;
- Cooperative agreements with stakeholder agencies (such as Oklahoma Department of Wildlife Conservation (ODWC) and the U.S. Fish and Wildlife Service [USFWS]) to operate and maintain public lands; and
- Evolving public concerns.

1.3 SCOPE OF THE ACTION

This EA was prepared to evaluate existing conditions and potential impacts of proposed alternatives associated with the implementation of the Hugo Lake Master Plan 2022 (MP). The alternative considerations were formulated with special attention given to revised land classifications, new resource management objectives, and a conceptual resource plan for each land classification category. The MP is currently available and is incorporated into this EA by reference. This EA was prepared pursuant to the NEPA.

Figure 1-1. Location Map



The application of NEPA to more strategic decisions not only meets the Council on Environmental Quality (CEQ) implementing regulations (CEQ 2020 and USACE regulations for implementing NEPA (USACE 1988), but also allows the USACE to consider the environmental consequences of its actions long before any physical activity is implemented. Multiple benefits can be derived from such early consideration. Effective and early NEPA integration with the master planning process can significantly increase the usefulness of the MP to the decision maker.

SECTION 2:PROPOSED ACTION AND ALTERNATIVES

The purpose and need of the proposed action is to revise the 1971 Master Plan so that it is compliant with current USACE regulations and guidance, incorporates public needs, and recognizes surrounding land use and recreational trends. As part of this process, which includes public outreach and comment, two alternatives were developed for evaluation, including a No Action Alternative and a Proposed Action Alternative. The alternatives were developed using land classifications that indicate the primary use for which project lands will be managed. The USACE regulations specify five possible categories of land classification: Project Operations (PO), High Density Recreation (HDR), Mitigation, Environmentally Sensitive Areas (ESA), and Multiple Resource Managed Lands (MRML). MRML are divided into four subcategories: Low Density Recreation (MRML-LDR), Wildlife Management (MRML-WM), Vegetation Management (MRML-VM), and Inactive/Future Recreation (MRML-IFR) Areas.

USACE guidance recommends the establishment of resource goals and objectives for purposes of development, conservation, and management of natural, cultural, and man-made resources at a project. Goals describe the desired end state of overall management efforts, whereas resource objectives are specific task-oriented actions necessary to achieve the overall MP goals. Goals and objectives are guidelines for obtaining maximum public benefits while minimizing adverse impacts on the environment and are developed in accordance with 1) authorized project purposes, 2) applicable laws and regulations; 3) resource capabilities and suitabilities; 4) regional needs; 5) other governmental plans and programs; and 6) expressed public desires. The five project-wide management goals established for Hugo Lake that were used in determining the Proposed Action, as well as the nationwide USACE Environmental Operating Principles, are discussed in detail Chapter 3: Resource Goals and Objectives of the MP and are incorporated herein by reference (USACE, 2022).

The goals for the MP include the following:

GOAL A. Provide the best management practices to respond to regional needs, resource capabilities and capacities, and expressed public interests consistent with authorized project purposes.

GOAL B. Protect and manage the project's natural and cultural resources through sustainable environmental stewardship programs.

GOAL C. Provide public outdoor recreation opportunities that support project purposes and public interests while sustaining the project's natural resources.

GOAL D. Recognize the project's unique qualities, characteristics, and potentials.

GOAL E. Provide consistency and compatibility with national objectives and other State and regional goals and programs.

In addition to the above goals, USACE management activities are guided by USACE-wide Environmental Operating Principles as follows:

- Foster sustainability as a way of life throughout the organization.
- Proactively consider environmental consequences of all USACE activities and act accordingly.
- Create mutually supporting economic and environmentally sustainable solutions.
- Continue to meet our corporate responsibility and accountability under the law for activities undertaken by USACE, which may impact human and natural environments.
- Consider the environment in employing a risk management and systems approach throughout the life cycles of projects and programs.
- Leverage scientific, economic and social knowledge to understand the environmental context and effects of USACE actions in a collaborative manner.
- Employ an open, transparent process that respects views of individuals and groups interested in USACE activities.

Specific resource objectives to accomplish these goals can be found in Chapter 3 of the MP.

USACE will not address dam operations or water management of Hugo Lake under either the No Action or Proposed Action alternatives. Water management, which includes flood risk management and dam operations, is established in the Water Control Master Manual Arkansas River Basin and the Hugo Lake Water Control Manual.

2.1 ALTERNATIVE 1: NO ACTION

Under the No Action Alternative, the USACE would not approve the adoption or implementation of the MP. Instead, the USACE would continue to manage Hugo Lake's natural resources as set forth in the 1971 MP. The 1971 Master Plan would continue to provide the only source of comprehensive management guidelines and philosophy. However, the 1971 Master Plan is out of date and does not reflect the current ecological, socio-political, or socio-demographic conditions of Hugo Lake or those that are anticipated to occur through 2045.

The No Action Alternative, while it does not meet the purpose and need, serves as a benchmark of existing conditions against which Federal actions can be evaluated, and, therefore, is included in this EA pursuant to CEQ regulations at 40 CFR § 1502.14(c).

2.2 ALTERNATIVE 2: PROPOSED ACTION

Under the Proposed Action, the USACE proposes to adopt and implement the MP, which guides and articulates USACE responsibilities pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources. The MP would replace the 1971 MP and provide an up-to-date management plan that follows current Federal laws and regulations while sustaining the project's natural resources and providing recreational opportunities for the next 25 years. The Proposed Action would meet regional goals associated with good stewardship of land, water, and recreational resources; address identified recreational trends; and allow for continued use and development of project lands without violating national policies or public laws.

The MP will reclassify all Federal land lying above elevation 404.5 feet NGVD29 into management classification categories. These management classification categories would allow uses of Federal property that meet the definition of the assigned category and ensure the protection of natural resources and environmental stewardship while allowing maximum public enjoyment of the lake's resources.

The land classification categories are defined as follows:

- Project Operations: Lands required for the dam, spillway, switchyard, levees, dikes, offices, maintenance facilities, and other areas used solely for the operation of Hugo Lake.
- High Density Recreation: Lands developed for the intensive recreational activities for the visiting public including day use and campgrounds. These areas could also be for commercial concessions and quasi-public development.
- Environmentally Sensitive Areas: Areas where scientific, ecological, cultural, or aesthetic features have been identified.
- Multiple Resource Management Lands (MRML): Allows for the designation of a predominate use with the understanding that other compatible uses may also occur on these lands.
 - MRML Low Density Recreation: Lands with minimal development or infrastructure that support passive recreational use (primitive camping, fishing, hunting, trails, wildlife viewing, etc.).
 - MRML Wildlife Management: Lands designated for stewardship of fish and wildlife resources.
 - MRML Vegetation Management: Lands designated for stewardship of vegetative resources.
- Surface Water: Allows for surface water zones.
 - Restricted: Water areas restricted for Hugo Lake operations, safety, and security.
 - Designated No-Wake: Water areas to protect environmentally sensitive shoreline areas and recreational water access areas from disturbance and areas to protect public safety.
 - Open Recreation: Water areas available for year-round or seasonal water-based recreational use.

Table 2-1 shows the new classifications and acres contained in each classification, Table 2-2 shows the new water surface classifications, and Table 2-3 provides the justification for the reclassification.

Table 2-1 Change from 1971 Land Classifications to the New 2022 Land Classifications

Land Classifications	Acres	New 2022 Land Classifications	Acres ¹	Net Difference
Project Operations	227	Project Operations (PO)	259	32
Recreation – Intensive Use	4,528	High Density Recreation (HDR)	4,022	(506)
		Environmentally Sensitive Areas (ESA)	3,232	3,232
Recreation – Low Density	3,834	Multiple Resource Management – Low Density Recreation (LDR)	3,690	(144)
Wildlife Management	18,246	Multiple Resource Management – Wildlife Management (WMA)	15,846	(2,400)
TOTAL	26,835		27,048	213*

Table 2-2. Hugo Lake New Surface Water Reclassifications

Prior Water Surface Classifications (1986)	Acres	New 2022 Water Surface Classifications	Acres	Net Difference
Permanent Pool	13,250	Open Recreation	11,232	(2,018)
		Designated No-Wake	141	141
		Restricted	17	17
TOTAL	13,250		11,390	(1,860)
TOTAL FEE	40,085		38,438	(1,647)*

* Total Acreage differences from the 1971 total to the 2022 totals are due to improvements in measurement technology, deposition/siltation, and erosion. Totals also differ due to rounding while adding parcels.

Table 2-3. Justification for the 2022 Land Reclassifications

2022 Land Reclassification	Description of Changes ⁽²⁾	Justification
Project Operations (PO)	The net increase in PO lands from 227 acres to 259 acres was due to the following:	Intensive and Low Density Recreation acres were reclassified to capture PO components that were previously

2022 Land Reclassification	Description of Changes ⁽²⁾	Justification
	<ul style="list-style-type: none"> 14 acres from Recreation – Intensive Use (similar to HDR) to PO 10 acres Recreation – Low Density (similar to LDR) reclassified to PO. 8 acres NULL³ reclassified to PO. 	not classified as PO near the dam. Acres previously unclassified and defined as NULL were reclassified to PO at the dam structure. Some areas north of the dam north of Sawyer Rd. are not needed for PO and have changed to LDR to match existing usage including soft surface trails.
High Density Recreation (HDR)	<p>The net decrease in Recreation – Intensive Use to HDR lands from 4,528 to 4,022 was due to the following:</p> <ul style="list-style-type: none"> 277 acres Intensive Recreation reclassified as ESA. 14 acres Intensive Recreation reclassified as PO. 159 acres Intensive Recreation reclassified to LDR. 1 acre Recreation – Low Density reclassified to HDR. 9 acres NULL³ reclassified to HDR. 64 acres Intensive Recreation sold. 	HDR acres were reclassified to LDR to capture changes in the level of park uses that were not realized as envisioned in the 1971 Master Plan and includes areas of narrow shoreline not suitable for HDR. HDR acres were also reclassified to ESA to protect areas where scientific, ecological, cultural, or aesthetic features have been identified. HDR acres were reclassified to PO components that were previously not classified as PO near the dam structure. At various locations, small areas previously unclassified and defined as NULL were reclassified to HDR near parks. Some acres that did not contain intensive recreation were sold.
Environmentally Sensitive Areas (ESA)	<p>The net increase in ESA of 3,232 acres was due to the following:</p> <ul style="list-style-type: none"> 277 acres Intensive Recreation reclassified as ESA. 351 acres Recreation – Low Density reclassified as ESA. 2,604 acres WM reclassified as ESA. 	ESA areas were not designated in the 1971 Master Plan thus all the ESA areas are created to protect areas where scientific, ecological, cultural, or aesthetic features have been identified for the long-term protection of those resources.

2022 Land Reclassification	Description of Changes ⁽²⁾	Justification
MRML – Low Density Recreation (LDR)	<p>The net decrease in Recreation – Low Density (similar to LDR) from 3,834 acres to 3,690 acres was due to the following:</p> <ul style="list-style-type: none"> ▪ 159 acres Intensive Recreation reclassified as LDR. ▪ 351 acres Recreation – Low Density reclassified as ESA. ▪ 1 acres Recreation – Low Density reclassified as HDR. ▪ 10 acres Recreation – Low Density reclassified as PO. ▪ 55 acres NULL³ reclassified as LDR. 	<p>Areas previously classified as HDR in the 1971 Master Plan were reclassified to LDR as the prior classifications failed to appropriately reflect current use of the area. LDR acres were reclassified to ESA to protect areas where scientific, ecological, cultural, or aesthetic features have been identified. LDR acres were reclassified to PO components that were previously not classified as PO near the dam structure. Previously unclassified and defined as NULL areas were reclassified to LDR.</p>
MRML – Wildlife Management (WM)	<p>The net decrease in WM from 18,246 acres to 15,846 acres was due to the following:</p> <ul style="list-style-type: none"> ▪ 2,604 acres WM reclassified as ESA. ▪ 204 acres NULL³ reclassified as WM. 	<p>WM acres were reclassified to ESA areas to protect areas where scientific, ecological, cultural, or aesthetic features have been identified. Land classification to WM was necessary for areas previously NULL to align with current and future use.</p>

(1) The land classification changes described in this table are the result of changes to individual parcels of land ranging from a few acres to several hundred acres. New acreages were measured using more accurate GIS technology, thus total changes will not equal individual changes. The acreage numbers provided are approximate.

(2) Acreages are based on GIS measurements and may vary from net difference detailed in Table 8-1.

(3) NULL is defined as land that did not have a land classification assigned in the 1971 Master Plan

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

Other alternatives to the Proposed Action were initially considered as part of the scoping process for this EA. However, none met the purpose of and need for the Proposed Action or the current USACE regulations and guidance. Furthermore, no other alternatives addressed public concerns. Therefore, no other alternatives are being carried forward for analysis in this EA. The following resources were excluded from further impact analysis because neither the No Action nor the Proposed Action will have any impact on them: hazardous, toxic, and radioactive waste.

SECTION 3: AFFECTED ENVIRONMENT AND CONSEQUENCES

This section of the EA describes the potential impacts of the No Action and Proposed Action alternatives, outlined in Section 2 of this document. For descriptions of existing conditions of various resources within the USACE Hugo Fee Boundary please refer to Chapter 2 of the MP. Based on resources described in the MP Ch. 2, each resource with potential to be impacted as a result of the No Action alternative, or by the Proposed Alternative is evaluated below.

Impacts (consequence or effect) can be either beneficial or adverse and can be either short- or long-term caused by the action (40 CFR § 1501.3). As discussed in this section, the alternatives may create temporary (less than 1 year), short-term (up to 3 years), long-term (3 to 10 years following the master plan revision), or permanent effects.

In considering whether the effects of the Proposed Action are significant, agencies shall analyze the potentially affected environment and degree of the effects of the action (40 CFR 1501.3). Impacts on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For this analysis, the intensity of impacts would be classified as negligible, minor, moderate, or major. The intensity thresholds are defined as follows:

- Negligible: A resource would not be affected or the effects would be at or below the level of detection, and changes would not be of any measurable or perceptible consequence.
- Minor: Effects on a resource would be detectable, although the effects would be localized, small, and of little consequence to the sustainability of the resource. Mitigation measures, if needed to offset adverse effects, would be simple and achievable.
- Moderate: Effects on a resource would be readily detectable, long-term, localized, and measurable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely achievable.
- Major: Effects on a resource would be obvious and long-term, and would have substantial consequences on a regional scale. Mitigation measures to offset the adverse effects would be required and extensive, and success of the mitigation measures would not be guaranteed.

3.1 Land Use

Please refer to sections 2.5 and 2.6 of the MP for existing land use information in and around Hugo Lake.

3.1.1 Alternative 1: No Action

Under the No Action Alternative, USACE will not implement the MP, and thus the land use management will not be updated to current needs and demands. The operation and maintenance of USACE lands at Hugo Lake will continue as outlined in the existing MP to the extent that current and future laws and regulations will permit. Management will continue to lag behind the current and future recreational needs and

public preferences. As the regulatory environment continues to change, management at Hugo Lake will diverge from the plan. This divergence will create a patchwork of management requirements that will be inefficient for Hugo Lake staff to implement. The management will also increasingly lack transparency to the public, or alternately create more of a burden to staff to communicate how the lake management differs from that in the management plan. Implementation of the No Action Alternative would have moderate, adverse, short and long term impacts on land use within and on USACE Hugo Lake project lands due to conflicting guidance and management of USACE lands.

3.1.2 Alternative 2: Proposed Action

The objectives for revising the 1971 Hugo Lake MP were to describe current and foreseeable land uses, taking into account expressed public opinion, regional trends, and USACE policies that have evolved to meet day-to-day operational needs. The reclassifications in the MP were developed to help fulfill regional goals associated with good stewardship of land and water resources that will allow for continued use and development of project lands.

While HDR is technically a new management classification, the bulk of the 4,022 acres of HDR land is from areas previously classified as Recreation Intensive Use. MRML-LDR is also a new land classification with the bulk coming from areas previously classified as Recreation Low Density Use. Even though the acres are decreasing for HDR and MRML-LDR from 4,528 to 4,022 acres and 3,834 and 3,690 acres, recreational opportunities will not decrease. The change in acreages reflects current usage and foreseeable recreational trends for the area.

MRML-LDR are lands that have minimal development or infrastructure that support passive public use such as hiking, nature photography, bank fishing, and hunting. Future uses may include designating additional natural surface hike/bike trails. Even though these areas are managed for recreational purposes, this designation still provides more protection for wildlife and vegetation than HDR but less than ESA, but the same amount as MRML-WM.

HDR and MRML-LDR are not the only new management classification introduced in the MP. The establishment and reclassification of 3,232 acres as ESA will allow for greater protection of sensitive habitats or cultural resources. Conservation efforts within USACE Hugo Lake fee owned boundary will be further aided by the maintaining of 3,690 acres as MRML-LDR and 15,846 acres as MRML-WM lands.

On the waters of Hugo Lake, the MP will add established surface water use categories in addition to the current ad hoc management of the lake. The establishment of 17 acres of Restricted, 141 acres of Designated No Wake, and 11,232 acres of Open Recreation to the water surface, respectively, will allow for delineated, and safer management of the lake's waters when the lake is at conservation pool. These reclassifications will help to improve safety of those recreating on and around Hugo Lake. This will be done by restricting boat access and speeds around certain parts of the lake, as well as establishing areas that boating can occur in. The Hugo Lake office will still maintain the authority to make ad hoc adjustments as needed by lake level,

which will prevent the classifications from being overly rigid or even ineffectual in various lake level conditions.

The current and foreseeable land use demand and patterns for Hugo Lake does not entail the need of utility corridors, thus none will be implemented in the MP. However, if such a need would arise, current USACE policy dictates that all utilities must go around USACE property unless no other feasible alternative exists. If there is no feasible alternative that exists, then the utility must go through the NEPA permitting process prior to approval and implementation.

The majority of the land use reclassifications in the MP will maintain the functional management that is currently occurring. While the terminology updates appear substantial, they have been proposed after public input, and seek to maintain the values the public holds highest at Hugo Lake. Additionally, the land reclassifications provide a balance between public use, both intensive and passive, and natural resources conservation. Therefore, the implementation of the Proposed Action will have major, long term beneficial impacts to land use.

3.2 WATER RESOURCES

Please refer to section 2.6 of the MP for existing water resource information in and around Hugo Lake.

3.2.1 Alternative 1: No Action

There would be no impacts on water resources as a result of implementing the No Action Alternative, since there would be no change to the existing Master Plan.

3.2.2 Alternative 2: Proposed Action

The reclassifications and resource management objectives required for implementing the MP the Proposed Action will allow land management and land uses to be adjusted for current and reasonably foreseeable future changes in water resources. For example, the establishment of 3,232 acres as ESA lands will help to stabilize soils through the promotion of and restoration native habitat. In turn, the habitat will help buffer and filter storm runoff before making its way into the lake. Minor, beneficial impacts to water quality may be realized during storm events as the natural areas may help to reduce erosion and subsequent water turbidity. The maintaining of 3,690 acres as MRML-LDR and 15,846 acres as MRML-WM lands will result in more upland areas and wetlands being protected from erosion and sedimentation. Resource objectives makes it mandatory all decision-making processes take into consideration their impacts to Hugo Lake watershed, lake water supply, and water quality.

Additionally, 141 acres of surface waters were reclassified as designated No Wake. These areas are near shorelines where wave action can increase erosion. This Designated No Wake classification will be expected to help prevent further erosion and further reduce water turbidity.

Therefore, implementation of the MP will have negligible positive short- and-long term impacts on water resources within and on USACE project lands.

3.3 CLIMATE, CLIMATE CHANGE AND GHG

Please refer to sections 2.2 and 2.3 of the MP for existing climate, climate change and greenhouse gas information in and around Hugo Lake.

3.3.1 No Action

The No Action Alternative would not result in any change in management of Hugo Lake project land. Implementation of the 1971 MP would have no impact (beneficial or adverse) on existing or future climate conditions. Current policy (Executive Orders [EO] 13783 and 13990, and related USACE policy) requires project lands and recreational programs be managed in a way that advances broad national climate change mitigation goals including, but not limited to, climate change resilience and carbon sequestration. These policies would continue to be implemented under this Alternative which are not addressed in the 1971 MP goals and objectives, which is further proof of the 1971 MP inability to meet current laws and regulations.

3.3.2 Proposed Action

The MP will have negligible positive impacts to climate, climate change and GHG emissions in the region. The impacts will come from the MP promotion of land management practices and design standards that promote sustainability. Management under the MP will also follow current policy to meet climate change goals as described for the No Action Alternative. Ground disturbing activities that arise from guidance from this document would go through the NEPA and design process prior to implementation. It is during that time, that impacts to the climate would be analyzed for those ground disturbing activities. The MP will then promote land management practices and design standards that promote sustainability which will have negligible impacts.

3.4 AIR QUALITY

Please refer to section 2.4 of the MP for existing air quality information in and around Hugo Lake.

3.4.1 Alternative 1: No Action

The continual implementation of the 1971 MP will not result in any changes to current and reasonably foreseeable future air quality in the region. No new increase in vehicular traffic, mass permanent vegetation removal, or the building of mass industrial facilities occur. The No Action Alternative will remain compliant with the Clean Air Act because the MP includes only guidelines and does not incorporate actions which produce criteria pollutants as explained in the previous sentence.

3.4.2 Alternative 2: Proposed Action

As with the No Action Alternative, the MP will not result in any change to current and reasonably foreseeable air quality in the region. The Proposed Action does not propose any actions (i.e. ground disturbing activities) that directly or indirectly produce criteria pollutants (i.e. total emissions is 0); therefore, this action is compliant with the Clean Air Act and State Implementation Plan and is not subject to a conformity determination. Negligible air quality benefits may be realized through the reclassification of 3,232 acres as ESA lands, maintaining 3,690 acres as MRML-LDR and 15,846 acres as MRML-WM lands. These areas contain natural vegetation communities that filter and sequester air pollutants.

3.5 TOPOGRAPHY, GEOLOGY, AND SOILS

Please refer to section 2.5 of the MP for existing topography, geology, and soils information in and around Hugo Lake.

3.5.1 Alternative 1: No Action

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions, therefore, there would be no short-or-long-term, minor, moderate, or major, beneficial, or adverse impacts on topography, geology, soils, or prime farmland as a result of implementing the No Action Alternative.

3.5.2 Alternative 2: Proposed Action

The MP takes into consideration the various topographical, geological, and soils aspects of USACE Hugo Lake project lands. The reclassification of 3,232 acres as ESA lands, maintaining 3,690 acres as MRML-LDR and 15,846 acres as MRML-WM lands will help to increase the long-term preservation and stabilization of the soils within USACE Hugo Lake project lands. In addition, resource objectives make it mandatory that erosion control and sedimentation issues are being monitored and alternatives be developed and implemented to resolve those issues. The establishment of ESA as well as the implementation of resource objectives and goals discussed in Chapter 3 of the MP and the rest of the proposed action will have minor, positive, long-term impacts on soil conservation and topography, and geology at Hugo Lake.

3.6 NATURAL RESOURCES

Please refer to sections 2.9 and 2.10 of the MP for existing natural resources information in and around Hugo Lake.

3.6.1 Alternative 1: No Action

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions; therefore, no short-or-long-term, major, moderate, or minor, beneficial, or adverse impacts on natural resources would be anticipated as a result of implementing the No Action Alternative.

3.6.2 Alternative 2: Proposed Action

The implementation of the reclassifications of land management classes, improvement of resource management objectives, and the overall improvement of the

MP will allow natural resources within USACE Hugo federal project lands to be better managed and accounted for. The better management will be from implementing the knowledge gained from the Wildlife Habitat Appraisal Procedure (WHAP) (Appendix C of the MP) done for Hugo Lake, which helps to establish the high quality and unique areas. The implementation of land reclassifications will allow project lands to continue and further support the USFWS and the ODWC missions associated with wildlife conservation and implementation of operational practices that will protect and enhance wildlife and fishery populations and habitat. The new resource objectives also allow for natural resources to be managed with consideration of how they will be impacted from the retention of flood waters. The reclassification of 3,232 acres as ESA lands, maintaining of 3,690 acres as MRML-LDR and 15,846 acres as MRML-WM lands especially in prime ecological areas helps to protect natural resources from various types of adverse impacts such as habitat fragmentation. Therefore, under the Proposed Action, there will be short-and-long-term major, beneficial impacts on natural resources as a result of implementing the MP.

3.7 THREATENED AND ENDANGERED SPECIES

Please refer to section 2.11 of the MP for existing information on threatened and endangered species within the USACE fee owned boundary.

3.7.1 Alternative 1: No Action

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions; therefore, no short-or-long-term, major, moderate, or minor, beneficial, or adverse impacts on threatened and endangered species would be anticipated as a result of implementing the No Action Alternative.

3.7.2 Alternative 2: Proposed Action

The implementation of the MP will allow for better cooperative management plans with the USFWS and ODWC that will help to preserve, enhance, and protect vegetation and wildlife habitat resources that are essential to various endangered and threatened species that may be found within USACE Hugo Lake federal project lands. To further management opportunities and beneficially impact habitat diversity, the reclassifications in the MP include 3,232 acres as ESAs. Under this reclassification, several land parcels previously classified as Recreation – Intensive Use, Recreation – Low Density, and Wildlife Management were converted to ESA in order to recognize those areas having the highest ecological value and to ensure they are given the highest order of protection among possible land classifications. Resource objectives make it mandatory that threatened and endangered species are managed by various ecosystem management principles. Any future activities that could potentially result in impacts on federally listed species will be coordinated with USFWS through Section 7 of the Endangered Species Act. There are negligible impacts on federally threatened and endangered species anticipated as a result of implementing the Proposed Action Alternative. Any future activities that could potentially result in impacts on federally listed species will be coordinated with USFWS through Section 7 of the Endangered Species Act. Therefore, USACE has determined that the MP will have No Effect on all federally threatened and endangered species within the study area.

3.8 INVASIVE SPECIES

Please refer to section 2.12 of the MP for existing information on invasive species within the USACE fee owned boundary.

3.8.1 Alternative 1: No Action

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions, which results in Hugo Lake to be managed according to the existing invasive species management practices. There would be no short-or- long-term, minor, moderate, or major, beneficial, or adverse impacts from invasive species as a result of implementing the No Action Alternative.

3.8.2 Alternative 2: Proposed Action

The implementation of the reclassifications of land management classes, improvement of resource management objectives, and the overall improvement of the MP will allow invasive species within USACE Hugo federal project lands to be better managed and accounted for. The better management will be from implementing the knowledge gained from the Wildlife Habitat Appraisal Procedure (WHAP) survey done for Hugo Lake, which helps to identify high value and unique areas that needs further protection from invasive species so as to protect their value and uniqueness that invasive species may destroy or degrade. The establishment of 3,232 acres as ESA lands, maintaining of 3,690 acres as MRML-LDR and 15,846 acres as MRML-WM lands, especially in prime ecological areas helps to protect natural resources from various types of adverse impacts such as habitat fragmentation which increases the spread of invasive species and these areas also receive more invasive species management efforts. The resource objectives also make for the monitoring and reporting of invasive species as well as the ability to take action to prevent and/or reduce the spread of these species. Therefore, under the Proposed Action, there will be short-and-long-term minor, beneficial impacts on invasive species as a result of implementing the MP.

3.9 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

Please refer to section 2.14 of the MP for existing information on cultural, historical, and archaeological resources within the USACE fee owned boundary.

3.9.1 Alternative 1: No Action

There will be no additional short-or-long-term, minor, moderate, or major, beneficial, or adverse impacts on cultural, historical, or archaeological resources as a result of implementing the No Action Alternative, as there will be no changes to the existing Master Plan.

3.9.2 Alternative 2: Proposed Action

The implementation of the reclassifications of land management classes, improvement of resource management objectives, and the overall improvement of the MP will allow cultural, historical, and archaeological resources within USACE Hugo

federal project lands to be better managed and accounted for. Based on previous surveys at Hugo Lake, the required reclassifications, resource objectives, and resource plan will not change current cultural resource management plans or alter areas where these resources exist. All future activities will be coordinated with the State Historic Preservation Officer and federally recognized Tribes to ensure compliance with Section 106 of the NHPA, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act. Therefore, no significant adverse impacts on cultural, historical, or archaeological resources will occur as a result of implementing the MP. Beneficial impacts may occur as a result of the MP as lands classified as PO, ESA, or MRML- WM will generally protect any historic properties within those lands against ground disturbing activities.

3.10 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Please refer to section 2.15 of the MP for existing socioeconomic and environmental justice information in and around Hugo Lake.

3.10.1 Alternative 1: No Action

The continual implementation of the 1971 MP would result in the existing beneficial socioeconomic impacts to continue, as visitors would continue to come to the lake from surrounding areas. In addition to camping, many visitors purchase goods such as groceries, fuel, and camping supplies locally, eat in local restaurants, stay in local hotels and resorts, play golf at local golf courses, and shop in local retail establishments. These activities will continue to bring revenues to local companies, provide jobs for local residents, and generate local and state tax revenues. There would be no disproportionately high or adverse impacts on minority or low-income populations or children with the implementation of the No Action Alternative.

3.10.2 Alternative 2: Proposed Action

The implementation of the MP land reclassifications, resources objectives, and resource plan reflect changes in land management and land uses that have occurred since 1971. Hugo Lake offers a variety of recreational opportunities for visitors. It is beneficial to the local economy through direct and indirect job creation and local spending by visitors. Beneficial impacts will be similar to the No Action Alternative. There will be no adverse impacts on economy in the area and no disproportionately high or adverse impacts on minority or low-income populations or children as a result of the Proposed Action.

3.11 RECREATION

Please refer to section 2.16 of the MP for existing recreation information in and around Hugo Lake.

3.11.1 Alternative 1: No Action

Under the No Action Alternative, there will be no short-or-long-term, minor, moderate, or major, beneficial, or adverse impacts on recreational resources, as there will be no changes to the existing MP. The USACE would continue to lease recreation

lands at Hugo Lake to non-federal partners under this alternative as would under the Proposed Action Alternative, who are anticipated to maintain and improve existing facilities with potential plans for future expansion.

3.11.2 Alternative 2: Proposed Action

Hugo Lake is beneficial to the local visitors and also offers a variety of free recreation opportunities. Even though the amount of acreage available for High Density Recreation will decrease (4,528 acres to 4,022 acres) with implementation of the proposed MP, this land reclassification reflects changes in land management and land uses that have occurred since 1971 at Hugo Lake. Passive recreational activities will still be allowed as they are now within all lands regardless of the land classification. The resource objectives make it mandatory that all decisions made regarding the lake take into consideration their impacts to recreation and monitored should adjustments be needed. Therefore, under the Proposed Action, there will be no adverse, short-or-long-term impacts on recreation as numerous recreation opportunities will remain in and around Hugo Lake to accommodate various outdoor based recreation activities.

3.12 AESTHETIC RESOURCES

Please refer to section 2.13 of the MP for existing aesthetic resource conditions in and around Hugo Lake.

3.12.1 Alternative 1: No Action

There would be no short-or-long-term, minor, moderate, or major, beneficial, or adverse impacts on visual resources as a result of implementing the No Action Alternative, as there would be no changes to the existing MP.

3.12.2 Alternative 2: Proposed Action

Hugo Lake currently plays a pivotal role in availability of parks and open space in Choctaw and Pushmataha Counties and within the region. The amount of acreage classified for recreation will be reduced from 4,528 acres to 4,022 acres for High Density Recreation with implementation of the MP. This land reclassification reflects changes in land management and land uses that have occurred since 1971 at Hugo Lake. The conversion of these lands will have no effect on current or projected public use or visual aesthetics as views from natural and recreation areas will remain in place. Furthermore, the establishment of 3,232 acres as ESA lands, maintaining of 3,690 acres as MRML-LDR and 15,846 acres as MRML-WM lands, will protect lands that are aesthetically pleasing and available for passive recreation activity at Hugo Lake and limit future development. Additionally, resource objectives place emphasis on increasing public education on recreation, nature, cultural resources, and ecology resources at Hugo Lake. Therefore, under the Proposed Action, there will be minor beneficial impacts to aesthetic resources as a result of implementing the MP.

3.13 HAZARDOUS MATERIALS AND SOLID WASTE

Please refer to section 2.7 of the MP for information concerning hazardous materials and solid waste in and around Hugo Lake fee owned boundary.

3.14 HEALTH AND SAFETY

Please refer to section 2.8 of the MP for information concerning health and safety in and around Hugo Lake fee owned boundary.

3.14.1 Alternative 1: No Action

Under the No Action Alternative, the Hugo MP would not be revised. No significant adverse impacts on human health or safety would be anticipated.

3.14.2 Alternative 2: Proposed Action

The implementation of the MP will result in the classification of Restricted Surface Water (17 acres), Designated No-Wake areas (141 acres), and Open-Recreation (11,232). These reclassifications maintain and, in some cases, improve boating, non-motorized recreation, and swimming safety near the Hugo Lake Dam, water intake structures, and key recreational water access areas such as boat ramps and designated swimming areas.

The project will continue to have reporting guidelines in place should water quality become a threat to public health. Existing regulations and safety programs throughout the Hugo Lake project area will continue to be enforced to ensure public safety. The resource objectives make it mandatory that various factors that impact human safety at the lake are monitored and that actions are taken to address, eliminate or reduce those factors. Additionally, the objectives place emphasis on educating the public on water safety and on flood risk management efforts at Hugo Lake. Therefore, under the Proposed Action, there will be short-and-long-term minor, beneficial impacts on health and safety as a result of implementing the MP.

3.15 SUMMARY OF CONSEQUENCES AND BENEFITS

Table 3-1 provides a tabular summary of the consequences and benefits for the No Action and Proposed Action alternatives for each of the 14 assessed resource categories.

Table 3-1. Summary of Consequences and Benefits

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Land Use	No effect on private lands. Emphasis is on protection of wildlife and environmental values on USACE land and maintaining current level of developed recreation facilities.	Fails to recognize recreation trends and regional natural resource priorities.	Recognizes recreation trends and regional natural resource priorities identified by ODWC, and public comments.	Land reclassification changes and new resource objectives fully recognize passive use recreation trends and regional environmental values such as protection of prairies.
Water Resources Including Groundwater, Wetlands, and Water Quality	Small change to recognize value of wetlands.	Fails to recognize the water quality benefits of good land stewardship and need to protect wetlands.	Promotes restoration and protection of wetlands and good land stewardship.	Specific resource objective promotes restoration and protection of wetlands.
Climate	Minor change to recognize need for sustainable, energy efficient design.	Fails to promote sustainable, energy efficient design.	Promotes land management practices and design standards that promote sustainability.	Specific resource objectives promote national climate change mitigation goal. LEED standards for green design, construction, and operation activities will be employed to the extent practicable.
Climate Change and Greenhouse Gases	Minor change to recognize need for sustainable, energy efficient design.	Fails to promote sustainable, energy efficient design.	Promotes land management practices and design standards that promote sustainability.	Specific resource objectives promote national climate change mitigation goal. LEED standards for green design, construction, and operation activities would be employed to the extent practicable.
Air Quality	No change	No effect	No effect	No added benefit
Topography, Geology and Soils	Minor change to place emphasis on good stewardship of land and water resources.	Fails to specifically recognize known and potential soil erosion problems.	Encourages good stewardship that will reduce existing and potential erosion.	Specific resource objectives call for stopping erosion from overuse and land disturbing activities.

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Natural Resources	Moderate benefits through land reclassification and resource objectives.	Fails to recognize ESAs, and regional priorities calling for protection of wildlife habitat.	Gives full recognition of sensitive resources and regional trends and priorities related to natural resources.	Reclassification of lands included 3,232 acres of ESA and an increase in lands emphasizing wildlife management.
Threatened and Endangered Species, including TXNDD species.	Minor change to recognize both federal and state-listed species.	Fails to recognize current federal and state-listed species.	Fully recognizes federal and state-listed species as well as SGCN listed by ODWC and Rare species listed by ODWC.	The master plan sets forth the most recent listing of federal and state-listed species and addresses on-going commitments associated with USFWS Biological Opinions.
Invasive Species	Minor change to recognize several recent and potentially aggressive invasive species.	Fails to recognize current invasive species and associated problems.	Fully recognizes current species and the need to be vigilant as new species may occur.	Specific resource objectives specify that invasive species shall be monitored and controlled as needed.
Cultural Resources	Minor change to recognize current status of cultural resources.	Included cursory information about cultural resources that is inadequate for future management and protection.	Recognizes the presence of cultural resources and places emphasis on protection and management.	Reclassification of lands included 3,232 acres of ESA and specific resource objectives were included for protection of cultural resources.
Socioeconomics and Environmental Justice	No change	No effect	No effect	No added benefit
Recreation	Moderate benefits to outdoor recreation programs.	Fails to recognize current outdoor recreation trends.	Fully recognizes current outdoor recreation trends and places special emphasis on trails.	Specific management objectives focused on outdoor recreation opportunities and trends are included.

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Aesthetic Resources	Minor benefits through land reclassification and resource objectives.	Fails to minimize activities that disturb the scenic beauty and aesthetics of the lake.	Promotes activities that limit disturbance to the scenic beauty and aesthetics of the lake.	No added benefit Specific management objectives to minimize activities that disturb the scenic beauty and aesthetics of the lake.
Health and Safety	Minor change to promote public safety awareness.	Fails to emphasize public safety programs.	Recognizes the need for public safety programs.	Includes specific management objectives to increase water safety outreach efforts. Also, reclassifies 17 acres of water surface as restricted and designated no-wake for public safety purposes.

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SECTION 4: REASONABLY FORESEEABLE FUTURE

The most severe environmental degradation may not result from the direct effects of any particular action, but from the reasonably foreseeable future. As defined in 40 CFR 1508.1 (aa) (CEQ Regulations) as amended in 2020, “reasonably foreseeable means sufficiently likely to occur such that a person of ordinary prudence will take it into account in reaching a decision.” Which is further clarified in 1508.1(g) under effects or impacts as to applying to “changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives.”

4.1 PAST IMPACTS WITHIN THE ZONE OF INTEREST

Hugo Lake was originally authorized for construction in 1946 for flood control. Construction of Hugo Lake Dam began in January of 1946 and was completed in July of 1952. Deliberate impoundment began in September 1968; the final storage began 18 January 1974; and the conservation pool was filled for the first time on 12 March 1974. Hugo Lake covers approximately 11,390 surface acres of water when at the top of conservation pool (404.5 NGVD29). It has a total of 38,438 fee simple acres and 3,459 flood flowage easement acres.

4.2 CURRENT AND REASONABLY FORESEEABLE PROJECTS WITHIN AND NEAR THE ZONE OF INTEREST

Future management of the 3,459 acres of Flowage Easement Lands at Hugo Lake includes routine inspection of these areas to ensure that the Government’s rights specified in the easement deeds are protected. In almost all cases, the Government acquired the right to prevent placement of fill material or habitable structures on the easement area. Placement of any structure that may interfere with the USACE flood risk management and water conservation missions may also be prohibited.

At the time of this publication there are not any major projects (e.g., new roads, residential developments), new utility lines planned for in and around Hugo.

National USACE policy set forth in ER 1130-2-550, Appendix H, states that USACE lands will, in most cases, only be made available for roads that are regional arterials or freeways (as defined in ER 1130-2-550). All other types of proposed roads, including driveways and alleys, are generally not permitted on USACE lands. The proposed expansion or widening of existing roadways on USACE lands will be considered on a case-by-case basis.

4.3 ANALYSIS OF IMPACTS WITHIN THE REASONABLY FORESEEABLE FUTURE

Impacts on each resource were analyzed according to how other actions and projects within the zone of interest might be affected by the No Action Alternative and Proposed Action. Impacts can vary in degree or magnitude from a slightly noticeable

change to a total change in the environment. For the purpose of this analysis the intensity of impacts will be classified as negligible, minor, moderate, or major. These intensity thresholds were previously defined in Section 3.0. Moderate growth and development are expected to continue in the vicinity of Hugo Lake within the reasonably foreseeable future and adverse impacts on resources will not be expected when added to the impacts of activities associated with the Proposed Action or No Action Alternative. A summary of the anticipated impacts into the reasonably on each resource is presented below.

4.3.1 Land Use

A major impact would occur if any action is inconsistent with adopted land use plans or if an action would substantially alter those resources required for, supporting, or benefiting the current use. Land use around Hugo Lake has not experienced much change in land use for the past 20 years, it is a rural area with farms and pastures. Under the No Action Alternative, land use would not change. Although the Proposed Action will result in the reclassification of project lands, the reclassifications were developed to help fulfill regional goals associated with good stewardship of land resources that will allow for continued use of project lands.

The current and foreseeable land use demand and patterns for Hugo Lake does not entail the need of utility corridors, which the MP will not have any. However, if such a need would arise, current USACE policy dictates that all utilities must go around USACE property unless no other feasible alternative exists. If there is no feasible alternative that exists then the utility must go through the NEPA permitting process prior to approval and implementation.

4.3.2 Water Resources

A major impact would occur if any action is inconsistent with adopted surface water classifications or water use plans, or if an action would substantially alter those resources required for, supporting, or benefiting the current use. Hugo Lake was developed for flood control, water conservation, fish and wildlife, and recreation purposes. The reclassifications and resource objectives required to revise the Hugo Lake MP are compatible with water use plans and surface water classification; further, they were developed to help fulfill regional goals associated with good stewardship of water resources that will allow for continued use of water resources associated with Hugo Lake. Therefore, impacts from the reasonably future on water resources within the area surrounding Hugo Lake, when combined with past and proposed actions in the region, are anticipated to be minor.

4.3.3 Climate

The Proposed Action will neither affect nor be affected by the climate. Therefore, implementation of the revised land use classifications in the MP, when combined with other existing and proposed projects in the region, will not result in major reasonably foreseeable future impacts on the climate.

4.3.4 Climate Change and GHG

Under the Proposed Action, current Hugo Lake project management plans and monitoring programs will not be changed. In the event that GHG emission issues

become significant enough to impact the current operations at Hugo Lake, the MP and all associated documents would be reviewed and revised as necessary. Therefore, implementation of the MP, when combined with other existing and proposed projects in the region, will result in negligible reasonably foreseeable future impacts on climate change or GHG.

4.3.5 Air Quality

The Proposed Action will not adversely impact air quality within the area. Vehicle traffic along park and area roadways and routine daily activities in nearby communities contribute to current and future emission sources; however, the impacts associated with the reclassification of lands at Hugo Lake under the Proposed Action will be negligible. Seasonal prescribed burning could occur on Hugo Lake to help maintain the various prairies found throughout the fee boundary, but will have minor, negative impacts on air quality through elevated ground-level O₃ and particulate matter concentrations; however, these seasonal burns will be scheduled so that impacts are minimized. Implementation of the MP, when combined with other existing and proposed projects in the region, could result in minor adverse and beneficial reasonably foreseeable future impacts on air quality.

4.3.6 Topography, Geology, and Soils

A major impact could occur if a proposed future action exacerbates or promotes long-term erosion, if the soils are inappropriate for the proposed construction and would create a risk to life or property, or if there would be a substantial reduction in agricultural production or loss of Prime Farmland soils. Reasonably foreseeable future impacts on topography, geology, and soils within the area surrounding Hugo Lake, when combined with past and proposed actions in the region, are anticipated to be negligible.

4.3.7 Natural Resources

The significance threshold for natural resources would include a substantial reduction in ecological processes, communities, or populations that would threaten the long-term viability of a species or result in the substantial loss of a sensitive community that could not be offset or otherwise compensated. Past, present, and future projects are not anticipated to impact the viability of any plant species or community, rare or sensitive habitats, or wildlife. The establishment of ESA and MRML-WM, areas, as well as resource objectives that favor protection and restoration of valuable natural resources will have beneficial reasonably foreseeable future impacts. No identified projects will threaten the viability of natural resources. Therefore, there will be major long-term beneficial impacts to natural resources resulting from the revision of the MP when combined with past and proposed actions in the area.

4.3.8 Threatened and Endangered Species

The Proposed Action and No Action Alternative will not adversely impact threatened, endangered and ONHI species within the area. Should federally listed species change in the future (e.g., delisting of the American Burying Beetle or other species or listing of new species), associated requirements will be reflected in revised land management practices in coordination with the USFWS. The USACE will continue cooperative management plans with the USFWS and ODWC to preserve, enhance, and protect critical wildlife habitat resources.

No new projects are proposed for USACE lands within the Hugo Lake project area, and past, present, and future projects are not anticipated to impact threatened and endangered species as they will be coordinated with the appropriate resource agencies. Therefore, reasonably foreseeable future impacts on threatened and endangered species resulting from the revision of the Hugo Lake 1971 MP, when combined with past and proposed actions in the area, will be the same as direct impacts which are long-term, negligible, and beneficial due to the increase in protection of lands classified as ESA.

4.3.9 Invasive Species

To the extent that funding will allow, USACE will continue its proactive trapping of feral pigs, and use controlled burns/mechanical means to control eastern red cedar.

Invasive species control has and will continue to be conducted on various areas across the project lands. Implementing Best Management Practices (BMP) will help reduce the introduction and distribution of invasive species, ensuring that proposed actions in the region will not contribute to the overall reasonably foreseeable future impacts related to invasive species.

The land reclassifications required to revise the 1971 MP are compatible with Hugo Lake invasive species management practices. Therefore, there will be minor long-term beneficial impacts on reducing and preventing invasive species within the area surrounding Hugo Lake.

4.3.10 Cultural, Historical, and Archaeological Resources

The Proposed Action will not affect cultural resources or historic properties, as the master plan revision does not involve any ground disturbing activities. However, ESA and Wildlife Management lands provide additional protection against ground disturbances. Therefore, this action, when combined with other existing and proposed projects in the region, will not result in major reasonably foreseeable future impacts on cultural resources or historic properties.

4.3.11 Socioeconomics and Environmental Justice

The Proposed Action will not result in the displacement of persons (minority, low-income, children, or otherwise) as a result of implementing the reclassifications, resources objectives, and resource plan proposed in the MP. Therefore, the effects of the Proposed Action on environmental justice and the protection of children, when combined with other ongoing and proposed projects in the Hugo Lake area, will not be considered a major reasonably foreseeable future effect.

4.3.12 Recreation

Hugo Lake provides regionally significant outdoor recreation benefits including a variety of recreation opportunities. Even though the amount of acreage available for High Density Recreation will decrease as a result of implementing the reclassifications, resources objectives, and resource plan in the MP, these changes reflect changes in land management and historic recreation use patterns that have occurred since 1971 at Hugo Lake. The conversion of these lands will have no effect on current or projected public use. Therefore, the Proposed Action, when combined with other existing and

proposed projects in the region, will result in negligible beneficial reasonably foreseeable future impacts on area recreational resources.

4.3.13 Aesthetic Resources

No impacts on visual resources will occur as a result of implementing the reclassifications, resources objectives, and resource plan in the MP. The Proposed Action, especially the classification of ESAs, in conjunction with other projects in the region, will result in minor beneficial reasonably foreseeable future impacts on the visual resources in the Hugo Lake area.

4.3.14 Hazardous Materials and Solid Waste

No hazardous material or solid waste concerns will be expected with implementation of the MP; therefore, when combined with other ongoing and proposed projects in the Hugo Lake area, there will be no major reasonably foreseeable future effects on hazardous materials and solid waste.

4.3.15 Health and Safety

No health or safety risks will be created by the Proposed Action. The effects of implementing the proposed MP, when combined with other ongoing and proposed projects in the Hugo Lake area, will not be considered a major reasonably foreseeable future effect.

SECTION 5: COMPLIANCE WITH ENVIRONMENTAL LAWS

This EA has been prepared to satisfy the requirements of all applicable environmental laws and regulations, and has been prepared in accordance with the CEQ's implementing regulations for NEPA, 40 CFR Parts 1500 – 1508, and the USACE ER 200-2-2, *Environmental Quality: Procedures for Implementing NEPA*. The revision of the MP is consistent with the USACE's Environmental Operating Principles. The following is a list of applicable environmental laws and regulations that were considered in the planning of this project and the status of compliance with each:

Fish and Wildlife Coordination Act of 1958, as amended – The USACE initiated public involvement and agency scoping activities to solicit input on the MP revision process, as well as identify reclassification proposals, and identify significant issues related to the Proposed Action. Information provided by USFWS and ODWC on fish and wildlife resources has been utilized in the development of the MP.

Endangered Species Act of 1973, as amended – Current lists of threatened or endangered species were compiled for the MP. There will be no adverse impacts on threatened or endangered species resulting from the revision of the 1971 MP. However, beneficial impacts, such as habitat protection, could occur as a result of the revision of the MP by classification of ESA lands.

Executive Order 13186 (Migratory Bird Habitat Protection) – Sections 3a and 3e of EO 13186 direct Federal agencies to evaluate the impacts of their actions on migratory birds, with emphasis on species of concern, and inform the USFWS of potential negative impacts on migratory birds. The 1971 MP revision will not result in adverse impacts on migratory birds or their habitat. Beneficial impacts could occur through protection of habitat as a result of the MP revision.

Migratory Bird Treaty Act, as amended – The Migratory Bird Treaty Act of 1918 extends Federal protection to migratory bird species. The nonregulated “take” of migratory birds is prohibited under this act in a manner similar to the prohibition of “take” of threatened and endangered species under the Endangered Species Act. The timing of resource management activities will be coordinated to avoid impacts on migratory and nesting birds.

CWA of 1977, as amended – The Proposed Action is in compliance with all state and Federal CWA regulations and requirements and is regularly monitored by the USACE and ODEQ for water quality. A state water quality certification pursuant to Section 401 of the CWA is not required for the MP. There will be no change in the existing management of the reservoir that will impact water quality.

National Historic Preservation Act (NHPA) of 1966, as amended – Compliance with the NHPA of 1966, as amended, requires identification of all properties in the project area listed in, or eligible for listing in, the NRHP. All previous surveys and site salvages were coordinated with the Oklahoma State Historic Preservation Officer. Known sites are mapped and avoided by maintenance activities. Areas that have not undergone cultural resources surveys or evaluations will need to do so prior to any earthmoving or other potentially impacting activities.

Clean Air Act of 1977, as amended – The USEPA established nationwide air quality standards to protect public health and welfare. Existing operation and management of the reservoir is compliant with the Clean Air Act and will not change with the MP revision.

Farmland Protection Policy Act (FPPA) of 1980 and 1995 – The FPPA’s purpose is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. There are Prime Farmland and farmland of state importance on Hugo Lake project lands, but these will not be significantly impacted.

Executive Order 11990, Protection of Wetlands, as amended – EO 11990 requires Federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in executing Federal projects. The Proposed Action complies with EO 11990.

Executive Order 11988, Floodplain Management, as amended – This EO directs Federal agencies to evaluate the potential impacts of proposed actions in floodplains. The operation and management of the existing project complies with EO 11988.

CEQ Memorandum dated August 11, 1980, Prime or Unique Farmlands – Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The Proposed Action will not impact Prime Farmland present on Hugo Lake project lands.

Executive Order 12898, Environmental Justice – This EO directs Federal agencies to achieve environmental justice to the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review. Agencies are required to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The revisions in the MP will not result in a disproportionate adverse impact on minority or low-income population groups.

SECTION 6: IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

NEPA requires that Federal agencies identify “any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented” (42 U.S.C. § 4332). An irreversible commitment of resources occurs when the primary or secondary impacts of an action result in the loss of future options for a resource. Usually, this is when the action affects the use of a nonrenewable resource or it affects a renewable resource that takes a long time to regenerate. The impacts for this project from the reclassification of land will not be considered an irreversible commitment because subsequent MP revisions could result in some lands being reclassified to a prior, similar land classification. An irretrievable commitment of resources is typically associated with the loss of productivity or use of a natural

resource (e.g., loss of production or harvest). No irreversible or irretrievable impacts on Federally protected species or their habitat is anticipated from implementing revisions to the Hugo Lake MP.

SECTION 7: PUBLIC AND AGENCY COORDINATION

In accordance with 40 CFR §§ 1501.9, and 1506.6, the USACE initiated public involvement and agency scoping activities to solicit input on the revision of the 1971 MP, as well as identifying reclassification proposals and significant issues related to the Proposed Action. The USACE began its public involvement process with a public scoping meeting to provide an avenue for public and agency stakeholders to ask questions and provide comments. Out of concern for public safety regarding the ongoing COVID-19 virus pandemic, in lieu of an in-person public scoping meeting, we held a virtual public scoping meeting with a comment period that lasted for 30 days. This consisted of a prerecorded presentation that explains what the MP is and isn't and an overview of the revision process as well a comment form that the public can submit their comments and concerns. The virtual scoping period began on May 26, 2021, and ended on June 26, 2021. The USACE, Tulsa District, placed advertisements on the USACE webpage, social media, and print publications prior to the public scoping meeting.

The USACE concerns over reducing the spread of COVID-19 resulted in the in-person draft release meeting also being replaced by a virtual outreach meeting. The purpose of this meet is to introduce the draft MP and EA to the public. This virtual meeting entails a similar online style of presentation as the virtual public scoping meeting to provide information resources that will summarize the MP. Public review and comment period on the draft MP and EA began on April 28, 2022, and ended on May 31, 2022.

At the close of the 30-day public review period, public comments received were incorporated and formally addressed in Appendix F of the MP. Attachment A includes the ads published in the local newspapers, the agency coordination letters, and the distribution list for the coordination letters. The EA was coordinated with agencies having legislative and administrative responsibilities for environmental protection.

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SECTION 8: REFERENCES

Council on Environmental Quality (CEQ). 2020. Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act

United States Army Corps of Engineers (USACE). 2022. Hugo Lake Master Plan, Kiamichi River Basin: Kiamichi Watershed, Choctaw and Pushmataha Counties, Oklahoma. USACE, Tulsa District.

USACE. 1988. *Engineering Regulation 200-2-2, Procedures for Implementing NEPA*. Washington, DC.

USACE. 1982. Water Control Manual for Hugo Lake, Kiamichi River, Oklahoma.

SECTION 9: ACRONYMS/ABBREVIATIONS

%	Percent
°	Degrees
ac-ft	acre-feet
AQCR	Air Quality Control Region
BMP	Best Management Practice
BP	Before Present
CAP	Climate Action Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	CO ₂ -equivalent
CRMP	Cultural Resources Management Plan
CWA	Clean Water Act
DSHS	Department of State Health Services (Texas)
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Ecological Mapping System (TPWD)
EO	Executive Order
EP	Engineer Pamphlet
ER	Engineer Regulation
ERS	Environmental Radiation Surveillance
ESA	Environmentally Sensitive Area
F	Fahrenheit
FAA	Federal Aviation Administration
FONSI	Finding of No Significant Impact
GHG	Greenhouse Gas
gpm	gallons per minute
HDR	High Density Recreation
HTRW	Hazardous, Toxic, Radioactive Wastes
IFR	Inactive/Future Recreation
IPAC	Information for Planning and Consultation (USFWS)
LDR	Low Density Recreation
MP	Master Plan
MRML	Multiple Resource Management Lands
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NO	Nitrogen Oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRRS	National Recreation Reservation Service
NWI	National Wetlands Inventory (USFWS)
ODWC	Oklahoma Department of Wildlife Conservation
O ₃	Ozone
OAQPS	Office of Air Quality Planning and Standards
Pb	Lead
PCB	Polychlorinated Biphenyls

PCPI	Per Capita Personal Incomes
PL	Public Law
PO	Project Operations
RM	River Mile
ROD	Record of Decision
RPEC	Regional Planning and Environmental Center
SGCN	Species of Greatest Conservation Need
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPWD	Texas Parks and Wildlife Department
U.S.	United States
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Group
VOC	Volatile Organic Compounds
WHAP	Wildlife Habitat Appraisal Procedures
WM	Wildlife Management
VM	Vegetation Management
ZOI	Zone of Interest

SECTION 10: LIST OF PREPARERS

Paul E. Roberts - Biologist, Regional Planning and Environmental Center, Fort Worth District- 7 years of USACE experience.

ATTACHMENT A: NEPA COORDINATION AND PUBLIC SCOPING



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
2488 EAST 81ST STREET
TULSA, OKLAHOMA 74137-4290

May 20, 2021

Public Notice

**Hugo Lake Master Plan Revision
Hugo Lake
Kiamichi Watershed, Choctaw and Pushmataha Counties, Oklahoma**

The Tulsa District, U.S. Army Corps of Engineers (USACE), hereby informs the public of the initiation of the process to revise the current Hugo Lake Master Plan. The public is invited to view information found at the following website:

<https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>

Beginning on **May 26, 2021**, the USACE-hosted website will contain a brief presentation describing the revision process, a copy of the current master plan, a map of the current land use classifications, and instructions for submitting comments to USACE. The public involvement process will be conducted online in lieu of face-to-face workshops until the COVID-19 virus pandemic subsides. All members of the public are encouraged to submit written comments and suggestions during a 30-day public comment period from **May 26 – June 26, 2021**.

The USACE defines the master plan as the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource development project. The master plan is a vital tool produced and used by USACE to guide the responsible stewardship of USACE-administered lands and resources for the benefit of present and future generations. Public participation is critical to the successful revision of the master plan.

The current master plan for Hugo Lake, completed in 1973 and last supplemented in 1989, is in need of revision to address changes in regional land use, population, outdoor recreation trends, and USACE management policy. Key topics to be addressed in the master plan revision process include revised land classifications, revised natural, cultural, and recreational resource management objectives, recreation facility needs, and special topics such as invasive species management and threatened and endangered species habitat.

Questions, comments, and suggestions on the proposed revision can be emailed to CESWT-OD-RHSWT@usace.army.mil, or mailed to Shae Harrison: Lake Manager, U.S. Army Corps of Engineers, P.O. Box 99, Sawyer, OK 74756.

Sincerely,

Amanda McGuire

Amanda M. McGuire
Chief, Environmental Branch
Regional Planning and Environmental Center

 Search DVIDS...



Hugo Lake Master Plan public comment period begins




Photo By Edward Johnson | The Hugo Lake Project Office is... [read more](#)

HUGO, OK, UNITED STATES

05.25.2021

Story by Brannen Parrish 

U.S. Army Corps of Engineers, Tulsa District  

 **Subscribe** 10

The Hugo Lake Project Office will accept written public comments from May 26 to June 26 to revise and update the Hugo Lake Master Plan.

Public comments for the master plan revision must be submitted in writing to be included for consideration.

Submit written comments by post or email to:

Shae Harrison
Lake Manager
Hugo Lake Project Office
P.O. Box 99
Sawyer, OK 74756

Email comments to CESWT-OD-RHSWT@usace.army.mil

A video presentation describing the revision process will substitute in-person public meetings or workshops due to the COVID-19 pandemic. The video presentation along with additional explanatory information and forms are available on the Tulsa District website at <https://www.swt.usace.army.mil/Missions/Recreation>

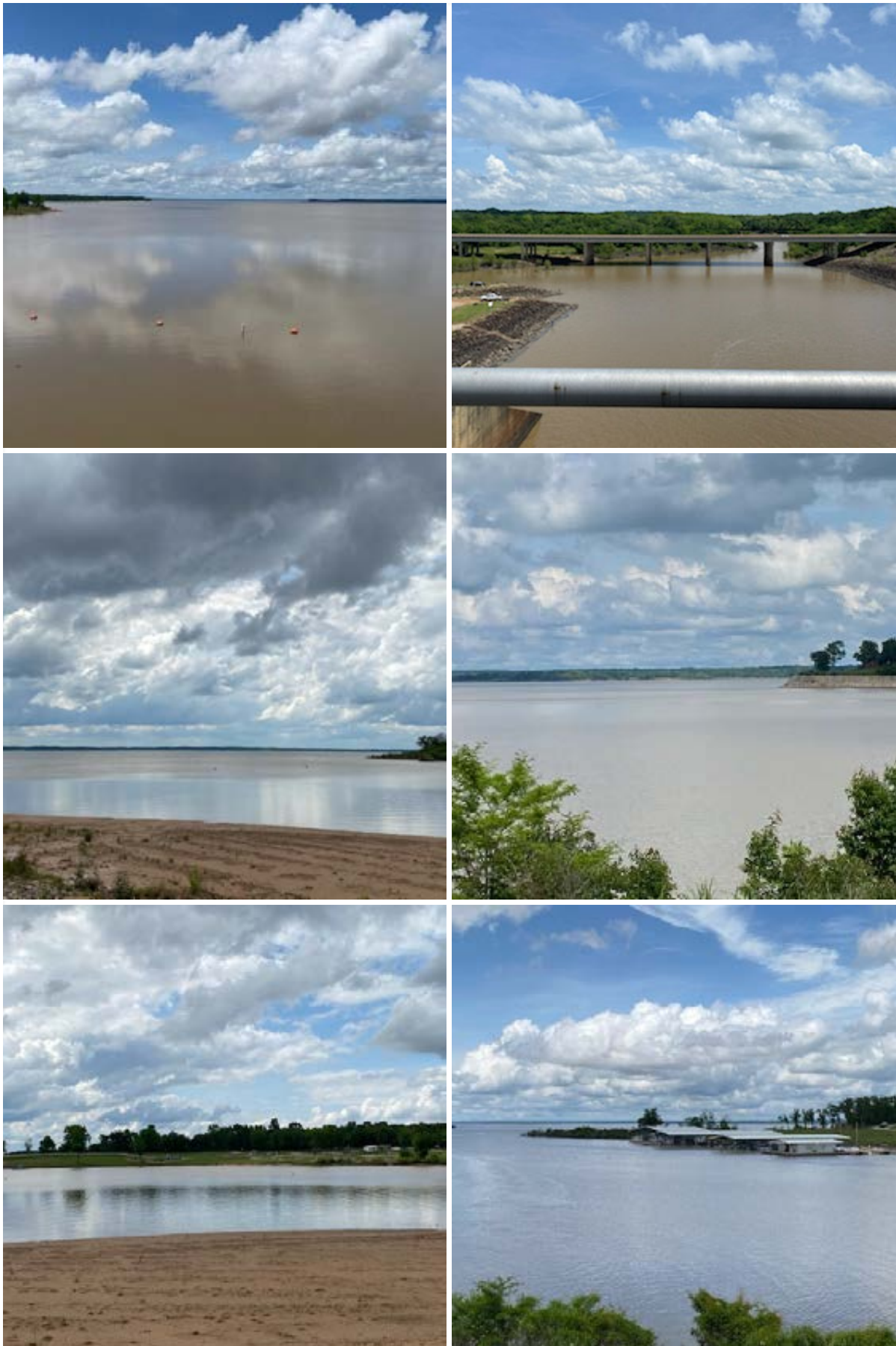


Hugo Lake Master Plan Revision

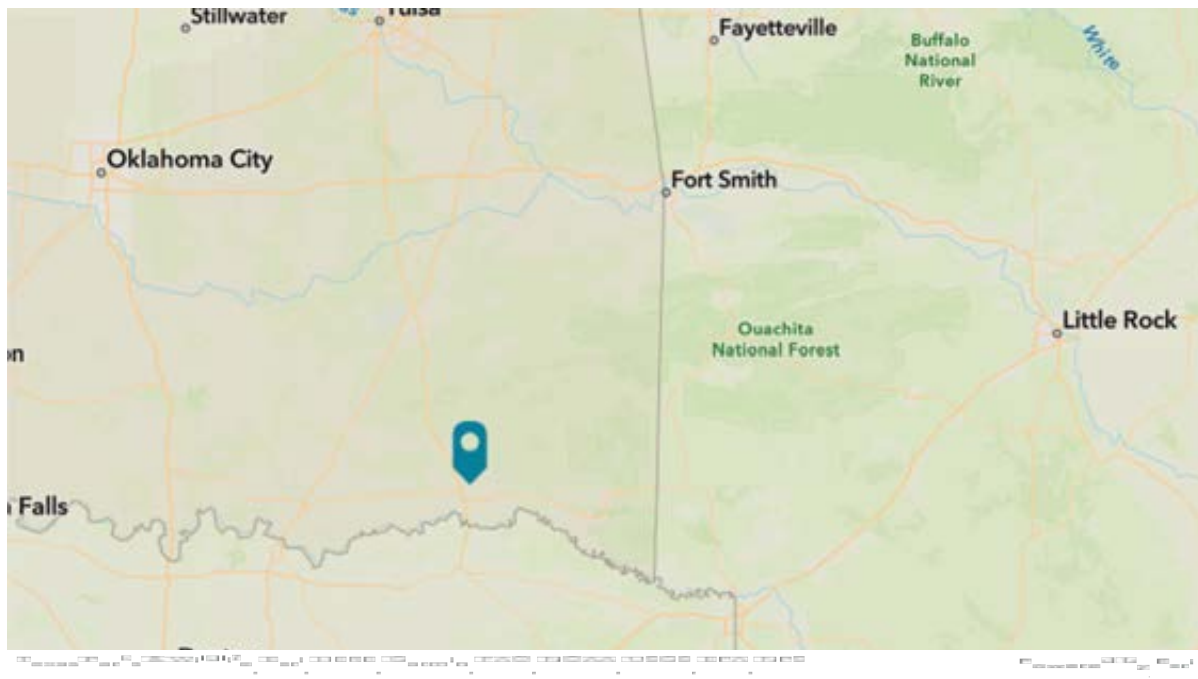
Hugo Lake Master Plan Revision

Public Involvement Presentation

U.S. Army Corps of Engineers Tulsa District Hugo Lake 26 May 2021



Public Photos of Hugo Lake



Introduction

Hugo Lake Master Plan Revision



**US Army Corps
of Engineers®**
Tulsa District



Purpose of Presentation

- **Inform** the public and stakeholders that a master plan revision has started

- **Define** a master plan
- **Describe** the master plan **revision process**
- **Provide instructions** on how to participate in the revision process
- **Encourage** participation
- **Provide links** to documents



Presentation Topics



What is a master plan?

- The master plan is a **25 year comprehensive land use management guide** for recreational, natural, and cultural resources
- **Adheres to federal laws** to preserve, conserve, restore, maintain, manage, and develop project lands, waters, and associated resources, including the National Environmental Policy Act (NEPA) for environmental stewardship and outdoor recreation
- Provides **land classifications** and **resource management objectives** that are broad and adaptive over time
- Requires and encourages **public involvement**



Why do a revision?

- The current master plan is **out of date** and is **no longer compliant** with new regulations
- **Substantial changes** in environmental, cultural, social, and recreational **conditions have occurred** since the current master plan was approved
- **Re-examine land classification** due to these substantial changes

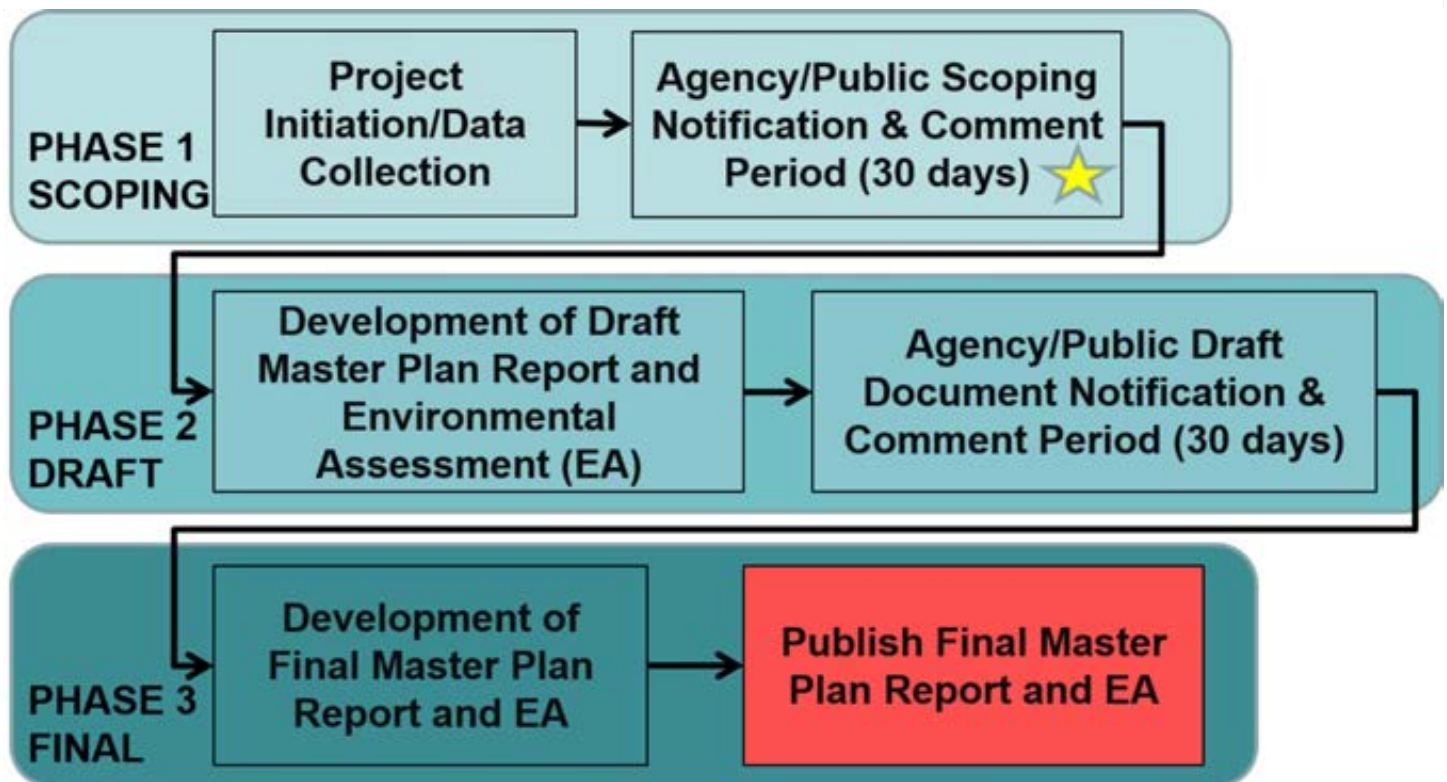
- The master plan **provides long-term goals** and **consistent management objectives** to guide balanced management of resources and public recreation



**What is the
revision
process?**

The process is a cover-to-cover **review and revision of the entire plan** and is accomplished by:

- **A team of Corps employees** including Operations, Real Estate, Master Planning, and Environmental Compliance subject matter experts
- **Receive input from** and **collaboration with** partners, neighbors, stakeholders, elected officials, resource agencies, and the public
- A thorough review and update of **land classifications**
- Developing appropriate **NEPA compliance** documents



What is the revision process?



Where we are today

Land Classification	Definition
Project Operations	Lands required for the dam, spillway, levees, office, maintenance facilities and other areas that are used solely for project operations.
High Density Recreation	Land developed for intensive recreational activities for the visiting public, including day use areas and campgrounds also areas for commercial concessions, and quasi-public development.
Multiple Resource Management Lands	Recreation - Low Density: Lands with minimal development or infrastructure that support passive public recreational use (e.g. trails, primitive camping, wildlife observation, fishing and hunting)
	Wildlife Management: Lands designated for the stewardship of fish and wildlife resources.
	Vegetative Management: Lands designated for the stewardship of forest, prairie, and other native vegetative cover.
	Inactive and/or Future Recreation Areas: Recreation areas planned for the future or that have been temporarily closed.
Environmentally Sensitive Areas	Areas where scientific, ecological, cultural or aesthetic features have been identified. These areas must be considered by management to ensure they are not adversely impacted.

Land Classifications

Source: Engineering Pamphlet or EP 1130-2-550





National Environmental Policy Act

Purpose of NEPA is to:

- Ensure federal agencies give proper **consideration to the environment** prior to undertaking federal action
- **Involve the public** (scoping) in the decision-making process
- **Document the process** by which agencies make informed decisions

NEPA Scoping Process

- Opportunity for **public comments and questions** on the potential impacts of proposed federal actions
- Includes comments from other federal, state, and local governments, and Tribal nations



**What is NOT
part of a
master plan?**

Facility design details

Details of daily project administration

Technical aspects of:

- Water management for **flood risk management**

- Regional **water quality**
- **Water supply**
- **Shoreline management**
- **Water level management**
- **Hydropower**
- **Navigation**



**What is
changing in
the plan?**

At this point in the process there are no proposed changes

The Corps is requesting written comments for RECOMMENDED changes to the master plan



**How can I
participate?**

Submit Written Comments

Review all documents available on the USACE website

Tulsa District Recreation - Master Plans

The Tulsa District, US Army Corps of Engineers (USACE) is hosting an online review to provide information and receive public input...

<https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>

Documents available for review on the website include:

- Master plan documents
- Project maps
- Comment form
- Presentation

Spread the word by telling your colleagues, friends, and neighbors to participate

Comments will be accepted **only in writing, some of the methods for submitting a comment include:**

- You may **download the comment form** provided on the website, fill it out electronically, and email it to the Corps using the submit button on the comment form
- Or you may **print the comment form** provided on the website, fill it out by hand, and mail it in to the Corps at the address on the comment form
- Or you may **write a comment or send an email** using the comment form, and mail or email it to the Corps at the address provided on the website

- Comments are due by close of business on the following date of **June 26, 2021**



**Who can I
talk to about
the plan?**

**Questions about the master plan can be addressed
by:**

Hugo Lake Office at:

Shae Harrison, Lake Manager

U.S. Army Corps of Engineers

P. O. Box 99

Sawyer, OK 74756

OR

Emailing the Corps at:

CESWT-OD-RHSWT@usace.army.mil

Milestones	Schedule
Public Notification for Scoping	26 May 2021
Public Comment Period (30 days)	26 May - 26 June 2021
Draft Master Plan/EA Public Notification	May 2022
Public Comment Period (30 days)	May 2022 - June 2022
Final Master Plan/EA Approved	Nov 2022

When will the master plan be done?

Project Schedule

The master plan will take 18 - 24 months to complete



Thank you for viewing this presentation and participating in the master plan revision process at Hugo Lake

Website Address:

Tulsa District Recreation - Master Plans

The Tulsa District, US Army Corps of Engineers (USACE) is hosting an online review to provide information and receive public input...

<https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>

Send comments to:

Email:

CESWT-OD-RHSWT@usace.army.mil

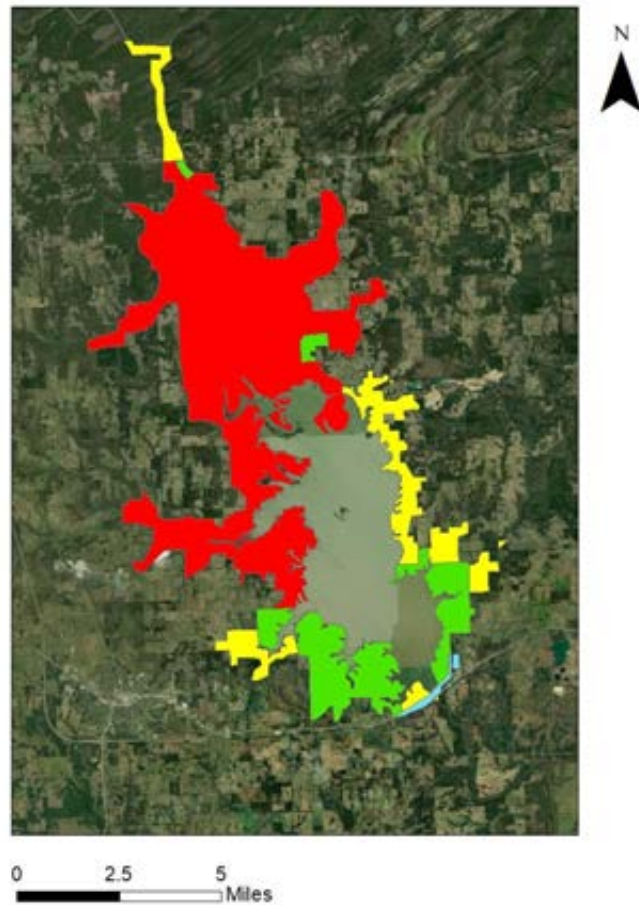
USACE Office Address:

Shae Harrison, Lake Manager

U.S. Army Corps of Engineers

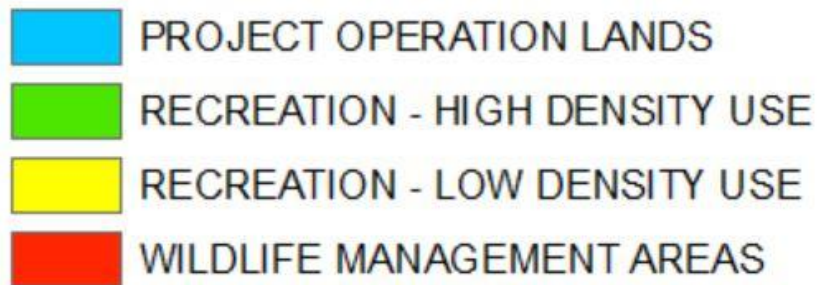
P.O. Box 99

Sawyer, OK 74756



Hugo Lake Land Use Classes

Hugo Lake Existing Conditions Land Use



[CESWT-OD-
RHSWT@usace.army.mil](mailto:CESWT-OD-RHSWT@usace.army.mil)

Shae Harrison, Lake Manager



**US Army Corps
of Engineers®**

Comment Form Instructions

Hugo Lake Master Plan Revision

Comment Period Ends 26 Jun 2021

The U.S. Army Corps of Engineers is in the process of revising the Hugo Lake Master Plan. The master plan revision will guide the land and recreational management of the federally owned property that make up the lake and its shoreline for the next 25 years. Management activities include protecting natural and cultural resources, providing public land and water recreation, protecting the public, and ensuring reservoir and dam operations. A brief presentation describing the master planning process and a copy of the current land use map and master plan can be found on the USACE website below.

To add your comments, ideas, or concerns about the future land and recreational management for Hugo Lake, please submit comments using any of the following methods:

- fill out and return a comment form available below or at:
<https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>
- Provide comments in an email message or use comment form and send to: CESWT-OD-RHSWT@usace.army.mil
- provide comments in a letter or use comment form and mail to:

U.S. Army Corps of Engineers
Lake Manager, Hugo Lake Project Office
P.O. Box 99
Sawyer, Ok 74756
580-326-3345
Email: CESWT-OD-RHSWT@usace.army.mil

Thank you for your participation in helping develop the Master Plan for Hugo Lake.



Comments Due By 26 June 2021

Additional information and comment sheets can be found at the following:
<https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>

facebook



Tulsa District, U.S. Army Corps of Engineers is on Facebook. To connect with Tulsa District, U.S. Army Corps of Engineers, log into Facebook.

Log In

or

Join



Tulsa District, U.S. Army Corps of Engineers

<https://www.dvidshub.net/news/397331/hugo-lake-master-plan-public-comment-period-begins>

The Hugo Lake Project Office will accept written public comments from May 26 to June 26 to revise and update the Hugo Lake Master Plan.

Public comments for the master plan revision must be submitted in writing to be included for consideration.

Submit written comments by post or email to:

Shae Harrison
Lake Manager
Hugo Lake Project Office
P.O. Box 99
Sawyer, OK 74756

Email comments to CESWT-OD-RHSWT@usace.army.mil

A video presentation describing the revision process will substitute in-person public meetings or workshops due to the COVID-19 pandemic. The video presentation along with additional explanatory information and forms are available on the Tulsa District website at <https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>

Master plans outline the guiding strategy U.S. Army Corps of Engineers project offices will implement to manage and develop the recreational, natural, and cultural resources under their charge.

The master plan revision will address changes in regional land use, population, outdoor recreation trends, and USACE management policy. The current Hugo Lake Master Plan was implemented in 1973 and was supplemented in 1982.

The updated master plan will address land classifications, natural, cultural and recreational resource management objectives, recreation facility needs, and habitat for threatened and endangered species.

Questions pertaining to the proposed revision can be addressed to Shae Harrison, Lake Manager, USACE, CESWT-OD-RHSWT@usace.army.mil, 580-326-3345.

Mobile uploads · May 26, 2021 ·



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
2488 EAST 81ST STREET
TULSA, OKLAHOMA 74137-4290

April 14, 2022

Public Notice
Draft Hugo Lake Master Plan 2022 and Environmental Assessment
Hugo Lake, Arkansas River Basin
Choctaw and Pushmataha Counties, Oklahoma

The U.S. Army Corps of Engineers (USACE), Tulsa District, hereby informs the public that the Draft Hugo Lake Master Plan (MP) 2022, Finding of No Significant Impact (FONSI), and Environmental Assessment (EA) are available for public review. The MP is a vital tool produced and used by the USACE to guide the responsible stewardship of the USACE-administered lands and resources for the benefit of present and future generations. The MP provides direction for appropriate management, use, development, enhancement, protection, and conservation of the natural, cultural, and manmade resources at Hugo Lake. The MP presents an inventory and analysis of land resources, resource management objectives, land use classifications, resource use plan for each land use classification, current and projected park facility needs, an analysis of existing and anticipated resource use, and anticipated influences on overall project operation and management.

The current MP for Hugo Lake was implemented in 1971, and many changes have occurred in policy since that time. This revision is intended to update the MP and ensure environmental protection and public access to public lands at Hugo Lake. **Public participation is critical to the successful revision of the Plan.**

In lieu of a face-to-face public meeting due to the COVID-19 Pandemic, the USACE will provide a virtual presentation that gives an overview of the proposed changes to the current Hugo Lake MP and instructions on submitting comments. The presentation will be available during the 30-day public comment period that starts on April 28, 2022, and ends on May 31, 2022. The draft Plan, FONSI, EA, and comment instructions will be available for download starting April 28, 2022, at the following Tulsa District website:

<https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>

Comments, suggestions, and questions on the MP revision can be emailed to CESWT-OD-RHSWT@usace.army.mil or mailed to Shae Harrison: Hugo Lake Manager, P.O. Box 99, Sawyer, Oklahoma, 74756.

Sincerely,

A handwritten signature in cursive script that reads "Jeffrey Pinsky".

Jeffrey F. Pinsky
Chief, Environmental Branch
Regional Planning and Environmental Center



US Army Corps of Engineers Tulsa District Website

[Home](#) / [Missions](#) / [Recreation](#) / Master Plans

HOT INFO The following Master Plans are currently under review. The Broken Bow and Pine Creek Master Plan's are in preparation for [...more](#)

Online Review of Master Plans

The Tulsa District, US Army Corps of Engineers (USACE) is hosting an online review to provide information and receive public input to begin the process of revising the Master Plan for Council Grove, El Dorado, Elk City, & Marion Reservoirs. Normally, USACE would conduct a face-to-face public workshop to announce the start of the revision and to request comments from the public. However, precautions associated with the COVID-19 virus have made it necessary to conduct the public involvement process online instead of hosting a face-to-face workshop. Please watch the following video presentations or download the PDF copy to read the presentation. The PDF copy and video presentation provide the same information.

Please note, Oologah's Master Plan update is also in process and listed below. The public meeting was previously held on February 27 and supporting documents can be found below.

Master Plans

What is a Master Plan?

The Master Plan is the strategic land use management document that guides the comprehensive management and development of all project recreational, natural, and cultural resources throughout the life of the water resources project. Revision of the Master Plan will not address in detail the technical operational aspects of the reservoir related to the water supply or flood risk management missions of the project.

What a Master Plan is not.

The Master Plan does not entail facility designs, daily project administration details or any technical discussion regarding flood risk management, water quality, water supply, shoreline management, water level management, hydropower or navigation. Many of these topics are covered in the many other Operational Plans each lake develops separately from the master plan.

Why Revise a Master Plan?

Most Master Plans at Tulsa lakes are the original document when the lake was built. Over the span of 40+ years, many changes have taken place including major utility and highway construction, urbanization, and evolving recreational uses. The Plan and the land classifications are in need of revision to address changes in regional land use, population, outdoor recreation trends, and USACE management policy. Key topics to be addressed in the revised Master Plan include revised land classifications, new natural and recreational resource management objectives, recreation facility needs, and special topics such as invasive species management and protection of sensitive wildlife habitat. Public participation is critical to the successful revision of the Master Plan.

[The Master Planning Process](#)

Master Plans Policy & Procedures

This link will take you to the established guidance, procedures and policies for the management of recreation programs and activities, and for the operation and maintenance of U.S Army Corps of Engineers recreation facilities and related structures, at civil work water resource projects.

[Plans & OMP's](#)

Hugo Lake, Kiamichi River, Oklahoma

Design Memorandum No. 3B

[Public Use Plan](#) 16.5MB [Operational Appendices](#) 29.75MB

[Land Classification Map](#) with imagery

[Land Classification Map](#) street view

[News Release](#)

[Comment Form & Instructions](#) Comment period ended 26 June 2021

**US Army Corps of Engineers** Tulsa District Website<https://storymaps.arcgis.com/stories/e0117ad009304d04a9001c9119009e19>

April 27, 2022

[News Release](#)[Hugo Lake Draft Master Plan](#) (22.4 MB)[Comment Form and Instructions](#) (1.57 MB)

Presentation - If the following does not open properly please copy and paste the following url into a browser as instructed above.

<https://usace-swf.maps.arcgis.com/home/item.html?id=865c58adef634fa0820ebf446082416e>[Hugo Lake Home Page](#)**Sardis Lake, Jackfork Creek, Oklahoma**

March 10, 2022

[Sardis Lake DM No. 20](#) (10.3MB)[Land Classification Map](#) with imagery[Land Classification Map](#) street view[News Release](#)[Sardis Lake Master Plan Scoping Public Notice](#)[Comment Form and Instructions](#) Comment period ended April 23, 2022[Presentation](#)[Sardis Lake Home Page](#)**Broken Bow Lake, Mountain Fork River, Oklahoma**[Design Memorandum No. 4B Master Plan](#) (37 MB)[Design Memorandum No. 4B Exhibits and Drawings](#) (20 MB)[Design Memorandum No. 4B Appendix A](#) (25.7 MB)[Land Classification Map](#) street view[Land Classification Map](#) with imagery (2.36 MB)[Comment Form and Instructions](#) Comment Period May 23, 2022 through June 23, 2022[Presentation](#) (2.05 MB)[News Release](#)[Public Notice](#)[Broken Bow Lake Homepage](#)**Pine Creek Lake, Little River, Oklahoma**[Design Memorandum No. 5B Master Plan](#) (18.1 MB)[Design Memorandum No. 5B Appendix A - F](#) (16.7 MB)[News Release](#)



US Army Corps of Engineers Tulsa District Website

Deliver vital engineering solutions, in collaboration with our partners, to secure our Nation, energize our economy, and reduce disaster risk.

About the Tulsa District Website

This is the official public website of the Tulsa District, U.S. Army Corps of Engineers. For website corrections, write to ceswt-pa@swt03.usace.army.mil



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Hosted by Defense Media Activity - WEB.mil



Corps seeks public comment for draft Hugo Lake Master Plan revision



Photo By Edward Johnson | The U.S. Army Corps of Engineers... [read more](#)

OK, UNITED STATES

04.27.2022

Story by Sara Goodeyon 📷

U.S. Army Corps of Engineers, Tulsa District 🔍 📷

 **Subscribe** 10

TULSA, Okla. – The U.S. Army Corps of Engineers Tulsa District will release the draft of the Hugo Lake Master Plan revision and Environmental Assessment April 28, 2022, beginning a 30-day public review and comment period.

Information related to the Master Plan, Environmental Assessment, public comment forms, and presentation are available on the Tulsa District Website.

Key topics to be addressed in the revised Master Plan include revised land classifications, new natural and recreational resource management objectives, recreation facility needs, and special topics such as public hunting. Revision of the Master Plan does not address in detail the technical operational aspects of the reservoir related to the water supply, flood risk management, or shoreline management permitting mission of the project.

The Master Plan is the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource project. The Master Plan study area includes Hugo Lake and all adjacent recreational and natural resource properties under U.S. Army Corps of Engineers administration. The revision is needed to address changes in regional land use, population, outdoor recreation trends, and federal laws and regulations related to public land management.

The revised Master Plan and Environmental Assessment were prepared in accordance with U.S. Army Corps of Engineers Regulation 1130-2-550, Project Operations – Recreation Operations and Maintenance



**US Army Corps
of Engineers®**

Comment Form Instructions

Hugo Lake Master Plan Revision

Comment Period Ends May 31, 2022

The U.S. Army Corps of Engineers has drafted a revision to the Hugo Lake Master Plan in accordance with current laws and regulations, public stakeholder comments, and expert advice. The master plan revision will guide the land and recreational management of the federally owned property that make up the lake and its shoreline for the next 25 years. Management activities include protecting natural and cultural resources, providing public land and water recreation, protecting the public, and ensuring reservoir and dam operations. Pertinent information and a copy of the current land use map can be found on the USACE website below.

To add your comments, ideas, or concerns about the future land and recreational management for Hugo Lake, please submit comments using any of the following methods:

- Fill out and return a comment form available below or at:
<https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>
- Provide comments in an email message or use comment form and send to:
EMAIL: CESWT-OD-RHSWT@usace.army.mil
- Provide comments in a letter or use comment form and mail to:

U.S. Army Corps of Engineers
Lake Manager, Hugo Lake Project Office
P.O. Box 99
Sawyer, OK 74756
Phone: 918-443-2250
EMAIL: CESWT-OD-RHSWT@usace.army.mil



Thank you for your participation in helping develop the Master Plan for Hugo Lake.



Comment Form
Hugo Lake, Oklahoma
Master Plan Revision

Questions, comments, or suggestions?

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins or other markings on the paper.

Optional Information (used for mailing list to keep you informed and will not be used for any other purpose):

Name: _____ Affiliation: _____

Address: _____ City: _____ State: _____

Zip code: Phone: Email:

Mail or email comment sheet to the following Point of Contact:

U.S. Army Corps of Engineers
Shae Harrison - Lake Manager, Hugo Lake
P.O. Box 99, Sawyer, OK 74756
Email: CESWT-OD-RHSWT@usace.army.mil

Additional information and comment sheets can be found at the following:
<https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>



Hugo Lake Master Plan

Draft Master Plan Report - Public Comment Period
Announcement

U.S. Army Corps of Engineers, Tulsa District





Introduction

Welcome to the website announcing the public comment period for the draft Master Plan Report at Hugo Lake, Oklahoma. The U.S. Army Corps of Engineers (USACE) has been working to revise the Hugo Lake Master Plan and have a draft document available for public review and comment.

The purpose of this website is to publicly announce the availability of the draft Master Plan and Environmental Assessment and highlight the process to submit comments.

In order to fully review and comment on the draft report it is important to read the 2022 Draft Hugo Lake Master Plan and the related appendices which are available for download. All of the documents you will need for the review are posted on the USACE Tulsa District website at the link provided later in this presentation. Thank you for taking the time to view the webpage and review the master plan.

The Master Plan is the strategic land use management document that guides the comprehensive management and development of all project recreational, natural, and cultural resources throughout the life of the USACE project. The Master Plan guides efficient and cost-effective management, development, and use of project lands. It is a vital tool for the responsible stewardship and sustainability of project resources for the benefit of present and future generations. The Master Plan guides and articulates the USACE's responsibilities pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands, waters, and associated resources.



Process Followed to Date

- The processes completed to date included the following activities:
 - Initial public involvement presentation became available on 26 May 2021.
 - During the 30 day public comment period, a total of 2 comments were received they were considered in preparing the draft revised Master Plan.
 - Habitat assessments were conducted by USACE using Wildlife Habitat Appraisal Procedure (WHAP) protocol with the results included in the Mater Plan Appendix.
 - A draft Environmental Assessment (EA) was prepared and is available along with the Master Plan document.



What is a Master Plan?

- The master plan is a **25 year comprehensive land use management guide** for recreational, natural, and cultural resource.
- **Adheres to Federal Laws** to preserve, conserve, restore, maintain, manage, and develop project land, waters, and associated resources, including the National Environmental Policy Act (NEPA) for environmental stewardship and outdoor recreation.
- Provides **land and water surface classifications** that support **resource management objectives** that are broad and adaptive over time.
- Requires and encourages **public involvement**.



What Master Plans Are Not



- Master plans **do not address** the technical aspects of:
 - Water management for **flood risk management**
 - Regional **water quality**
 - **Water supply**
 - **Shoreline management**
 - **Water level management**
 - **Navigation**
- **Facility design** details
- Details of daily **project administration**

Principle Changes in Revised Master Plan

- Establishment of new land and water surface classifications where approximately 27,048 land acres and 38,438 water surface acres at Hugo Lake were designated to the new classifications.
- Management Areas with Development Recommendations were designated.

Plan. The plan is published after formal approval by the Tulsa District Commander.



How to Participate

You can participate in the process by reviewing the documents available on the project website and submit written comments. The USACE will **only accept comments in written format**. The project website (link below) is hosting all the documents relevant to the Regional Master Plan revision, including the draft Master Plan document, project maps, and comment forms with instructions on how to submit a comment.

Comments are Due on: 31 May, 2022

Send Comments to...

Email: CESWT-OD-RHSWT@usace.army.mil

Or

Mail:

U.S Army Corps of Engineers
Shae Harrison, Lake Manager

P.O. Box 99
Sawyer, OK 74756

Website Link

Tulsa District Recreation - Master Plans

The Tulsa District, US Army Corps of Engineers (USACE) is hosting an online review to provide information and receive public input...

<https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>

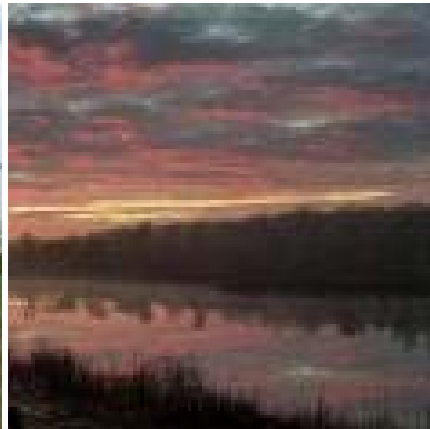
If you have Questions...

Questions regarding the Regional Master Plan can be addressed by contacting the Hugo Project Office at the email address:

CESWT-OD-RHSWT@usace.army.mil

Or by calling (276) 835-9544

Thank you for viewing this presentation and participating in the Master Plan revision process at Hugo Lake.



Contact Information

CESWT-OD-RHSWT@usace.army.mil

Hugo Lake Project Office

U.S. Army Corps of Engineers
P.O. Box 99
Sawyer, OK 74756

https://www.poteaudailynews.com/theantlersamerican/news/public-notice-draft-hugo-lake-master-plan-2022-and-environmental-assessment---hugo-lake/article_4224eb50-c590-11ec-b2c2-af5aa4f8ea38.html

Public Notice: Draft Hugo Lake Master Plan 2022 and Environmental Assessment - Hugo Lake, Arkansas River Basin, Choctaw and Pushmataha Counties, Oklahoma

Apr 26, 2022



The U.S. Army Corps of Engineers (USACE), Tulsa District, hereby informs the public that the Draft Hugo Lake Master Plan (MP) 2022, Finding of No Significant Impact (FONSI), and Environmental Assessment (EA) are available for public review. The MP is a vital tool produced and used by the USACE to guide the responsible stewardship of the USACE-

administered lands and resources for the benefit of present and future generations. The MP provides direction for appropriate management, use, development, enhancement, protection, and conservation of the natural, cultural, and manmade resources at Hugo Lake. The MP presents an inventory and analysis of land resources, resource management objectives, land use classifications, resource use plan for each land use classification, current and projected park facility needs, an analysis of existing and anticipated resource use, and anticipated influences on overall project operation and management.

The current MP for Hugo Lake was implemented in 1971, and many changes have occurred in policy since that time. This revision is intended to update the MP and ensure environmental protection and public access to public lands at Hugo Lake. Public participation is critical to the successful revision of the Plan.

In lieu of a face-to-face public meeting due to the COVID-19 Pandemic, the USACE will provide a virtual presentation that gives an overview of the proposed changes to the current Hugo Lake MP and instructions on submitting comments. The presentation will be available during the 30-day public comment period that starts on April 28, 2022, and ends on May 31, 2022. The draft Plan, FONSI, EA, and comment instructions will be available for download starting April 28, 2022, at the following Tulsa District website:

<https://www.swt.usace.army.mil/Missions/Recreation/Master-Plans/>

Comments, suggestions, and questions on the MP revision can be emailed to CESWT-OD-RHSWT@usace.army.mil or mailed to Shae Harrison: Hugo Lake Manager, P.O. Box 99, Sawyer, Oklahoma, 74756.

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APPENDIX C – WILDLIFE DOCUMENTS

IPaC Report – USFWS

SGCN List – ODWC

Rare Species Listing – ODWC

WHAP Report – USACE



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oklahoma Ecological Services Field Office
9014 East 21st Street
Tulsa, OK 74129-1428
Phone: (918) 581-7458 Fax: (918) 581-7467



In Reply Refer To:
Project Code: 2022-0000862
Project Name: Hugo Lake

June 29, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Oklahoma Ecological Services Field Office

9014 East 21st Street

Tulsa, OK 74129-1428

(918) 581-7458

Project Summary

Project Code: 2022-0000862

Event Code: None

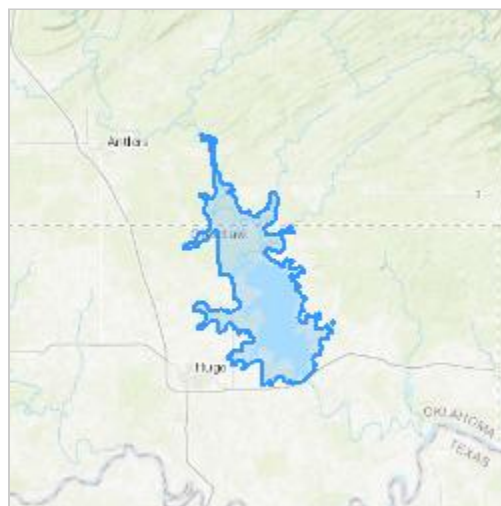
Project Name: Hugo Lake

Project Type: Land Management Plans - NWR

Project Description: The Hugo Master Plan (Choctaw and Pushmataha Counties, Oklahoma) is the long-term strategic land use management document that guides the comprehensive management and development of all the project's recreational, natural, and cultural resources within the federal fee boundary. Under the guidance of ER-1130-2-550 Change 7, the Plan guides the efficient and cost-effective development, management, and use of project lands. It is a dynamic tool that provides for the responsible stewardship and sustainability of the project's resources for the benefit of present and future generations. The Plan works in tandem with the Operational Management Plan (OMP), which is the implementation tool for the resource objectives and development needs identified in the Master Plan. The Master Plan guides and articulates the USACE responsibilities pursuant to federal laws. Efforts are under way to revise the current Lake Master Plan. The Master Plan revision will update land classifications, plan for the modernization of existing parks, and inform the management of wildlife and other resource lands within USACE managed property at Hugo Reservoir for the next 25 years.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@34.121898349999995,-95.4534734367356,14z>



Counties: Choctaw and Pushmataha counties, Oklahoma

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot <i>Calidris canutus rufa</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Red-cockaded Woodpecker <i>Picoides borealis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7614	Endangered

Clams

NAME	STATUS
Ouachita Rock Pocketbook <i>Arcidens wheeleri</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4509	Endangered
Scaleshell Mussel <i>Leptodea leptodon</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5881	Endangered
Winged Mapleleaf <i>Quadrula fragosa</i> Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4127	Endangered

Insects

NAME	STATUS
American Burying Beetle <i>Nicrophorus americanus</i> Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/66	Threatened
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover <i>Pluvialis dominica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
American Kestrel <i>Falco sparverius paulus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31

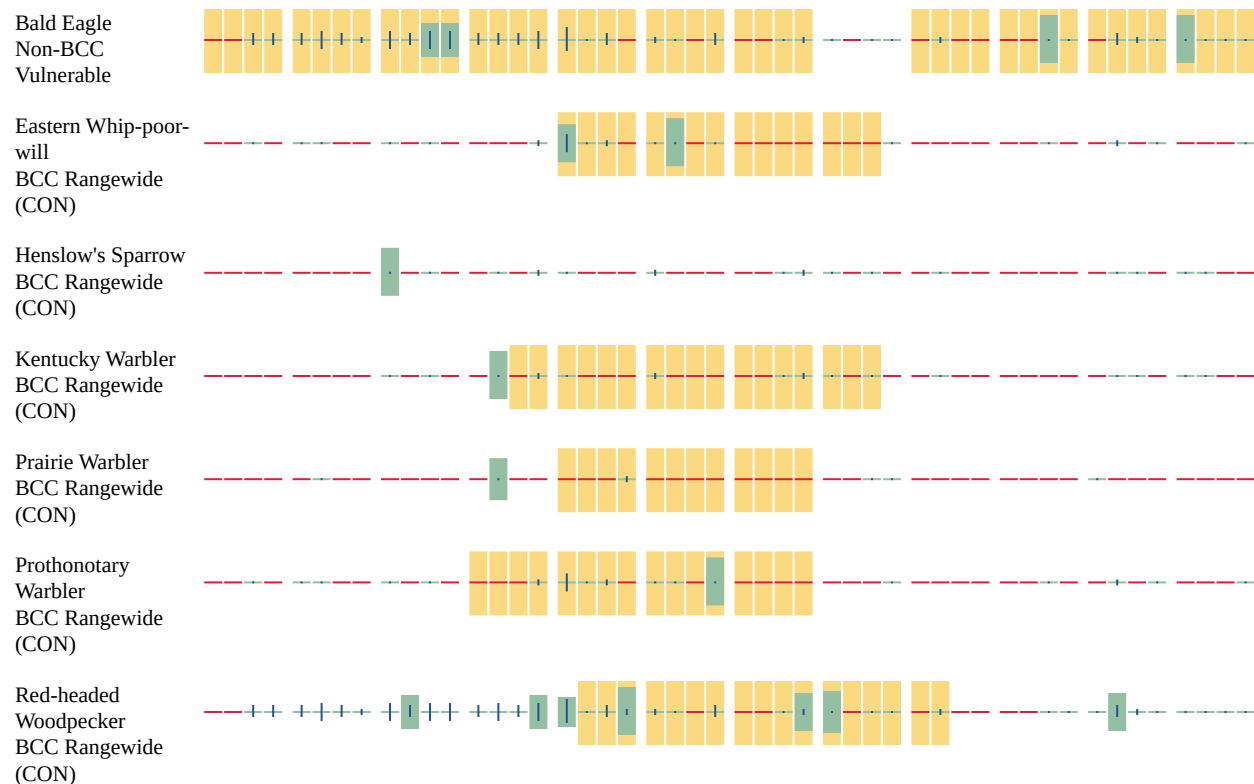
NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Henslow's Sparrow <i>Ammodramus henslowii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds elsewhere
Kentucky Warbler <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Prairie Warbler <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.



Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
 2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
 3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles)
-

potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

Due to your project's size, the list below may be incomplete, or the acreages reported may be inaccurate. For a full list, please contact the local U.S. Fish and Wildlife office or visit <https://www.fws.gov/wetlands/data/mapper.HTML>

FRESHWATER FORESTED/SHRUB WETLAND

- [PFO1Ch](#)
 - [PFO1/SS1C](#)
 - [PFO5Hh](#)
 - [PSS1/EM1Fh](#)
 - [PFO1/SS1F](#)
 - [PFO1F](#)
 - [PFO1C](#)
 - [PFO5/EM1Fh](#)
 - [PSS1/EM1Ch](#)
 - [PFO1/EM5Fh](#)
 - [PFO1/EM1A](#)
 - [PFO1/EM1C](#)
 - [PFO1/SS1Ch](#)
 - [PSS1C](#)
 - [PSS1Ch](#)
 - [PSS1/EM1F](#)
 - [PSS1/EM1C](#)
 - [PFO1A](#)
 - [PSS1Fh](#)
 - [PSS1/EM1A](#)
 - [PSS1A](#)
 - [PFO5F](#)
 - [PFO1/SS1A](#)
-

- [PFO5Fh](#)
- [PFO1/EM1Ch](#)
- [PFO5Hx](#)
- [PSS1F](#)

RIVERINE

- [R2USC](#)
- [R4SBC](#)
- [R2UBH](#)
- [R5UBF](#)

LAKE

- [L1UBHh](#)
- [L2USCh](#)
- [L1UBHx](#)

FRESHWATER POND

- [PUBHx](#)
- [PUBFx](#)
- [PUBH](#)
- [PUBHh](#)
- [PABF](#)
- [PABH](#)
- [PUBF](#)

FRESHWATER EMERGENT WETLAND

- [PEM5F](#)
 - [PEM1F](#)
 - [PEM1C](#)
 - [PEM1A](#)
 - [PEM1Fx](#)
 - [PEM1Ch](#)
 - [PEM1Fh](#)
-

IPaC User Contact Information

Agency: Department of Defense
Name: Paul Roberts
Address: 819 Taylor st RM 3A12
City: Fort Worth
State: TX
Zip: 76102-0300
Email: paul.e.roberts@usace.army.mil
Phone: 8178861880

Very High Priority Conservation Landscape: Small River



Figures OM2. and OM3. Upper Mountain Fork River (left), Lower Little River (right) both McCurtain Co.

Five small rivers are found in the region of the Ouachita Mountains, West Gulf Coastal Plain (WGCP) and Arkansas Valley. Each river originates in the Ouachita Mountains then flows either north into the Arkansas River (Poteau River) or south to eventually enter the Red River (Kiamichi, Little, Glover, and Mountain Fork rivers). The Glover and Mountain Fork rivers are tributaries of the Little River, and collectively these three small rivers are known as the Little River system. The three rivers that comprise the Little River system are similar in structure and share many of the same aquatic species including the federally threatened Leopard Darter (*Percina pantherina*) and the endemic Ouachita Mountain Shiner (*Lythrurus snelsoni*).

The upper reaches of all five small rivers are relatively shallow, clear, and fast moving with a substrate of cobble or bedrock. The lower reaches of these rivers are relatively turbid and slow moving and meander over a sandy substrate in broad, forested floodplains. Flow rates are typically greater during the winter and spring and lower during the summer and fall; however, the seasonal variation is less than that which is seen on the Oklahoma's larger rivers. The small rivers contain gravel bars and sloughs but not the dynamic mosaic of sandbars, mudflats, and sloughs found on the larger river systems. Most sloughs along the smaller rivers are dominated by woody vegetation including River Birch (*Betula nigra*), Sycamore (*Platanus occidentalis*), Water Oak (*Quercus nigra*), and Red Maple (*Acer rubrum*). Of special note is the presence of the federally endangered Harperella (*Ptilimnium nodosum*) in the lower reaches of the Mountain Fork River and the potential for it to occur elsewhere in the Little River watershed. Another rare plant found along streams and rivers in the region is the Cumberland Sandreed (*Calamovilfa arcuata*).

The species of greatest conservation need that occupy the small rivers in substantial or manageable numbers are listed in the following table. A narrative description is provided for each species' status within the region that is based upon the existing literature and the professional judgment of the technical experts that were consulted. Each species' population trend was based upon an evaluation of the existing statewide or national data over the past 50 years. The species are sorted alphabetically within larger taxonomic groups: amphibians, birds, fish, invertebrates, mammals, and reptiles for easy reference. Symbols for trends are: D = declining, S = stable, U = unknown, I = increasing and Ex = probably extirpated.

Group	Species of Greatest Conservation Need Common or Scientific Name	Status within the Region	Trend in Population Size
Amph	Lesser Siren	locally common but secretive; found in shallow, heavily vegetated sites within low-gradient reaches of the rivers in the WGCP	U
Amph	Three-toed Amphiuma	rare & secretive species; appears to be limited to the Little River in the West Gulf Coastal Plain	U

Group	Species of Greatest Conservation Need Common or Scientific Name	Status within the Region	Trend in Population Size
Bird	Bald Eagle	uncommon year-round resident along all of the small rivers in the region; common winter resident due to a seasonal influx of birds from northern populations	I
Bird	Canvasback	uncommon winter resident throughout the region	S
Bird	Little Blue Heron	common summer resident in the low-gradient reaches of each small river in the region	U
Bird	Louisiana Waterthrush	uncommon but widespread in the Ouachita Mts. and Arkansas Valley portions of the region	S
Bird	Northern Pintail	uncommon winter resident throughout the region	D
Bird	Prothonotary Warbler	locally common in riparian forests along all of the small rivers in the region	U
Bird	Snowy Egret	common summer resident in the low-gradient reaches of each small river in the region	U
Bird	Solitary Sandpiper	common spring and fall migrant across the region	S
Bird	Wood Stork	rare summer visitor; after the nesting season, birds wander north from their coastal colonies into the West Gulf Coastal Plain	S
Fish	Alabama Shad	probably extirpated from this region; occurred historically in the Little and Poteau rivers	Ex
Fish	Alligator Gar	rare but regularly occurring in the lower Poteau River	D
Fish	Black Buffalo	uncommon in the low-gradient reaches of the Kiamichi, Little and Poteau rivers; difficult to correctly identify	U
Fish	Blackside Darter	rare and known from the Poteau and Little rivers; Oklahoma represents the southwestern edge of its large range; state listed as threatened	U
Fish	Blackspot Shiner	rare and found in the lower reaches of the Kiamichi and Little rivers	U
Fish	Bluehead Shiner	uncommon and only documented in Oklahoma since the early 1980s; found in sluggish backwaters of the lower Little River	U
Fish	Blue Sucker	an uncommon species associated with deeper channels; found in the Poteau River below Wister Reservoir and the Kiamichi River below Hugo Reservoir	U
Fish	Brown Bullhead	rare and limited to the West Gulf Coastal Plain portion of Little River	D
Fish	Creole Darter	rare; likely to occur only in lower Little River and its tributary streams	U
Fish	Crystal Darter	very rare and documented at only a few sites in the Little and Kiamichi rivers	U
Fish	Cypress Minnow	uncommon species found in the backwaters of the lower Mt. Fork & Little rivers	U
Fish	Harlequin Darter	locally common in riffles in the lower Poteau and Little rivers	U
Fish	Ironcolor Shiner	very rare in Oklahoma and restricted to the lower Little River	U
Fish	Kiamichi Shiner	common in the headwaters of the Kiamichi, Little and Poteau rivers	U
Fish	Leopard Darter	uncommon and restricted to the rocky reaches of the Little, Glover and Mt. Fork rivers; endemic to the central Ouachita Mts.; federally listed as threatened	D
Fish	Longnose Darter	potentially extirpated from the region; occurred historically in the Poteau River and its tributaries; state listed as an endangered species	Ex
Fish	Mooneye	uncommon and limited to the Little River system	D

Group	Species of Greatest Conservation Need Common or Scientific Name	Status within the Region	Trend in Population Size
Fish	Mountain Madtom	uncommon in the higher gradient reaches in the Little River system (Glover, Mt. Fork and Little)	U
Fish	Orangebelly Darter	common and widespread in the Red River watershed portion of the region; endemic to Oklahoma and Arkansas	S
Fish	Paddlefish	rare in the lower parts of the Kiamichi, Little and Poteau rivers	S
Fish	Pallid Shiner	rare, occurs in low-gradient reaches of the lower Poteau, Kiamichi and Little rivers	D
Fish	Peppered (Colorless) Shiner	rare species that appears to be limited to the Little River; a small population may occur in the Kiamichi River	U
Fish	Plains Minnow	uncommon and found only in the low-gradient portions of each small river in the region	D
Fish	Rocky Shiner	common in the Kiamichi and Little rivers; endemic to the Red River tributaries in the Ouachita Mts.	S
Fish	Taillight Shiner	uncommon species restricted to backwaters and tributaries of the lower Little River	U
Fish	Western Sand Darter	locally common in river reaches with sandy substrate in the lower Kiamichi River	U
Invert	Black Sandshell	probably extirpated; weathered shells suggest that Black Sandshells may have occurred in the Poteau River prior to modern settlement	Ex
Invert	Butterfly mussel	uncommon; found in the lower reaches of the Kiamichi and Little rivers	D
Invert	<i>Faxonella blairi</i>	Uncommon species that is endemic to the WGCP; has been documented only in the lower Littler River in Oklahoma	U
Invert	Little Spectaclecase	common in the Red River tributaries – the Little, Glover, Mt. Fork and Kiamichi rivers	S
Invert	Louisiana Fatmucket	common in the small rivers that are tributaries of the Red River (e.g. Little and Kiamichi)	D
Invert	Ouachita Creekshell	taxonomic uncertainties surround this species and genetic work suggests that what we call the Ouachita Creekshell in the Little River in Oklahoma may be the Southern Hickorynut	U
Invert	Ouachita Kidneyshell	common in the Glover River, uncommon elsewhere in the Littler River system and the Kiamichi River	U
Invert	Ouachita Rock Pocketbook	very rare and restricted to the Kiamichi River and the lower Little River; federally listed as an endangered species	D
Invert	Ozark Emerald	Locally occurring in the upper reaches of small rivers in the Ouachita Mountains	U
Invert	Plain Pocketbook	common and widespread in all of the rivers in the region	U
Invert	Pyramid Pigtoe	not documented in Oklahoma, but suspected to be present in the Littler River in small numbers based upon mussels with similar shell characteristics	U
Invert	Purple Lilliput	occurrence not confirmed in Oklahoma; potentially occurs as a rare species in the upper Poteau River	U
Invert	Rabbitsfoot	uncommon species; found in the lower Little River; federally listed as a threatened species	U
Invert	Scaleshell	very rare and possibly extirpated; known only from the Kiamichi and Little rivers; federally listed as an endangered species	D
Invert	Southern Hickorynut	locally common in the Kiamichi, Little, Glover and Mt. Fork rivers	U
Invert	Texas Lilliput	not confirmed in Oklahoma but may be present in the Little River watershed	U

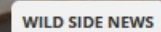
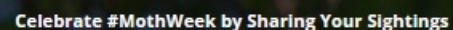
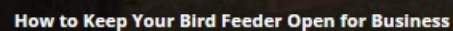
Group	Species of Greatest Conservation Need Common or Scientific Name	Status within the Region	Trend in Population Size
Invert	Washboard	common in the Poteau River, uncommon in the Kiamichi and Little rivers	S
Invert	Winged Mapleleaf	a small population is present in the lower Little River; federally listed as an endangered species	D
Mamm	Northern Long-eared Bat	uncommon but widespread in the Ouachita Mountains in LeFlore, Pushmataha and McCurtain counties; forages over rivers and streams; federally listed as a threatened species	U
Mamm	Southeastern Bat	rare and limited to the Little River watershed; often forages over rivers and streams	U
Rept	Alligator Snapping Turtle	rare and secretive; small numbers are found in the low-gradient reaches of the Kiamichi, Little and Poteau rivers	D
Rept	American Alligator	rare but seen with increasing frequency in the lower reaches of the Little and Kiamichi rivers	I
Rept	False (Mississippi) Map Turtle	uncommon but widespread in the low-gradient portions of the small rivers in this region	U
Rept	Ouachita Map Turtle	locally common and widespread throughout the region	D
Rept	Razor-backed Musk Turtle	uncommon and generally found in the higher-gradient reaches of each of the small rivers in the region	U
Rept	River Cooter	common in all of the small rivers throughout the region	D
Rept	Smooth Softshell	uncommon but widespread throughout the region	D
Rept	Spiny Softshell Turtle	locally common and found primarily in the low-gradient reaches of each small river	D

The following conservation issues and actions are listed in general priority order.

Conservation Issues Related to Geomorphic Alteration and Instability of River Channels, Altered Patterns of Flow and Decreasing Water Quantity:

1. River channels normally meander through their floodplains and maintain stable, vegetated banks, but some human activities alter the channel structure of rivers and contribute to bank instability. These actions include:
 - efforts to channelize rivers,
 - in-stream gravel or sand mining,
 - creating channel constrictions at bridges and low water dams, and
 - dredging river channels to make them deeper and narrower to convey water more quickly.

These actions can result in the river cutting a deeper channel and creating a disconnection between the river and its riparian vegetation. Channel cutting erodes gravel and sediment from the river bank and deposits it into the river.
2. In relatively low-gradient reaches of rivers, riparian and flood plain vegetation has been removed and habitat converted to pastureland, pine plantations, and riverside cabin developments. Reduction in riparian vegetation, sloughs and wetlands contribute to river bank instability and facilitates bank erosion.
3. The loss of wetlands and the constriction of floodplains reduce the ability of the land to hold and slowly release water, often resulting in “flashier” stream and river flows in which flow is accelerated during storm events, but then rapidly drops afterward.
4. Reservoir construction on river main stems (e.g. Pine Creek, Broken Bow and Wister reservoirs) and on major tributaries (Sardis Reservoir) alters the historic flooding frequencies and flow patterns of small rivers. Reservoirs have inundated long reaches of rivers and altered these from shallow, flowing habitats to deep, still habitats. Reservoirs hold back water and can alter the seasonal fluctuations in flow downstream by reducing the magnitude of high flow events following storms,



Longnose Darter
Oklahoma Cave Crayfish

WILDLIFE HABITAT APPRAISAL PROCEDURE (WHAP)
SUMMARY REPORT HUGO LAKE MASTER PLAN
CHOCTAW AND PUSHMATAHA COUNTIES, OKLAHOMA

JULY 2021



**US Army Corps
of Engineers®**

Tulsa District

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Introduction

Habitat assessments were conducted at Hugo Lake on June 7-11, 2021 using Texas Parks and Wildlife Department's (TPWD) Wildlife Habitat Appraisal Procedure ([WHAP] TPWD 1995). WHAP survey point locations were based on points believed or known to have various habitat types and features based on aerial imagery from existing Geographical Information Systems (GIS) data as well as from local knowledge of the area. A total of 61 WHAP points were surveyed, all within U.S. Army Corps of Engineers (USACE) fee boundary (Figures 1, 2, and 3).

The purpose of this report is to describe wildlife habitat quality within the USACE Hugo Lake fee-owned property in Choctaw And Pushmataha Counties, Oklahoma. This report is being prepared by the USACE Regional Planning and Environmental Center to provide habitat quality information and inform land classifications as part of the Hugo Lake Master Plan revision process.

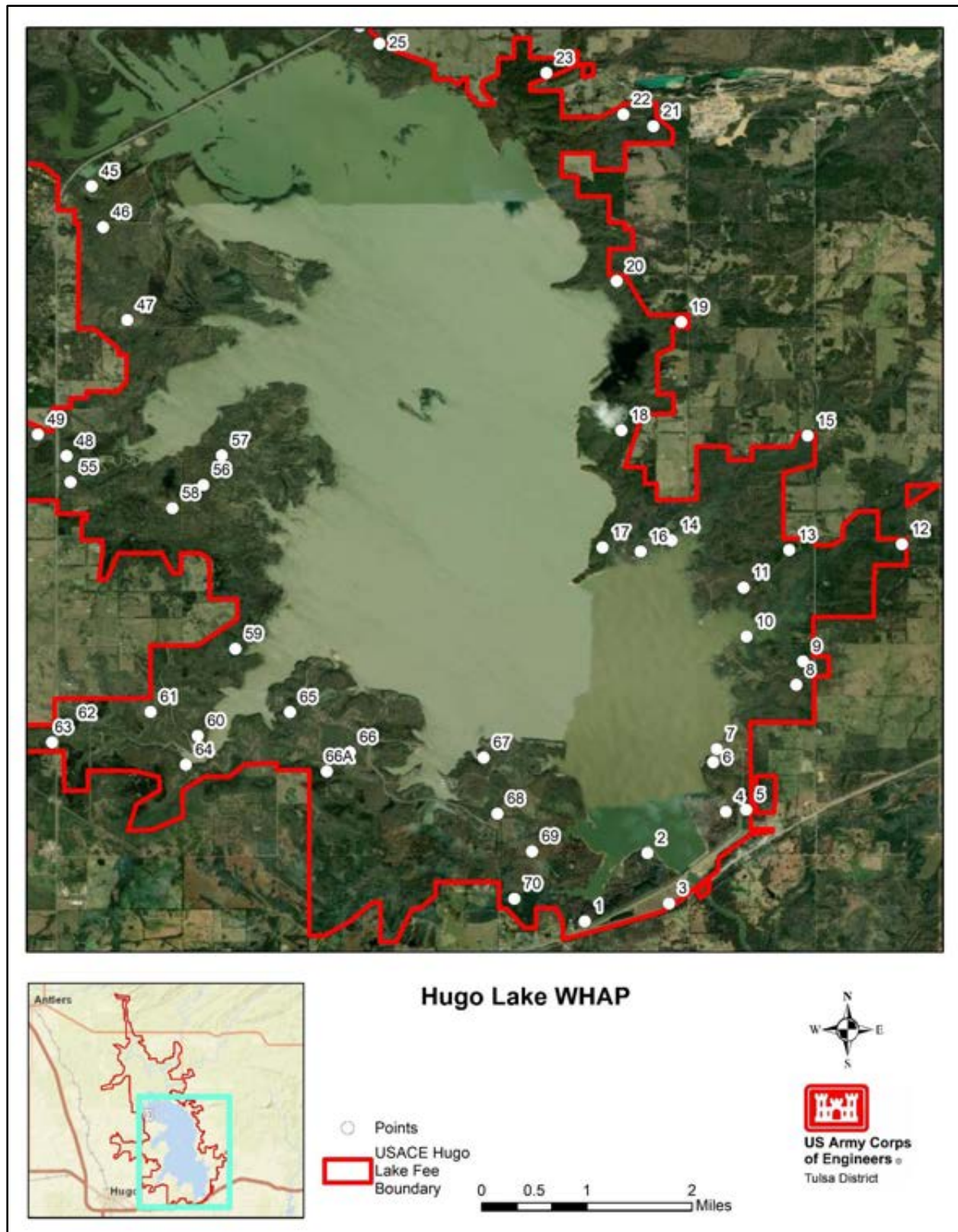


Figure 1. Distribution of WHAP Points within the Eastern Boundary of Hugo Lake

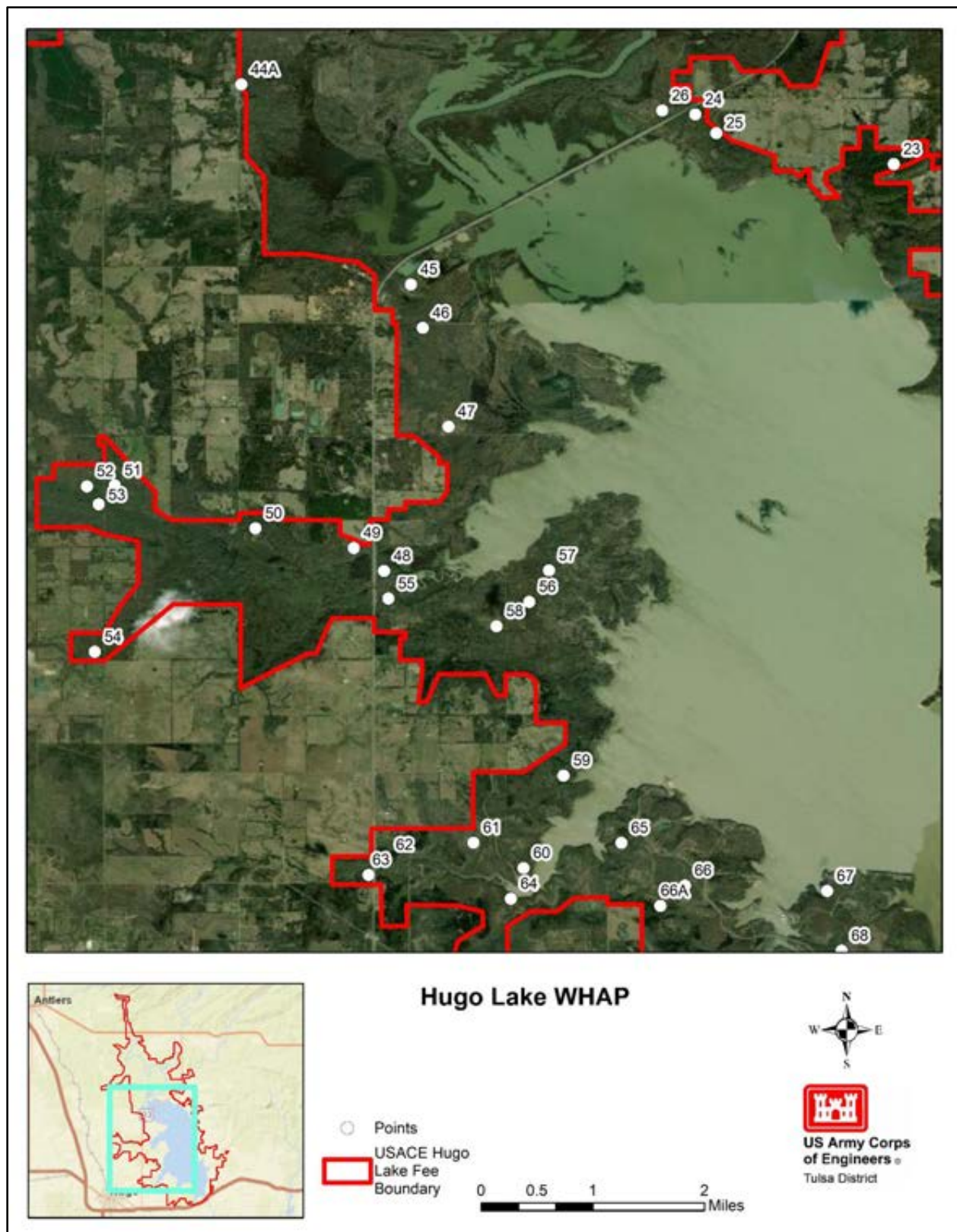


Figure 2. Distribution of WHAP Points within the Center of Hugo Lake

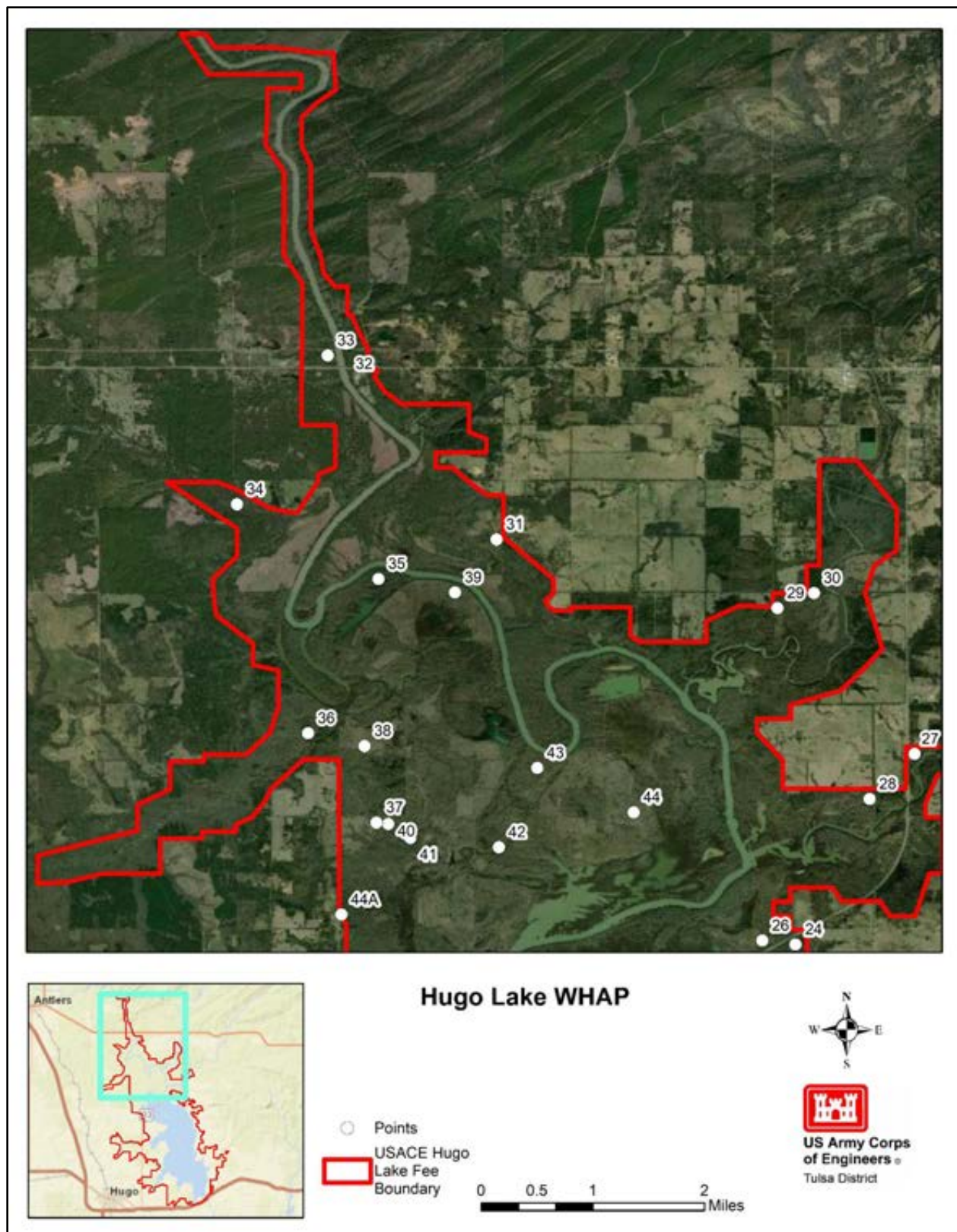


Figure 3. Distribution of WHAP Points within the Western Boundary at Hugo Lake

Study Area

USACE fee owned property at Hugo Lake, approximately 38,536 acres, is located just north of Paris Texas in the south eastern portion of Oklahoma as displayed in Figure 4 below. More specifically, the lake sits primarily between the cities of Hugo and Sawyer, Oklahoma within the South Central Plains and in the Ouchita Mountains ecoregions. Hugo Lake lies on the Kiamichi River. The major tributaries to the Kiamichi River are Jackfork, Buck, Tenmile, and Cedar Creeks. Downstream of the Hugo Lake dam, the Kiamichi River meanders until it reaches the Red River.

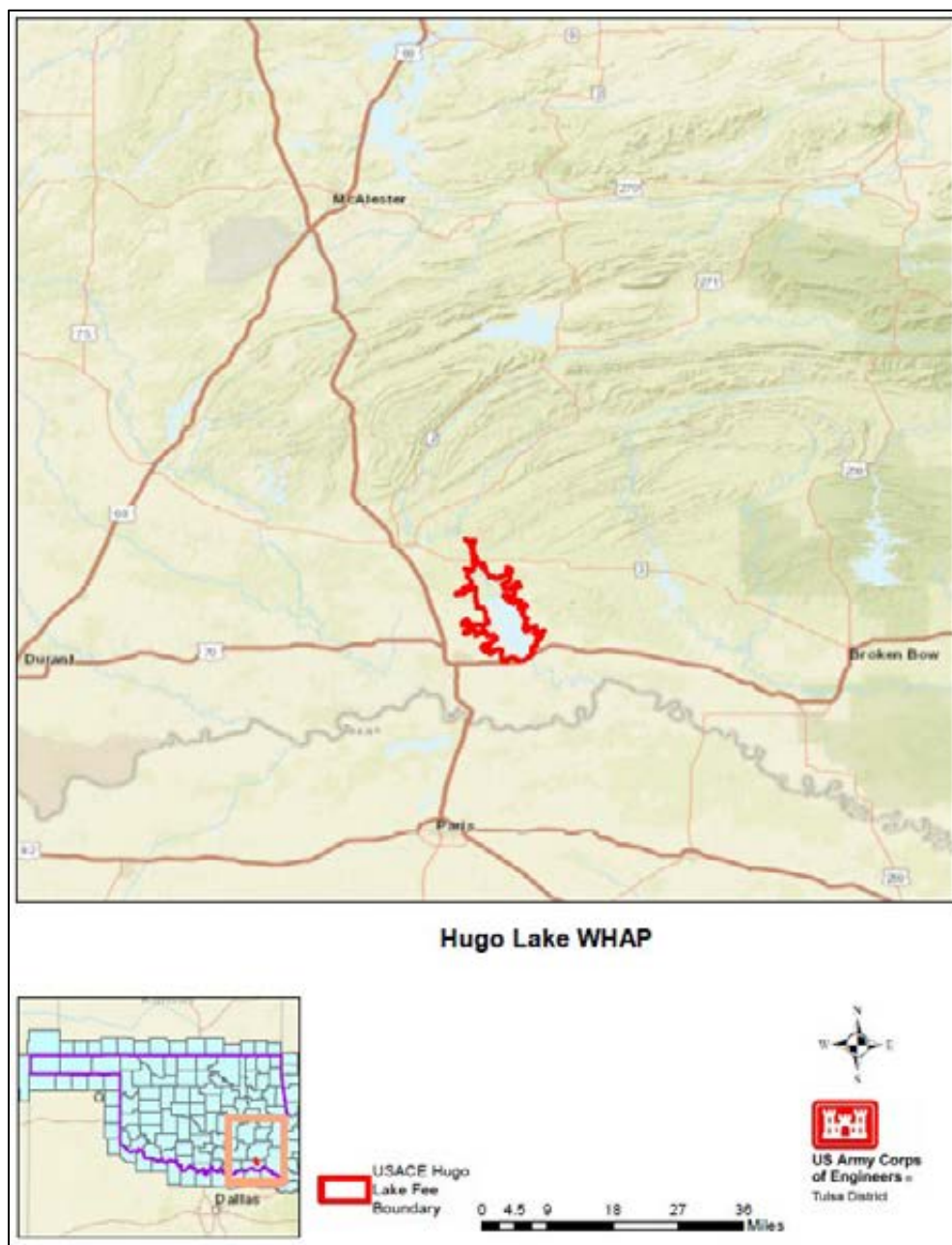


Figure 4. Hugo Lake Vicinity Map

Methodology

The WHAP requires evaluating representative sites of each cover type present within an area of interest. For this project, a search area of 0.1 acre (circle with radius of 37.2 feet) was used at each WHAP site to compile a list of plant species occurring at each site and to complete the Biological Components Field Evaluation Form (TPWD 1995). Field data collected on the form at each WHAP site included the following components:

1. Site Potential
2. Temporal Development of Existing Successional Stage
3. Uniqueness and Relative Abundance
4. Vegetation Species Diversity
5. Vertical Vegetation Stratification
6. Additional Structural Diversity
7. Condition of Existing Vegetation

The TPWD developed the WHAP to allow a qualitative, holistic evaluation of wildlife habitat for particular tracts of land statewide without imposing significant time requirements in regard to field work and compilation of data (TPWD 1995). The WHAP was not designed to evaluate habitat quality in relation to specific wildlife species.

The WHAP is based on the following assumptions:

1. Vegetation structure including species composition and physiognomy is itself sufficient to define the habitat suitability for wildlife;
2. A positive relationship exists between vegetation diversity and wildlife species diversity;
3. Vegetation composition and primary productivity directly influence population densities of wildlife species.

As designed, the WHAP is intended to be used for the following applications:

1. Evaluating impacts upon wildlife populations from specific development project alternatives.
2. Establishing baseline data prior to anticipated or proposed changes in habitat conditions for specific areas.
3. Comparing tracts of land that are candidates for land acquisition or mitigation.
4. Evaluating general habitat quality and wildlife management potential for tracts of land over large geographical areas, including wildlife planning units.

At each site, a 1/10th acre plot was evaluated and points were assigned to all applicable components based on field conditions. A habitat quality score, where values range from 0.0 (low quality) to 1.0 (high quality), was then calculated for each site by adding together all points and multiplying by 0.01. Habitat quality was then determined for all sites within the same habitat type. The scores for each site can be found in Attachment A. Photographs were taken at each site and are included as Attachment B.

The WHAP protocol can be used to assess a wide range of habitats; however, it was originally developed to assess and develop mitigation requirements for loss of bottomland hardwoods and other aquatic habitats. Scores can yield higher results for

these habitats based on how the scoring is allotted to each WHAP habitat component. Upland forest and grassland habitat types cannot reach a score indicative of high quality habitat, although they may exhibit high quality features. Subsequently, high quality upland habitat may not be identified or can be overlooked.

Grasslands, in particular, fall into this category. The Site Potential component has a maximum score of 0.25 points and allocates more points based on higher hydrologic connectivity. In order to receive the highest score for this component, the area must exhibit at least one of the following: periodically support predominately hydrophytic vegetation, have predominately undrained hydric soil and supports or is capable of supporting hydrophytic vegetation, and/or is saturated with water or covered by shallow water during 1-2 months of the growing season each year. In a grassland setting, when conditions become conducive to hydrophytic plant growth, a successional shift from a grassland to herbaceous wetlands, swamps, or riparian forest is likely to occur. Therefore, grasslands would almost always be limited to a maximum score of 0.12 points (uplands with thick surface layers).

Similarly, grasslands would be limited to a maximum of 0.12 points for the Temporal Development of Existing Successional Stage component, whereas other forested habitats could receive the full 0.25 points.

High value grasslands may not have any woody vegetation, nor vegetation that is more than 12 feet tall, and very little additional structural components. To account for this, total scores for areas categorized as grasslands do not reflect the Vegetation Species Diversity component and makes the maximum score for Vertical Vegetation Stratification component as a value of 4 and Additional Structural Diversity component as 1.

These components regularly exclude grassland habitat from receiving the maximum score of 1.00 on the WHAP point scale. In order to identify the maximum score each habitat type can receive, USACE environmental staff scored each criteria given ideal conditions for riparian/bottomland hardwood forest (BHF), upland forest (includes all non-riparian/BHF forests), grassland, and marsh habitats. The maximum value scores, shown in Table 1, were then used to normalize scores for habitats that are prevented from reaching the maximum WHAP score. This is primarily due to arbitrary low scores in the two WHAP components described above. Normalizing habitat scores will identify high quality habitat that would otherwise not be detected.

Table 1. Cover Types and Maximum Total Scores

Cover Type	Component Number								Maximum Total Score
	1	2	3	4	5	6	7	7B	
Marsh	25	20	20	20	NA	5	10	NA	1.00
Riparian/B HF	25	20	20	15	5	5	5	5	1.00

Upland Forest	12	20	20	15	5	5	5	5	0.87
Grassland	12	12	20	0	4	1	5	5	0.59

Riparian/BHF habitats can achieve the maximum score, therefore, no normalization of scores were made for that habitat type. Upland forests and grasslands, however, can only reach within 0.13 and 0.41 points of the maximum WHAP score, even in ideal conditions.

To evaluate all habitat types on an even scoring basis, upland forest and grassland scores were normalized by dividing their original scores by the maximum possible score for their respective habitat types. For example, if a grassland site received an initial score of 0.42, it would be divided by the maximum total points a grassland site can receive, 0.59. The normalized total score used for further analysis for the grassland site would be 0.75.

This adjustment allows habitat type scores to be analyzed and compared to their corresponding habitat type maximum total score. Rather than, for instance, a grassland being evaluated on a bottomland hardwood scoring scale.

All WHAP scores analyzed and discussed from here forward reflect the normalized total scores. As mentioned above riparian/BHF habitat was not normalized because it already can achieve the maximum score. Grassland scores were normalized by dividing initial scores by 0.59, while all upland forest scores were normalized by dividing the initial score by 0.87.

Habitat

Hugo Lake lies within the northern extent of the South Central Plains and within the southern extent of the Ouchita Mountains ecoregions (Level IV). The South Central Plains ecoregion is characterized by uplands being dominated by a forest consisting of Southern red oak (*Quercus Falcata*), post oak (*Quercus stellate*), white oak (*Quercus alba*), hickories (*Carya sp.*), and loblolly pine (*Pinus taeda*). What prairies exist are typically confined to managed lands like parks and wildlife management areas, as areas outside of those units had typically evolved into pastures and forests. Bottomland forests and wetlands typically occur in poorly drained areas. The bottomland hardwood forests are typically southern hardwood forests which consists of water oak (*Quercus nigra*), willow oak (*Quercus phellos*), swamp chestnut oak (*Quercus michauxii*), sweetgum (*Liquidambar styraciflua*), blackgum (*Nyssa sylvatica*), red maple (*Acer rubrum*), bald cypress (*Taxodium distichum*), and water tupelo (*Nyssa aquatica*).

The Ouchita Mountains ecoregion vegetation is predominantly of an oak-hickory-pine forest. Specifically, the common tree species are: loblolly pine (*Pinus taeda*), shortleaf pine (*Pinus echinate*), southern red oak (*Quercus falcata*), scarlet oak (*Quercus coccinea*), black oak (*Quercus ellipsoidalis*), post oak (*Quercus stellata*), blackjack oak (*Quercus marilandica*), white oak (*Quercus alba*), pignut hickory (*Carya*

glabra), and mockernut hickory (*Carya tomentosa*). What prairies exist are typically confined to managed lands like parks and wildlife management areas, as areas outside of those units had typically evolved into pastures and forests. Bottomland forests and wetlands typically occur in poorly drained areas.

Table 2 displays all habitats surveyed and the number of points surveyed within each respective habitat type.

Table 2. Survey Points per Habitat Type

Habitat Type	Points Surveyed
Riparian/BHF	9
Upland Forest	42
Grassland	10
Total Points Surveyed	61

Results and Discussion

The total habitat score for each point surveyed is a representation of multiple habitat attributes including vegetative diversity and structure, site soil potential, successional stage, and uniqueness of that habitat across the landscape. Data analysis highlights are discussed below, while detailed data for each point surveyed can be found in Attachment A: Hugo Lake WHAP Summary Results of this report.

Upland forest (42 sampled) and grassland (10 sampled) were the most abundant habitat types surveyed. With the recent flooding making some points inaccessible this number would have changed with more riparian/BHF being sampled. Upland forest scores ranged from 0.51 to 0.76 while grassland scores ranged from 0.53 to 0.97. The lower minimum scores, especially for these normally drier upland habitats, may be partly due to long-term flooding that occurred at Hugo Lake in recent years, thus leading to reduced plant diversity. Flooding at lower elevations in the flood pool of Hugo Lake almost certainly led to mortality of the typically upland species of herbaceous plant growth. This certainly affected survey metrics within the inundated areas. Long-term flooding of federal lands is a routine occurrence at typical USACE lakes having a primary mission of flood risk reduction.

The average, maximum, and minimum total scores observed for each habitat type surveyed are shown in Table 3.

Table 3. Average, Minimum, and Maximum Scores per Habitat Type

Habitat Type	Average Total Score	Maximum Total Score	Minimum Total Score
Riparian/BHF	0.70	0.88	0.54

Upland Forest	0.65	0.76	0.51
Grassland	0.72	0.97	0.53

Figure 5, Figure 6, and Figure 7 show the range of total scores for all points surveyed (61 sampled) as well as the 11 additional points that were skipped due to inaccessibility. Skipped points show a total score of 0 in these figures. Overall, grassland and riparian/BHF habitats exhibited the highest average total score (0.72 and 0.70).

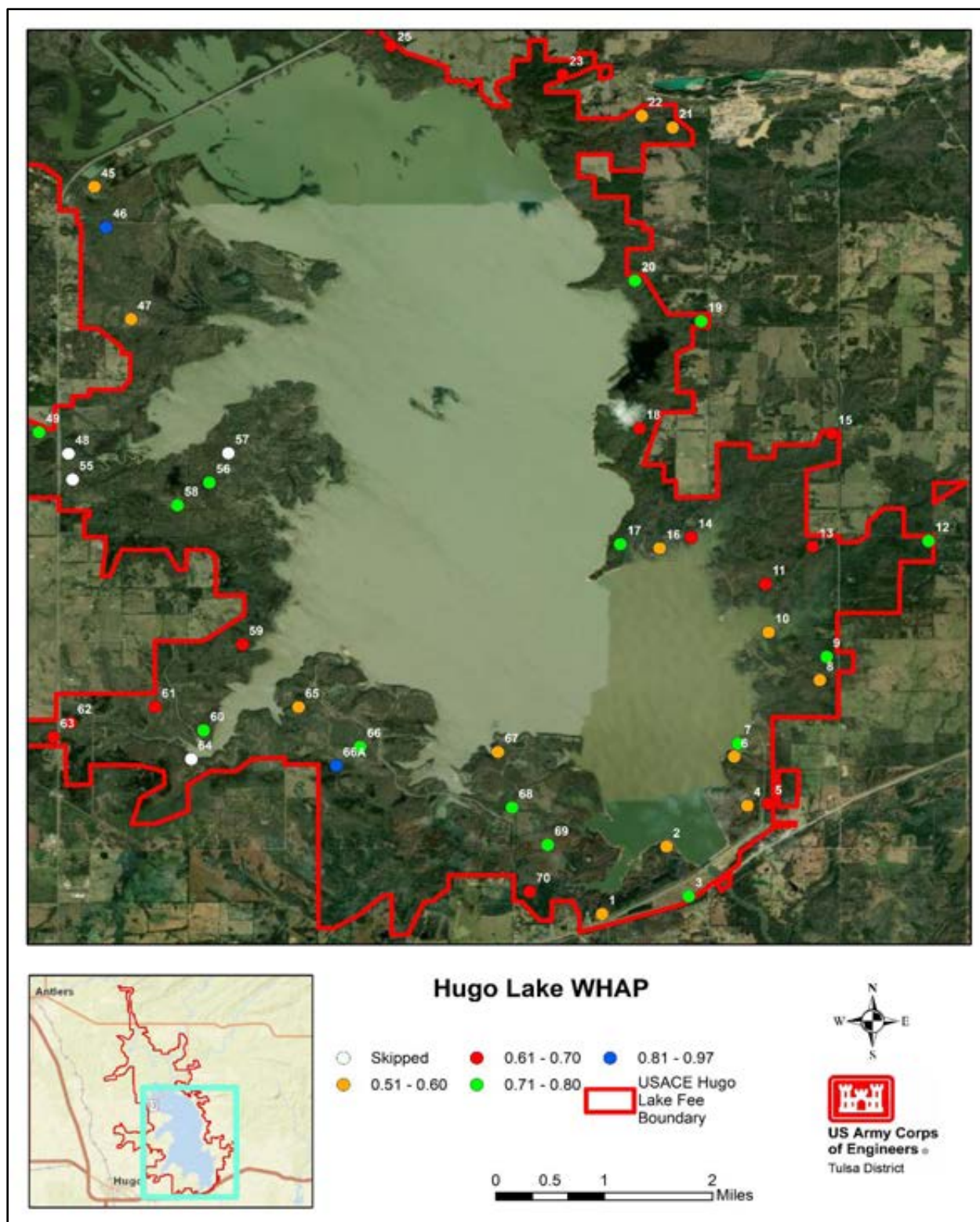


Figure 5. Total Score Range for All Points Surveyed on the Eastern Boundary of Hugo Lake

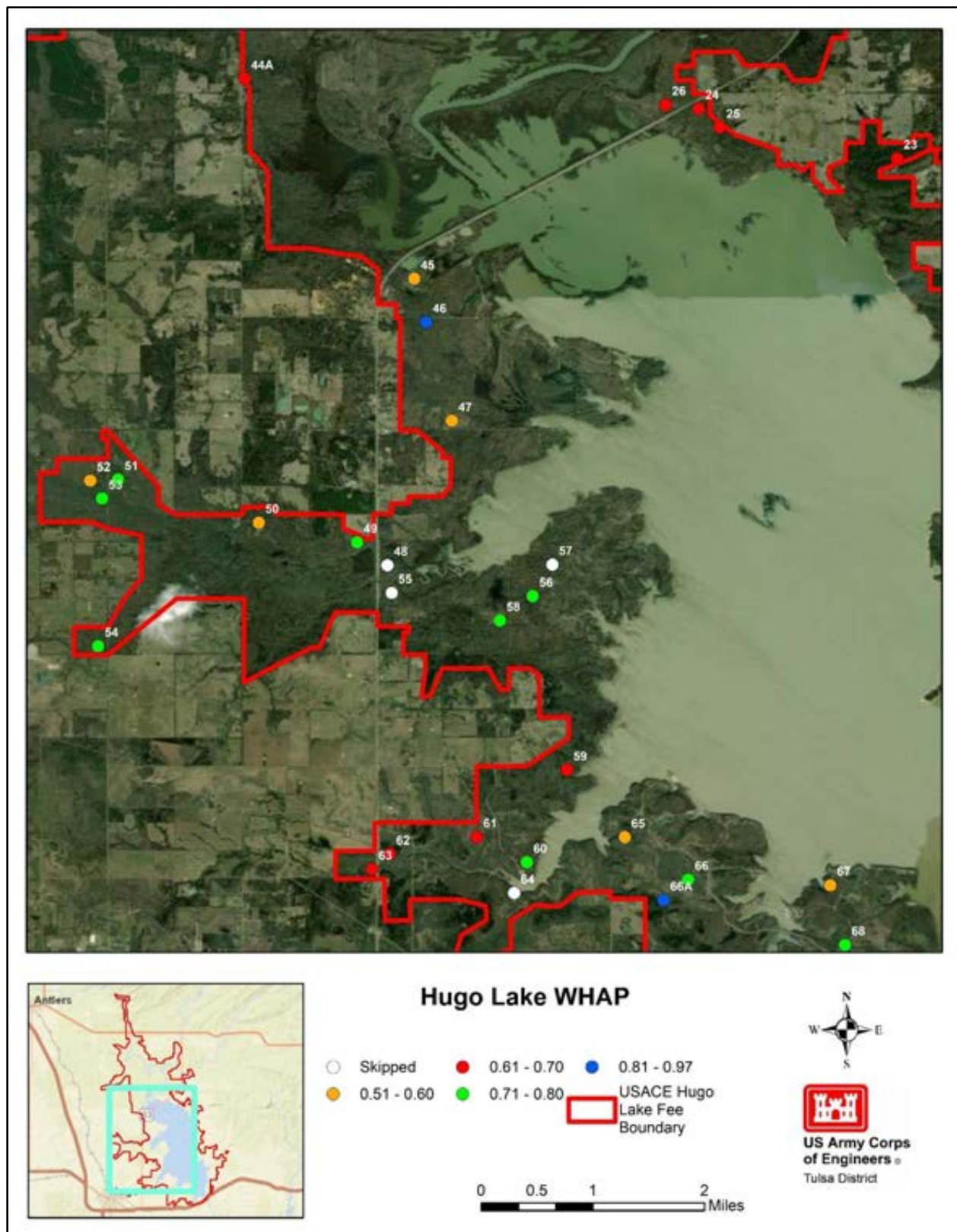


Figure 6. Total Score Range for All Points Surveyed within the Center of Hugo Lake

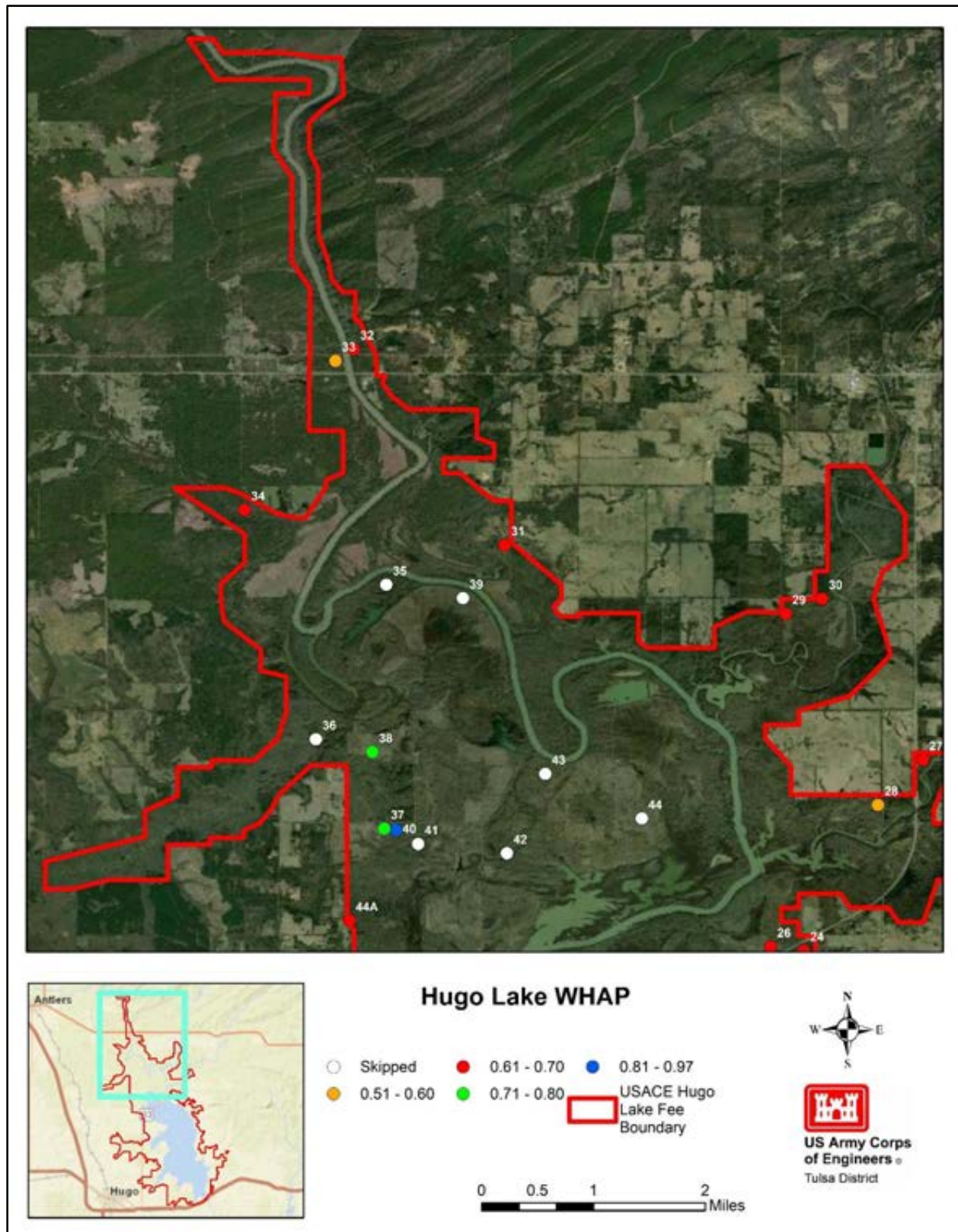


Figure 7. Total Score Range for All Points Surveyed on the Western Boundary of Hugo Lake

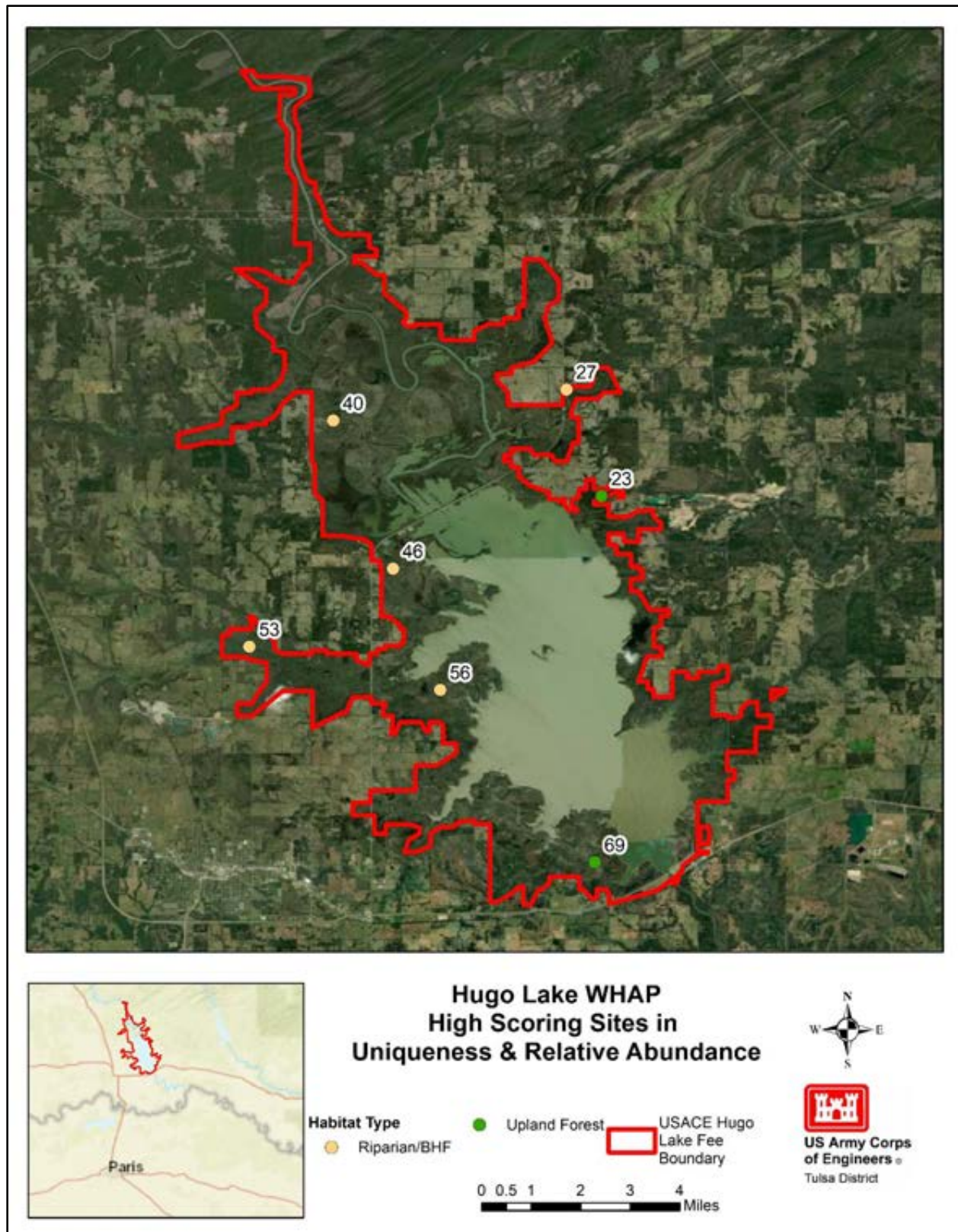


Figure 8. High Scoring Sites in Uniqueness and Relative Abundance.

Beyond vegetative diversity, the three major metrics within the WHAP scoring criteria that allocate points are for site potential, successional stage, and uniqueness and relative abundance. Table 4 shows these metrics' average score per habitat type.

Table 4. Average Site Potential, Successional Stage, and Uniqueness and Relative Abundance Scores per Habitat Type

Habitat Type	Average Site Potential	Average Successional Stage	Average Uniqueness and Relative Abundance
Riparian/BHF	17.56	13.22	13.89
Upland Forest	11.76	10.36	8.81
Grassland	12.00	5.80	8.00

Site potential allocates more points based on soil substrates characteristics and hydrologic connectivity that can support hydrophytic habitats, such as marshes, swamps, and bottomland hardwood forests that are often considered to be higher quality, more diverse habitat. This allows areas to score higher even though a recent disturbance, such as fire or flood, may have removed most of the vegetation. Areas scoring high in site potential but low in other metrics can be targeted for management efforts as these areas' vegetation community response should be favorable, thus increasing habitat value. The predominate thick soil surface layer that is common within Hugo Lake is the main factor that upland forest and grassland sites scored so high in average site potential. WHAP sites with maximum site potential are shown in Figure 9.

Successional stage refers to the age of the vegetative community. Older, mature forests and climax prairies, score higher than younger pole stands or disturbed grasslands because they provide more diverse forage, cover, and niche habitats. These scores are expected to increase across the habitats, except in areas that may not have the soil types to support hydrophytic vegetation or are flooded frequently enough to limit upland forest or grassland growth and development.

Uniqueness and Relative Abundance takes into consideration the rarity of a habitat or vegetative community and its abundance in the region. Current and past agricultural and forestry practices have significantly influenced the region's remaining habitat composition. Figure 8 displays the locations of the points that score the highest in this scoring component.

In addition to receiving a maximum score for site potential, WHAP site #66A was the only site receiving maximum scores for successional stage and site potential.

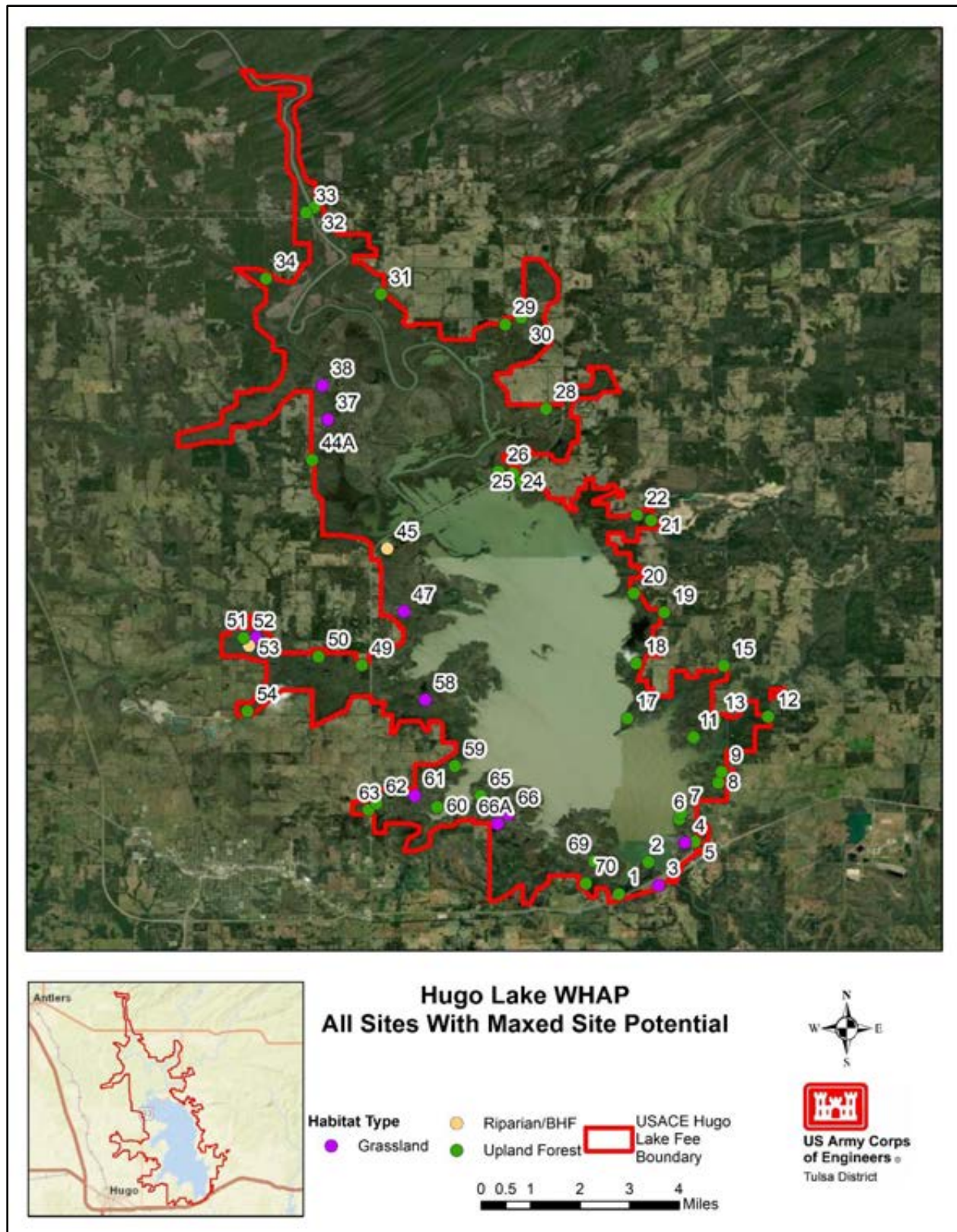


Figure 9. All Sites with Maxed Out Site Potential

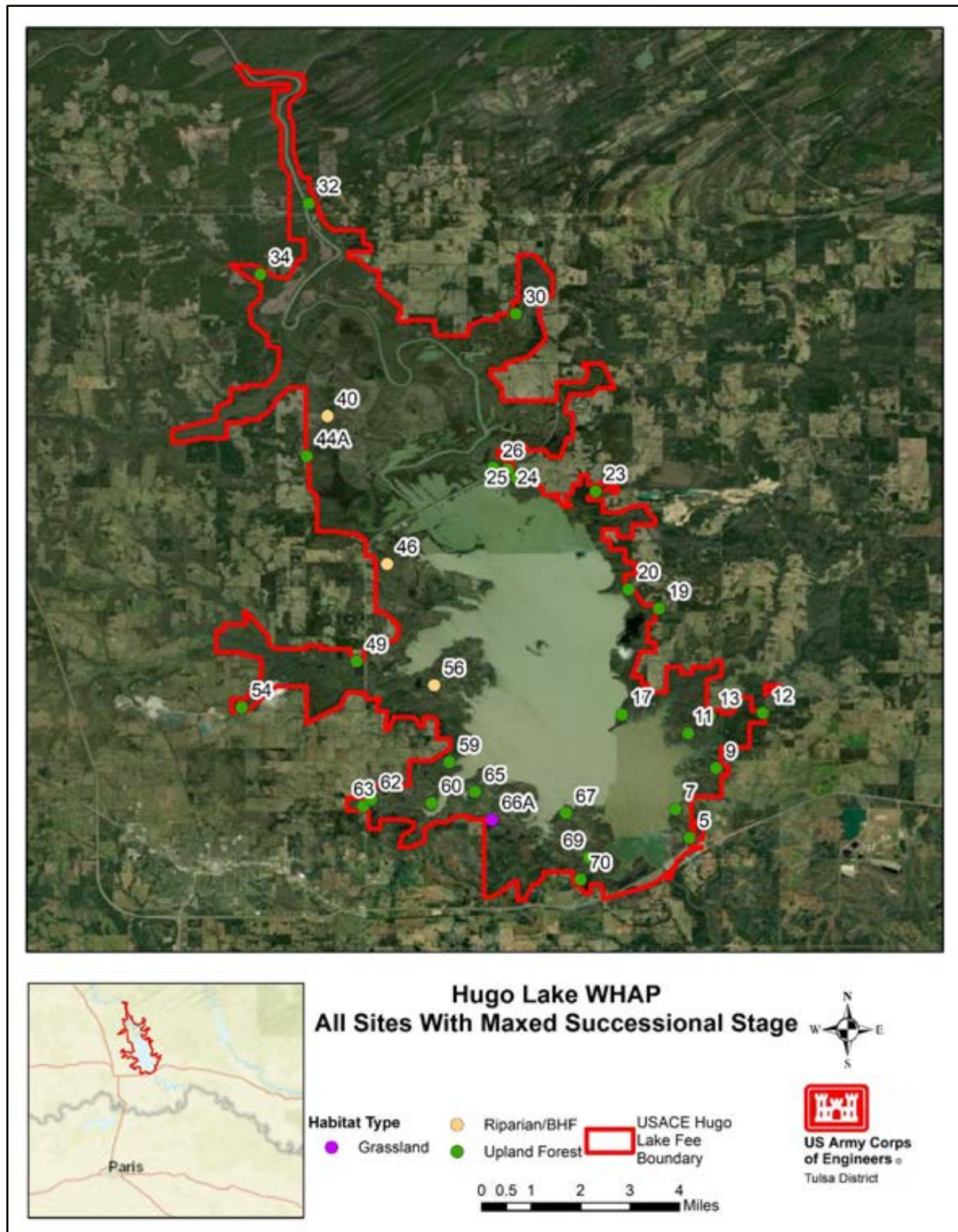


Figure 10. All Sites with Maxed Out Successional Stage

Recommendations

Even with unplanned disturbances, there are several areas with valuable wildlife habitat remaining on USACE fee-owned property at Hugo Lake. Habitat management efforts by the USACE and the Oklahoma Department of Wildlife and Conservation has proven effective in maintaining quality wildlife habitat around the lake.

When comparing overall high total WHAP scores between (0.71-0.97) (Figures 5, 6, and 7) to Maximum Site Potential scores (Figure 9), no one area of the lake was identified, but rather several individual points in various habitat types scattered around the lake (points 7, 9, 12, 17, 19, 20, 37, 38, 49, 51, 53, 60, 66, and 66A). These sites are close to or have reached their maximum habitat potential. Most, if not all these areas likely require no management actions to reach their potential, but rather protection from disturbances.

Likewise, sites with low WHAP scores that also have low site potential have likely reached their habitat potential; however minimal it might be. Management actions to improve these sites will likely achieve minimal results.

Conversely, areas with relatively low total WHAP scores between 0.51 – 0.70, but high Site Potential scores have the greatest potential for improvement. Management actions targeting native species diversity through habitat manipulation (e.g. prescribed fire, invasive species control, etc.) will likely result in more diverse, higher quality wildlife habitat. WHAP sites 1, 2, 4, 6, 8, 11, 18, 21, 22, 32, 33, 44A, 45, 47, 50, 52, 59, 61, 62, 63, and 65 meet this criterion.

Based on the results of the WHAP survey efforts, areas to consider for Wildlife Management or Environmentally Sensitive Areas land classifications include those areas with highest maximum scores. The planning team for the Hugo Lake Master Plan revision will consider WHAP scores when making land classification decisions.

References

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Attachment A: Hugo Lake WHAP Results Summary

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Uniqueness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6) Additional Structural Diversity	7A) Condition of Woody Vegetation	7B) Herbaceous Vegetation	Cropland Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry	Drupe	LegumePod	Acorn	Nut Nutlike	Samaras	Cone	Achene	All Others	Herbaceous Species	Notes
1	Upland Forest	12	6	NA	5	4	3	NA	NA	5	5	5	1	NA	NA		0.53	American Beautyberry, Huckleberry		NA	Post Oak, Blackjack Oak	Hickory, Shagbark Hickory	Cedar Elm	NA	NA	NA	Rosette Grass, Flowering Spurge, Arrowleaf Spurge	NA
2	Upland Forest	12	6	NA	5	4	5	NA	NA	5	5	5	3	NA	NA		0.57	Persimmon, Sumac, Smilax, Dewberry, Green Dragon, Graybark Grape		Sericea Lespedeza	Water Oak, Oak Sp.,	NA	Elm	NA	NA	Sweetgum, Osage Orange	St. Andrew Cross, Beggars Lice, Virginia Spiderwort, Woodland Oats, Rosette Grass	NA
3	Grassland	12	5	NA	10	2	1	NA	NA	3	3	1	5	NA	NA		0.71	Sumac, Dewberry		Least Snout-bean, Yellow Hop	NA	NA	NA	NA	NA	Beggar's Lice, Black-eyed Susan, Tall Fescue, Milkweed, Yellow Hop, Bunch Grass, Sedge, Rush, Ruellia, Bristle Grass, Honeysuckle	NA	
4	Grassland	12	5	NA	5	1	1	NA	NA	3	3	1	3	NA	NA		0.58	NA		Sericea Lespedeza	NA	NA	NA	NA	NA	Prairie Bishop, Black-eyed Susan, Ragweed, Meadow Pink, unknown grass sp	NA	
5	Upland Forest	12	12	NA	5	6	5	NA	NA	5	5	5	1	NA	NA		0.64	American Beautyberry, Sparkleberry, Supplejack, Virginia Creeper		Downy Milkpea	Oak, Black Oak	Hickory	Winged Elm	Eastern Red Cedar	NA	NA	Moonseed	NA
6	Upland Forest	12	6	NA	5	5	5	NA	NA	5	5	3	1	NA	NA		0.54	American Beautyberry, Virginia Creeper, Smilax, Coralberry		NA	Willow Oak, Water Oak, Chinquapin Oak,	Hickory	American Elm, Cedar Elm	Eastern Red Cedar	NA	NA	Woodland Oats, Blackseed Needlegrasses	NA

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Uniqueness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6) Additional Structural Diversity	7A) Condition of Woody Vegetation	7B) Herbaceous Vegetation	Cropland Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry	Drupe	LegumePod	Acorn	Nut	Nutlike	Samaras	Cone	Achene	All Others	Herbaceous Species	Notes
7	Upland Forest	12	12	NA	10	7	7	NA	NA	5	5	5	3	NA	NA	0.76			Smooth Sumac, Smilax spec., Virginia Creeper, Coralberry, Rattan-vine, Dewberry	Eastern Redbud, Tick-trefoil, Sericea Lespedeza, Mimosa, American Hog Peanut, Perennial Woolly Bean,	Red Oak, White Oak, Willow Oak, Water Oak,		Mockernut Hickory	American Elm, Winged Elm, Cedar Elm	Eastern Red Cedar	NA	Sweetgum, Prickly Pear Cactus	Johnson Grass, Virginia Wildrye, Hedge Parsley, Yellow Wood Sorrel, Black-eyed Susan, Beggar's Lice,	NA
8	Upland Forest	12	6	NA	5	6	5	NA	NA	5	5	5	1	NA	NA	0.57			Virginia Creeper, Spicebush, Grape, Green Dragon	Sericea Lespedeza	Post Oak, Blackjack Oak		Hickory	Cedar Elm, Elm	Eastern Red Cedar	NA	NA	Woodland Oats, Carex	NA
9	Upland Forest	12	12	NA	10	5	3	NA	NA	5	5	5	5	NA	NA	0.71			Hackberry, Dewberry	Sericea Lespedeza	Oak	NA	Elm		Eastern Red Cedar	NA	Osage Orange, Buttonbush	Germander, Woodland Oats, Beggars Lice, Johnson Grass, Virginia Wildrye, Ragweed, Milkweed, Dandelion	NA
10	Riparian /BHF	12	6	NA	10	5	3	NA	NA	5	5	5	3	NA	NA	0.54			Persimmon, Dewberry Dogwood, Virginia Creeper, Smilax, Sparkleberry, Muscadine, Poison Ivy	Honey Locust, Sericea Lespedeza	Oak, Willow Oak	NA	NA	NA	Sycamore	Willow, Buttonbush	Texas Thistle, Beggars Lice, Boneset, Rye, Johnson Grass, Germander	NA	
11	Upland Forest	12	12	NA	5	5	5	NA	NA	5	5	5	1	NA	NA	0.63					White Oak, Red Oak	Mockernut Hickory		Eastern Red Cedar	NA	Sweetgum	Woodland Oats, Hairy Hawkweed	NA	
12	Upland Forest	12	12	NA	10	6	5	NA	NA	5	5	5	5	NA	NA	0.75			Smilax, Virginia Creeper, Poison Ivy, Carolina Buckthorn, Muscadine, Dogwood, American Beautyberry	American Hog-peanut	Red Oak, Willow Oak		Hickory, Bitternut Hickory	Cedar Elm	Eastern Red Cedar	NA	NA	Boneset, Woodland Oats, Beggar's Tick, Germander, Roundleaf Ragwort, Goldenrod, Eastern False Aloe, unknown herb	NA

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Uniqueness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6) Additional Structural Diversity	7A) Condition of Woody Vegetation	7B) Herbaceous Vegetation	Cropland Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samaras	Cone	Achene	All Others	Herbaceous Species	Notes
13	Upland Forest	12	12	NA	10	5	3	NA	NA	5	5	5	3	NA	NA		0.69	Grape, Smilax, Sparkleberry, Virginia Creeper	NA	Oak, Black Jack Oak	NA	Winged Elm	Long Leaf Pine	NA	Sweetgum	Honeysuckle, Woodland Oat, Switchgrasses, Day Lilly	NA
14	Riparian /BHF	12	12	NA	10	6	5	NA	NA	5	5	5	5	NA	NA		0.65	Smilax, Virginia Creeper, Muscadine	Sericea Lespedeza	Willow Oak, Red Oak, Water Oak	Hickory	Elm	NA	NA	Sweetgum	Purple Passion Flower, Boneset, Sallow Sedge, Rosette Grass, Woodland Oats, Germander, Deer Tongue, Virginia Wildrye, Fireweed, Rosemallow, Spleenwort Fern, Dandelion	NA
15	Upland Forest	12	6	NA	5	7	5	NA	NA	5	5	5	3	NA	NA		0.61	Coralberry, Poison Oak, Smilax, Virginia Creeper, Poison Ivy	Honey Locust	Willow Oak, Water Oak	Hickory, Mockernut Hickory	Cedar Elm	Eastern Red Cedar	NA	Osage Orange	Spring Spiderlilly, Deer Tongue, Cherokee Sedge, Woodland Oats, White Avens	NA
16	Riparian /BHF	12	12	NA	10	4	3	NA	NA	5	5	5	3	NA	NA		0.59	Persimmon, Dewberry, Smilax, Peppervine, Hackberry	Sericea Lespedeza	Willow Oak	NA	Elm	NA	NA	Sweetgum	Purple Passion Flower, Germander, Ragweed, Beggars Lice, Bermuda Grass	NA
17	Upland Forest	12	12	NA	10	6	5	NA	NA	5	5	5	5	NA	NA		0.75	Virginia Creeper, Hackberry, Smilax, Poison Ivy, Green Dragon, Soapberry, American Beautyberry	Mimosa	Water Oak	NA	Cedar Elm	NA	Sycamore	Osage Orange, Sweetgum	Virginia Wildrye, Woodland Oats, Fern, Woodland Lettuce, Leafy Elephant Foot, Spiderwort Fern, Germander, Milkweed	NA

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Uniqueness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6) Additional Structural Diversity	7A) Condition of Woody Vegetation	7B) Herbaceous Vegetation	Cropland Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samaras	Cone	Achene	All Others	Herbaceous Species	Notes
18	Upland Forest	12	6	NA	5	6	5	NA	NA	5	5	5	5	NA	NA		0.62	Smilax, Persimmon, Virginia Creeper, Possomhaw Holly	Sericea Lespedeza, Honey Locust	Willow Oak, Post Oak, Blackjack Oak, Water Oak	NA	Cedar Elm, American Elm,	Eastern Red Cedar	NA	Osage Orange	Hedge parsley, Spleenwort fern, Cherokee Sedge, Virginia Wildrye, Woodland Oats, Germander , Switchgrasses, Rosette Grass	NA
19	Upland Forest	12	12	NA	5	7	7	NA	NA	5	5	5	5	NA	NA		0.72	Possumhaw Holly, Smilax, Dogwood, , Riverbank Grape, Virginia Creeper, American Holly, American Beautyberry	Sericea Lespedeza	Water Oak, Red Oak, White Oak	Hickory	Birch, Maple , Cedar Elm	Eastern Red Cedar ,	NA	Sweetgum	Spiderwort, Hedge Parsley, Rosette Grass, Woodland Lettuce, Spleenwort Fern, Virginia Wildrye, Bedstraw, unknown herb	NA
20	Upland Forest	12	12	NA	10	7	7	NA	NA	5	5	5	3	NA	NA		0.76	Virginia Creeper, Dogwood, Mustang Grape, Smilax, Poison Ivy	Japanese Bushclover	Willow Oak, Red Oak	Hickory, Mockernut Hickory	Elm, Green Ash, American Elm	Eastern Red Cedar	NA	Sweetgum, Moss	Carex, Rosette Grass, Yellow Violet, Cherokee Sedge, Rattlesnake Fern, Tickseed, Black Snakeroot	NA
21	Upland Forest	12	6	NA	10	6	5	NA	NA	4	3	3	3	NA	NA		0.60	Poison Ivy, Smilax, Muscadine, Virginia Creeper	Japanese Bushclover	Water Oak, Red Oak, Willow Oak	NA	Sugar Maple , Cedar Elm	Short Leaf Pine	NA	Sweetgum	Ravensfoot Sedge, Scribners Panicum, Rosette Grass, Deer Tongue, St. Andrew Cross	NA
22	Upland Forest	12	6	NA	10	4	5	NA	NA	4	3	3	3	NA	NA		0.57	Poison Ivy, Smilax, Muscadine, Virginia Creeper	NA	Water Oak, Red Oak, Willow Oak	NA	Sugar Maple , Cedar Elm	NA	NA	Sweetgum	Carex, Sedge, Virginia Wildrye, Rosette Grass, Hedge Parsley, Beggarstick	NA

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Unique ness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6) Additional Structural Diversity	7A) Condition of Woody Vegetation	7B) Herbaceous Vegetation	Cropland and Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry	Drupe	LegumePod	Acorn	Nut Nutlike	Samaras	Cone	Achenes	All Others	Herbaceous Species	Notes
23	Upland Forest	7	12	NA	15	5	5	NA	NA	5	3	3	3	NA	NA		0.67	Virginia Creeper, Smilax, Muscadine, American Beautyberry	Sensitive Briar, Japanese Bushclover	Bastard Oak		Mockernut Hickory	NA	Short Leaf Pine, Eastern Red Cedar	NA	NA	Muhlenberg Sedge, Rosette Grass, Spleenwort, Heart Leafed Skullcap, Yellow Wood Sorrel, Violet Wood Sorrel	NA
24	Upland Forest	12	12	NA	10	5	5	NA	NA	5	1	5	3	NA	NA		0.67	Virginia Creeper, Smilax, Muscadine, Poison Ivy	NA	Red Oak, Bastard Oak, Water Oak, Willow Oak		Mockernut Hickory	Elm	NA	NA	Sweetgum	Carex, Deer Tongue, Rosette Grass	NA
25	Upland Forest	12	12	NA	10	4	3	NA	NA	5	1	3	3	NA	NA		0.61	American Beautyberry, Smilax, Virginia Creeper, Muscadine	NA	Bastard Oak, Willow Oak		NA	Elm	NA	NA	Sweetgum,	Deer Tongue, Hedge Parsley, Rossete Grass, Carex, Sedge	NA
26	Upland Forest	12	12	NA	10	4	5	NA	NA	5	1	3	5	NA	NA		0.66	Smilax, Persimmon, Dewberry	Honey Locust, Chinese Bushclover, Japanese Bushclover	Water Oak, Red Oak, Willow Oak		NA	NA	NA	NA	Sweetgum	Juncus, Ragweed, Ragweed, Rosette Grass, White Grass, Texas Vervain, Yellow Wood Sorrel, Globe Flatsedge	NA
27	Riparian /BHF	12	12	NA	15	6	5	NA	NA	5	3	3	5	NA	NA		0.66	Virginia Creeper, Dewberry, Smilax, Persimmon, Grapevine	Sericea Lespedeza	Water Oak		NA	Cedar Elm	Eastern Red Cedar , Short Leaf Pine	NA	Buttonbush, Sweetgum, Blackwillow	Rosette Grass, Spiderwort, Deer Tongue, Bedstraw, Ragweed, Woodland Oats, Boneset, Water Horehound, Virginia Dayflower	NA

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Uniqueness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6) Additional Structural Diversity	7A) Condition of Woody Vegetation	7B) Herbaceous Vegetation	Cropland Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samaras	Cone	Achenes	All Others	Herbaceous Species	Notes
28	Upland Forest	12	6	NA	10	6	7	NA	NA	4	1	3	1	NA	NA		0.57	Grape, Smilax, Poison Ivy, Dogwood, Dewberry, Peppervine, Black Tupelo, Climbing Dogbane	Sericea Lespedeza, Honey Locust	Water Oak, Willow Oak	Hickory	American Elm	NA	NA	Sweetgum	Woodland Oats, Franks Sedge, Rosette Grass	NA
29	Upland Forest	12	6	NA	10	6	5	NA	NA	5	1	3	5	NA	NA		0.61	Dewberry, Smilax, Poison Ivy, Muscadine	Honey Locust, Sericea Lespedeza	Willow Oak, Water Oak	Hickory, Pecan	Cedar	NA	NA	Osage Orange, Sweetgum,	Virginia Day Flower, Yellow Wood Sorrel, Hedge Parsley, Rosette Grass, Virginia Wildrye, Ragweed, Germander, Woodland Oats	NA
30	Upland Forest	12	12	NA	10	6	5	NA	NA	5	1	3	5	NA	NA		0.68	Virginia Creeper, Poison Ivy, Dewberry, Smilax, Muscadine, Dogwood	NA	Red Oak, Water Oak, Willow Oak,	Hickory,	Cedar Elm	Eastern Red Cedar, Short Leaf Pine	NA	Sweetgum	Hedge Parsley, Deer Tongue, Yellow Woodsorrel, Ebony Spleenwort, Ragweed, Spiderwort, Rosette Grass, Carex	NA
31	Upland Forest	12	6	NA	10	5	5	NA	NA	4	1	5	5	NA	NA		0.61	American Persimmon, Dewberry, American Beautyberry, Smilax	Chinese Bushclover, Sericea Lespedeza, Sensitive-briar	Water Oak, Red Oak	NA	NA	Short Leaf Pine	NA	Sweetgum	Deer Tongue, Yellow Wood Sorrel, Yellow Ragwort, White Aster, Black-eyed Susan, Boneset, Germander, Indian Grass, Fleabane, Pale Spiked Lobelia	NA
32	Upland Forest	12	12	NA	10	7	7	NA	NA	5	1	5	1	NA	NA		0.69	Poison Ivy, Smilax, Virginia Creeper, Poison Oak, Muscadine, Smilax	Tick-trefoil	Water Oak, Red Oak	Hickory	Cedar Elm, American Elm,	Shortleaf Pine	NA	Sweetgum, American Sycamore	Rosette Grass, Hedge Parsley, Bedstraw	NA

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Unique ness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6) Additional Structural Diversity	7A) Condition of Woody Vegetation	7B) Herbaceous Vegetation	Cropland and Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samaras	Cone	Achenes	All Others	Herbaceous Species	Notes
33	Upland Forest	12	6	NA	10	6	5	NA	NA	4	1	3	3	NA	NA		0.57	Poison Ivy, Virginia Creeper, Muscadine Grape, Smilax, Persimmon	Sericea Lespedeza, Mimosa	Water Oak, Willow Oak, Red Oak	NA	Cedar Elm	Eastern Red Cedar , Short Leaf Pine	NA	Sweetgum,	Purple Passion Flower, Cordgrass, Rosette Grass, Sedge, Germander , White Rattlesnake Root	NA
34	Upland Forest	12	12	NA	10	6	5	NA	NA	4	1	3	5	NA	NA		0.67	American Beautyberry, Smilax	Sericea Lespedeza, Perennial Woolly Bean	Red Oak, Willow Oak	NA	Cedar Elm	Short Leaf Pine	NA	Sweetgum, American Sycamore	Deer Tongue, Falsenettle, Rosette Grass, Late Boneset, Bristle Thistle, Dog Fennel, Purple Passion Flower,Tall Thistle	NA
35	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
36	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
37	Grassland	12	6	NA	5	6	3	NA	NA	5	1	3	3	NA	NA		0.75	Dewberry, Smilax, Peppervine	Sensitive Briar, Sericea Lespedeza	Willow Oak,	NA	Cedar Elm	Short Leaf Pine	NA	Sweetgum	Hedge Parsley, Rosette Grass, Yellow Wood Sorrell, Deer Tongue, Herb Willow, Sedge, Pale Spiked Lobelia	NA

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Unique ness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6) Additional Structural Diversity	7A) Condition of Woody Vegetation	7B) Herbaceous Vegetation	Cropland Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry	Drupe	LegumePod	Acorn	Nut Nutlike	Samara	Cone	Achenes	All Others	Herbaceous Species	Notes
38	Grassland	12	5	NA	5	6	5	NA	NA	3	1	3	5	NA	NA		0.76	Dewberry, Smilax, Peppervine		Sensitive Briar, Chinese Bushclover, Clover	Willow Oak,		American Elm	Short Leaf Pine	NA	Sweetgum	Buckwheat Vine, Indian Grass, Rosette Grass, herb, White Clover, Prairie Junegrass, Cherokee Sedge, Virginia Wildrye, Germander, Horse Nettle, Yellow Wood Sorrel, Black-eyed Susan, Rumex	NA
39	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
40	Riparian /BHF	20	20	NA	20	7	5	NA	NA	5	3	5	3	NA	NA		0.88	Smilax, Virginia Creeper, Peppervine, Dewberry	Honey Locust	Willow Oak		Hickory	American Elm, Birch	Long Leaf Pine	NA	Sweetgum, Mushroom	Parsley, Sedge X2, Carex, Mint	NA
41	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
42	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
43	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
44	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
44A	Upland Forest	12	12	NA	10	6	5	NA	NA	4	3	5	1	NA	NA		0.67	Smilax, Muscadine, Hackberry, Virginia Creeper	NA	Willow Oak, Red Oak, Blackjack Oak,		Black Walnut, Hickory	American Elm	Eastern Red Cedar	NA	Osage Orange, Sweetgum,	Carex, Springwort	NA
45	Riparian /BHF	25	5	NA	5	3	3	NA	NA	4	3	5	5	NA	NA		0.58	Persimmon	Sericea Lespedeza	NA		NA	NA	NA	NA	Willow, Buttonbush, Sweetgum	Little Bluestem, Indian Grass, Deer Tongue, Sedge, Aster sp. X2, Bedstraw, Rush	NA
46	Riparian /BHF	20	20	NA	20	5	3	NA	NA	5	3	5	3	NA	NA		0.84	Smilax, Persimmon, Dewberry	Sericea Lespedeza	Willow Oak		NA	American Elm	NA	NA	Sweetgum	Winterwheat, Carex, Parsley, unknown herb x2, Virginia Wildrye,	NA

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Unique ness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6)Additional Structural Diversity	7A)Condition of Woody Vegetation	7B)Herbaceous Vegetation	Cropland Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry	Drupe	LegumePod	Acorn	Nut Nutlike	Samaras	Cone	Achene	All Others	Herbaceous Species	Notes	
47	Grassland	12	5	NA	5	1	1	NA	NA	1	3	0	3	NA	NA		0.53	NA		Sericea Lespedeza, Vetch	NA	NA	NA	NA	NA	NA	Milkweed, Rosette Grass, Sedge, Rush, Tickseed, Fleabane, Bull Nettle	NA	
48	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.00	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
49	Upland Forest	12	12	NA	10	6	5	NA	NA	5	5	5	3	NA	NA		0.72	Smilax, Poison Ivy, Hackberry, Dewberry, Smilax, Poison Ivy, Muscadine, Virginia Creeper	Honey Locust	White Oak, Red Oak, Water Oak		Hickory	Cedar Elm, American Elm,	NA	NA	Sweetgum, Osage Orange	Sedge, Parsley, Carex, Virginia Wildrye	NA	
50	Upland Forest	12	6	NA	5	5	5	NA	NA	4	3	3	1	NA	NA		0.51			NA	White Oak	NA	American Elm, Maple	Eastern Red Cedar	NA	Osage Orange, Moss	Fern, Sedge, Rosette Grass, Hypericum	NA	
51	Grassland	12	5	NA	10	0		NA	NA	3	3	5	5	NA	NA		0.73	NA		NA	NA	NA	NA	NA	NA	NA	Arrowleaf Spurge, Common Wheat, Johnson Grass, Rye Grass, Yellowhop, Brome, Black-eyed Susan, Fleabane	food plot planted by the state	
52	Upland forest	12	5	NA	10	5	5	NA	NA	5	3	5	1	NA	NA		0.59	Hackberry, Smilax, Privet, Poison Ivy, Virginia Creeper, Dogwood		Red Oak, Chinkapin Oak, Water Oak, Willow Oak,		Winged Elm, Ash	Eastern Red Cedar	NA	Moss	Honeysuckle, Carex	NA		
53	Riparian /BHF	25	12	NA	20	6	3	NA	NA	5	3	5	1	NA	NA		0.80	Poison Ivy, Hackberry, Box Elder	Honey Locust	Bur Oak		Black Walnut	Cedar Elm, American Elm,	NA	NA	Osage Orange,	Carex, Roundleaf Ragwort, Virginia Wildrye	Large Black Walnut Tree	
54	Upland Forest	12	20	NA	10	7	5	NA	NA	5	3	3	1	NA	NA		0.76	Hackberry, Dogwood, Poison Ivy, Possumhaw Holly,Privet, Virginia Creeper		Red Oak, White Oak, Bur Oak		Hickory	Cedar Elm	Eastern Redcedar	Sycamore	Osage Orange,	Virginia Wildrye, Carex, Honeysuckle	NA	
55	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.00	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
56	Riparian /BHF	20	20	NA	15	5	5	NA	NA	4	3	5	1	NA	NA		0.78	Smilax, Box Elder, Sumax	Sericea Lespedeza	Willow Oak, Red Oak		NA	American Elm	NA	NA	Osage Orange, Sweetgum, Moss	Western Ragweed, Carex	NA	

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Uniqueness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6) Additional Structural Diversity	7A) Condition of Woody Vegetation	7B) Herbaceous Vegetation	Cropland and Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry	Drupe	LegumePod	Acorn	Nut Nutlike	Samaras	Cone	Achene	All Others	Herbaceous Species	Notes
57	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.00	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA
58	Grassland	12	5	NA	10	2	1	NA	NA	4	3	5	5	NA	NA		0.80	Persimmon,		Honey Locust, Sericea Lespedeza	NA	NA	NA	NA	NA	NA	Hibiscus, Sedge, Deer Tongue, Prairie Bishop, Marsh Parsley, Clover, Carex, Meadow Pink	NA
59	Upland Forest	12	12	NA	10	3	3	NA	NA	4	3	5	3	NA	NA		0.63	Smilax, Poison Ivy, Hackberry, Sugarberry, Privet,		NA	NA	NA	Cedar Elm	NA	NA	Osage Orange	Carex, Sedge, Violet, Marsh Parsley, Virginia Wildrye	NA
60	Upland Forest	12	20	NA	10	4	3	NA	NA	4	5	3	3	NA	NA		0.74	Smilax, Privet, Virginia Creeper,		NA	NA	NA	American Elm	Eastern Red Cedar	NA	Osage Orange ,	Sweet Violet, Virginia Wildrye, Carex, Marsh Parsley	NA
61	Grassland	12	5	NA	10	2	1	NA	NA	3	0	0	3	NA	NA		0.61	NA		Compact Prairie Clover	NA	NA	NA	NA	NA	Prickly Pear Cactus	White Bishop, Indian Paintbrush, Beebalm, Tickseed, Goldenrod, Rush, Sneezeweed,	NA
62	Upland Forest	12	12	NA	10	3	3	NA	NA	4	3	5	3	NA	NA		0.63	Hackberry, Smilax		NA	NA	NA	Cedar Elm, American Elm,	Eastern Red Cedar	NA	NA	Marsh Parsley, Virginia Wildrye, Privet, Wild Oats	NA
63	Upland Forest	12	12	NA	10	4	3	NA	NA	4	3	5	3	NA	NA		0.64	Hackberry, Privet, Poison Ivy, Smilax		NA	White Oak, Red Oak	NA	Cedar Elm	NA	NA	Osage Orange , Moss	Virginia Wildrye, Sedge, Marsh Parsley, Ragwort, Thistle	NA
64	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	0.00	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA
65	Upland Forest	12	12	NA	5	6	3	NA	NA	4	1	5	1	NA	NA		0.56	Smilax, Hackberry		NA	Unknown Oak	Hickory	Winged Elm	Eastern Red Cedar	NA	Osage Orange , Moss	Carex, Sedge, Tickseed	NA
66	Grassland	12	5	NA	10	4	1	NA	NA	4	3	5	3	NA	NA		0.80	Hackberry		NA	NA	NA	Winged Elm	Eastern Red Cedar	NA	Osage Orange	Indian Paintbrush, Mexican Hat, Bunch Grass Beebalm, Yarrow	NA

Point Number	Grouped Habitat Type	1) Site Potential	2) Successional Stage	Marsh Successional Stage	3)Uniqueness and Relative Abundance	4A)Diversity of Woody Species	4B)Number of Woody Species	Swamp Diversity of Veg	Marsh Diversity of Veg	5) Vertical Stratification	6)Additional Structural Diversity	7A)Condition of Woody Vegetation	7B)Herbaceous Vegetation	Cropland Condition	Marsh Condition	Total Score before readjustment	Final Score	Berry	Drupe	LegumePod	Acorn	Nut Nutlike	Samaras	Cone	Achene	All Others	Herbaceous Species	Notes	
66A	Grassland	12	12	NA	10	2	1	NA	NA	5	5	5	5	NA	NA	0.97		Dewberry,		Sericea Lespedeza, Japanese Bushclover, Bluebonnet	NA	NA	NA	NA	NA	NA		Milkweed, Virginia Wildrye, Woodland Oats, Dandelion, Globe Sedge, Boneset, Bee Balm, herb, Yellow Ragwort, Cherokee Sedge, Greater Plantain	NA
67	Upland Forest	7	12	NA	5	7	5	NA	NA	4	1	5	3	NA	NA	0.56		Hackberry, Smilax, Virginia Creeper		Eastern Redbud , Tick-trefoil,	White Oak	Hickory	American Elm, Winged Elm	Eastern Red Cedar	NA	Osage Orange , Moss	Sedge, Carex sp. X2, Virginia Wildrye,	NA	
68	Upland Forest	12	12	NA	10	6	5	NA	NA	5	5	5	3	NA	NA	0.72		Hackberry, Buckthorn, Smilax, Virginia Creeper		Honey Locust, Tick Tre-foil	White Oak	Hickory	Winged Elm, American Elm	Eastern Red Cedar	NA	NA	Sunflower, Virginia Wildrye, Carex sp. X2, Sedge,	NA	
69	Upland Forest	12	12	NA	15	5	3	NA	NA	4	3	5	3	NA	NA	0.71		Virginia Creeper		American Hog Peanut, Tick Tre-foil, Rabbitfoot Clover	White Oak	Hickory	Winged Elm	NA	NA	NA	Goldenrod, Carex sp. X2, Virginia Spiderwort, Carex sp. X2,	NA	
70	Upland Forest	12	12	NA	10	6	3	NA	NA	5	3	5	4	NA	NA	0.69		Hackberry, Smilax, unknown vine, Virginia Creeper,		NA	White Oak	Hickory	American Elm	Eastern Red Cedar ,	NA	Osage Orange , Moss	Unknown herb, Virginia Wildrye, Creeping Jenny	NA	

Attachment B: Hugo WHAP Point Photographs

Hugo Lake #: 1

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 3

Facing North



Facing East



Facing West



Facing South



Hugo Lake #:4

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 5

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 7

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 8

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 11

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 12

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 13

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 14

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 15

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 16

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 18

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 19

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 20

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 21

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 22

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 23

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 24

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 25

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 26

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 27

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 28

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 29

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 30

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 31

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 32

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 33

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 34

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 37

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 38

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 40

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 44A

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 45

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 46

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 47

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 50

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 51

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 52

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 53

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 54

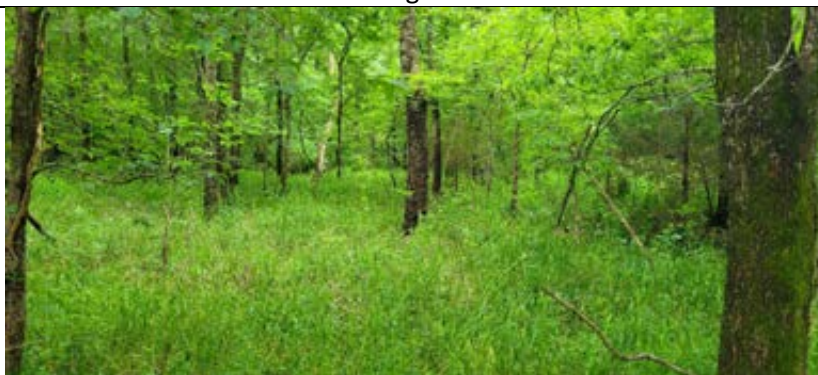
Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 56

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 58

Facing North



Facing West



Facing South



Hugo Lake #: 59

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 60

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 61

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 62

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 63

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 65

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 66

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 66A

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 68

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 69

Facing North



Facing East



Facing West



Facing South



Hugo Lake #: 70

Facing East



Facing West



Facing South



APPENDIX D – ACRONYMS

ac-ft	Acre Feet
ADA	Americans with Disabilities Act
AQI	Air Quality Index
ARPA	Archeological Resources Protection Act
BHF	Bottomland Hardwood Forest
BMP	Best Management Practices
CAP	Climate Action Plan
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CHSP	Cedar Hill State Park
CO	Carbon Monoxide
CRMP	Cultural Resources Management Plan
CWA	Clean Water Act
DC	District Commander
DF	Deciduous Forest
DEQ	Department of Environmental Quality
DM	Design Memorandum
EA	Environmental Assessment, NEPA Document
EMS	Ecological Mapping System
EOP	Environmental Operating Principles
EP	Engineering Pamphlet
EPA	United States Environmental Protection Agency
ER	Engineering Regulation
ESA	Environmentally Sensitive Area
ESA	Endangered Species Act
°F	Degrees Fahrenheit
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FWCA	Fish and Wildlife Coordination act of 1958
GHG	Greenhouse Gasses
GIS	Geographical Information Systems
HDR	High Density Recreation
HPA	Historic Preservation Associates
HPMP	Historic Preservation Management Plan
HQ	USACE Headquarters (also HQUSACE)
HUC	Hydrologic Units Code system
IH	Interstate Highway
IPaC	Information for Planning and Consultation
LDR	Low Density Recreation
LEED	Leadership in Energy and Environmental Design
MGD	Million gallons per day
MP	Master Plan or Master Planning
MRML	Multiple Resource Management Lands
NAAQS	National Ambient Air Quality Standards

NCTCOG	North Central Texas Council of Governments
NEPA	National Environmental Policy Act, 1970
NGVD/NGVD29	National Geodetic Vertical Datum (1929)
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRM	Natural Resource Management
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NO _x	Nitrous Oxides
NRCS	Natural Resource Conservation Service
NRHP	National Registry of Historic Places
NSRE	National Survey on Recreation and the Environment
NWI	National Wetland Inventory
O ₃	Ozone
ODAFF	Oklahoma Department of Agriculture, Food, and Forestry
ODWC	Oklahoma Department of Wildlife Conservation
O&M	Operations and Maintenance
OK	Oklahoma (also Oklahoma State Highway)
OMB	Office of Management and Budget
OMBIL	Operations and Maintenance Business Information
OMP	Operations Management Plan for a specific lake Project
ONHI	Oklahoma Natural Heritage Inventory
OPM	Operations Project Manager
ORV	Off-road Vehicle
Pb	Lead
PL	Public Law
PM	Particulate Matter (PM ₁₀ and PM _{2.5})
PO	Project Operations
RBLH	Riparian Bottomland Hardwoods
RM	River Mile
RPEC	Regional Planning and Environmental Center
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SGCN	Species of Greatest Conservation Need
SH	State Highway
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
TCP	Traditional Cultural Properties
U.S.	United States (also US)
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	U. S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VM	Vegetative Management Area
WDA	Workforce Development Area

WHAP	Wildlife Habitat Appraisal Procedure
WM	Wildlife Management Area
WQS	Water Quality Standards
WRDA	Water Resources Development Act