ENVIRONMENTAL ASSESSMENT WITH DRAFT FINDING OF NO SIGNIFICANT IMPACT

Rend Lake Forestry Management

2 June 2022

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Contents

1. INTRODUCTION

1.1. Introduction

This U.S. Army Corps of Engineers (Corps), Mississippi Valley Division, St. Louis District, has prepared this Environmental Assessment (EA) to evaluate the environmental impacts of the proposed Forest Stand Improvement (FSI) actions in the forested areas surrounding Rend Lake. These FSI actions would be in accordance with the Rend Lake Master Plan. Rend Lake land managers propose to implement FSI strategies at the Rend Lake project. Forest Stand Improvement actions are needed in order to create conditions that promote the regeneration of oaks and other desirable trees in the understory. The lack of ongoing FSI actions at Rend Lake has degraded the health of the available forest stands, leading to reduced forest community diversity, reduced forest species diversity, reduced wildlife species diversity, and an increase in invasive species.

This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality's Regulations (40 Code of Federal Regulations §1500-1508), as reflected in the USACE Engineering Regulation 200-2-2. Impacts on environmental resources are discussed in detail in this Environmental Assessment and summarized in an unsigned Finding of No Significant Impact (FONSI). The decision whether to sign the FONSI would be made after full consideration is given to all public comments received during the 30-day public review period.

1.2. Authorizations

Rend Lake on the Big Muddy River, Illinois, was authorized by the Flood Control Act of 23 October 1962, Public Law (PL) 87-874, 87th Congress, House Resolution (HR) No. 13273, in accordance with the Chief of Engineers' recommendation, contained in House Document No. 541, 87th Congress, Second Session. The St. Louis District's Rend Lake Master Plan provides guidelines for the day-to-day management of the lake's operations. This plan is periodically updated to reflect the need for land use changes. One of the authorized purposes for Rend Lake includes fish & wildlife conservation. The primary mission of fish & wildlife conservation is to manage and conserve natural resources, consistent with ecosystem management principles, while providing quality public outdoor recreation experiences to serve the needs of present and future generations. Furthermore, the Forest Cover Act of 1960 (Public Law 86-717) is a statutory mandate directing the Corps reservoir areas be managed "to encourage, promote, and assure fully adequate and dependable future resources of readily available timber, through sustained yields programs, reforestation, and accepted conservation practices and to increase the value of such areas for conservation, recreation and other beneficial uses". The purpose of the FSI actions is consistent with the authorized purposes of the Rend Lake Project and the Forest Cover Act of 1960.

1.3. Project Location and Forest Description

1.3.1. Location

Rend Lake is located in Illinois in Franklin and Jefferson counties in-between Mt. Vernon to the north, and Benton to the south (Figure 1). The reservoir lake formed behind a dam across the Big Muddy River approximately 103 miles upstream from its confluence with the Mississippi River. Illinois State Route 154 crosses the lake about halfway along its length from north to south. The Rend Lake project has a total area of 40,840 acres, of which 40,153 acres is owned in fee title and 687 acres is flowage easement land. The dimensions of Rend Lake are approximately 13 miles long by 1.5 to 3 miles wide, making it the second-largest man-made lake in Illinois. The surface area of the lake is 20,633 acres with a perimeter of 162 miles when the pool is at its normal elevation of 405 feet NGVD. The maximum depth of the lake is about 35 feet near the main dam at normal pool elevation. In addition to the main lake, approximately 10 miles above the main dam are two sub-impoundment dams; one on the Big Muddy River and the other on the Casey Fork River. These sub impoundment dams are used for regulating water levels for fish and wildlife management activities.

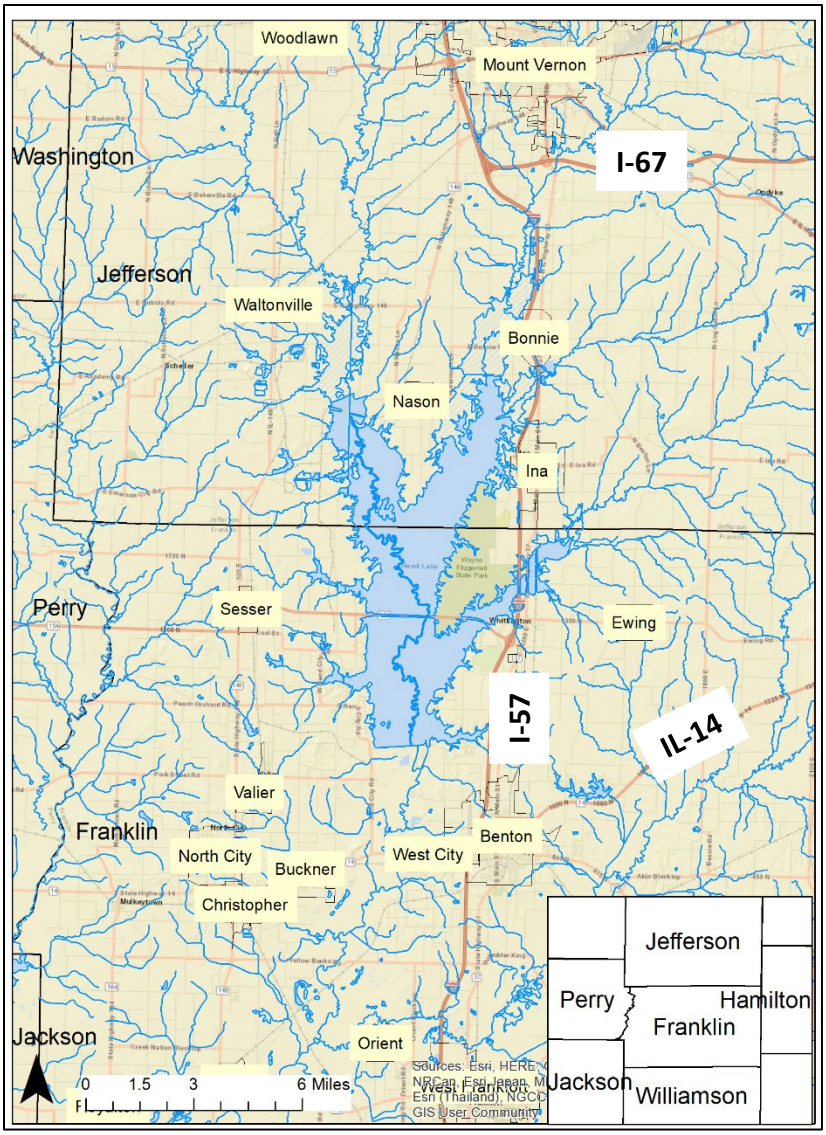

Figure 1. Map of the Rend Lake Project Area.

1.3.2. Existing Forest Condition

The species diversity and species composition of the existing forest community at the Rend Lake project has degraded over time. Forest stands that have an overstocked basal area per acre (BA) show restricted tree growth and inhibit growth in the understory and forest floor. Basal area per acre describes the average amount of an acre that is covered by tree stems. It is defined as the total cross-sectional area of all stems in a stand measured at breast height and expressed as per unit of land area (typically square feet per acre) (Private Lands Habitat Program, 2021). The majority of forest stands at Rend Lake are overstocked. While fully stocked stands would have densities between 60-100 Basal Area (BA) per acre, overstocked stands have a BA greater than 100 (Gingrich, 1971). Using this metric, 40 of the 55 forest stands at Rend Lake would be considered overstocked.

1.4. Invasive Species Concerns

A primary resource concern in the forested areas is the well-developed invasive shrub layer in the understory and a lack of light at the forest floor that inhibits tree regeneration. Invasive species management is in accordance with the National Invasive Species Act of 1996 (PL 104-332) and the USACE Invasive Species Policy (2009), which seeks to contain and reduce the spread and populations of established invasive species to minimize their harmful impacts. Acceptable control techniques include chemical, mechanical, biological, fire, cultural, and flooding.

1.5. Purpose and Need

The purpose of the project is to enhance the Federally-managed forest communities at the Rend Lake project. The existing forest community types at Rend Lake have degraded over time and, without intervention, will continue to degrade. Undesirable conditions include low regeneration rates of desirable tree species, low species diversity, suboptimal species composition, and invasive species encroachment. Forest management intervention is needed to create conditions that promote the regeneration of oaks and other desirable trees in the understory and midstory. Having multiple age stages of oaks and other desirable species ensures long-term sustainability of the important upland and bottomland forest habitat types. Without a plan to address these undesirable forest conditions, there would be further degradation in the variety of forest community types available, reductions in tree species diversity, suboptimal tree species composition, loss of soil water-filtering capabilities, and a reduction in the usefulness of the forest community types to provide for wildlife.

1.6. Goals and Objectives

The goals of the proposed action are to:

- Restore and maintain forest diversity, health, and sustainability on Federal lands, in order to provide native vegetation communities sufficient to support favorable wildlife habitat.
- Prescribe forest management techniques which support federal management goals and objectives for wildlife and fish management through Best Management Practices (BMPs).
- Reduce the impacts of invasive species on natural communities.

Objectives of these FSI actions are to manipulate the vegetation in the forested areas at the Rend Lake project in order to:

- Improve tree species diversity by removing trees and other vegetation that compete for resources with desirable tree species.
- Create a favorable composition of these desirable tree species.
- Increase the intensity of light in contact with the ground to promote regeneration of desirable tree species.
- Improve the structure of the forest stand by manipulating age-classes and density of trees.

- Preserve all dead snags for wildlife habitat except for those that pose a safety risk.
- Remove invasive and undesirable tree and herbaceous vegetation species.

2. ALTERNATIVES EVALUATED AND TENTATIVELY SELECTED PLAN

2.1. Alternatives Considered

This section describes the alternatives proposed to address the objectives laid out in Section 1.5. The action alternative would propose to conduct FSI actions at several stands at the Rend Lake project. As required by NEPA, the "No Action" alternative is also evaluated, and is used as a baseline against which action alternatives are evaluated. The expected consequences of the alternatives are discussed in Chapter 3.

Alternative 1: No Action Alternative

The "No Action" alternative is the alternative for which no federal FSI actions would be carried out. This alternative represents the baseline or reference against which to describe environmental effects of the action alternative. Under this scenario, the Rend Lake project would continue to perform its operation and maintenance responsibilities but would not carry out the FSI actions. Invasive species management would still take place throughout Rend Lake. The "No Action" alternative would result in a decrease in overall forest health and quality habitat. Failure to allow sunlight to reach the forest floor would prevent desired tree regeneration and decrease diversity of early successional vegetation, which is paramount for overall forest environmental quality. The "No Action" alternative would result in no federal action being taken to correct the overall health of the forest ecosystem.

Alternative 2: Forest Stand Improvement (Tentatively Selected Plan)

The St. Louis District of the U.S. Army Corps of Engineers is proposing to implement intermediate FSI methods using scientifically sound silvicultural techniques in forested areas around Rend Lake. The proposed FSI actions are in accordance with the objectives of the Rend Lake Master Plan (2018). FSI activities would be conducted over the next 10 years (2022-2032), in accordance with Rend Lake's priority list, and the availability of resources.

Within the Proposed Action area, there are a total of 22 treatment areas split into 55 individual forest stands (Figure 2). The total proposed project area is 9234.7 acres, of which 6282 acres is forested. Of the 6282 forested acres, 5700 acres have a FSI treatment planned that would include tree removal. The remaining acreage includes those stands that have been prescribed invasive plant removal only or that simply had no treatment proposed at all. The 55 stands are in areas classified by Rend Lake as either a Vegetation Management Unit or a Recreation Management Unit (Table 1). Table 1 provides a description of the stands, including their location, acreage, and the prescribed FSI treatment. The Recreation Areas would require extensive invasive woody shrub removal in the understory and midstory. After invasives are removed, the recreation areas would require some FSI in the form of midstory thinning.

Management in the Recreation Areas would also include dead tree removal for public safety, which is part of the typical operation and maintenance (O&M) of these areas. Recreational facilities such as campgrounds, non-motorized hiking/biking trails, and picnic areas often have hazard trees that require removal for safety reasons in high trafficked areas when a tree is deemed to be a threat to human life. These are typically lightning struck trees, drought stressed

trees or trees dying from root compaction. Trees are marked during the growing season and cut during the fall and winter months, if possible, to avoid impacts to forest bats, and when visitors numbers are low. Occasionally trees must be cut during the growing season for human-safety reasons as the need arises. The stands labeled "FR-1" and "LD-1, LD-5" in Table 1 are also Recreation Areas and have a nearly 99% coverage of invasive species. An assessment of FSI treatment opportunities would be made after the invasive species are removed but would probably be similar to the other Recreation Areas, which propose midstory thinning.

2.2. Development of Forest Stand Improvement Alternative

Treatment plans were developed by identifying potential forest management measures which may be used to improve the forest community and wildlife habitat within each treatment area in the Proposed Action Area. The following are broad definitions of potential forest management measures:

1) **Enhancement of Bat Habitat.** Habitat enhancement for the federally listed bat species would be favored as much as possible through timber management practices. Thinning activities would increase travel corridors and allow sunlight to reach potential roost trees. All dead trees, split trees, trees that have cavities, and trees with exfoliating bark would be favored for retention. Snags would be created as dictated by habitat type and forest community conditions to provide a specific habitat for forest bats. Areas that have known roosts would be delineated and avoided. Enhancement of forest bat habitat would occur within all areas of the Proposed Action Area where possible.

2) **Forest Stand Improvement.** Forest Stand Improvement is broadly defined as an intermediate treatment. It is further defined as any treatment or tending designed to enhance growth, quality, vigor, and composition of the stand. The following are typical intermediate type treatments that are included within the proposed action:

Overstory Tree Removal (Thinning)

Overstory trees are removed to reduce competition to desirable hardwoods and to promote oak regeneration. Oak cannot regenerate and survive under low light levels and are often shaded out of the forest without some type of overstory disturbance. Trees to be removed are undesirable overstory hardwood species consisting primarily of elm, honey locust, sassafras, boxelder, and hackberry.

Midstory Tree Removal (Thinning)

Thinning is a tree removal treatment performed to reduce stand density of trees. It is utilized primarily to increase growth, enhance forest health, or reduce potential mortality. Thinning of existing forest resources would be a focus of many of the prescriptions in order to establish early successional and oak-hickory forest communities and support uneven-age management of maple-ash-elm forest communities. Invasive species would be removed from the understory and midstory before midstory thinning of trees would take place.

Crop Tree Release

A desirable tree species (e.g. oaks, black cherry, hickories) in good health and form would be selected as a crop tree. Then, each tree that is touching or directly competing with the selected tree is felled or girdled. The crop tree can be released on one side (a light cut) or on up to all four sides (very heavy cut). Trees to be removed in the crop tree release are undesirable overstory hardwood consisting primarily of elm, honey locust, sassafras, boxelder, and hackberry. A crop tree release can be crucial when trying to develop slow growing species like oak, giving them the space and sunlight they need to reach a dominant position in the canopy.

3) **Invasive Species Management.** The Corps is mandated by the Federal National Invasive Species Act (1996) and the Corps Invasive Species Policy (2009) to contain and reduce the spread and populations of established invasive species to minimize their harmful impacts. Acceptable control techniques include chemical, mechanical, biological, fire, cultural, and flooding. All of these alternatives would be evaluated prior to the implementation of a control technique. The control technique chosen would be based upon potential ecological impact, susceptibility of targeted species, cultural acceptability, and cost benefit analysis. A Pesticide Use Proposal (PUP) evaluating each control technique and justifying the use of chemical pesticides would be produced prior to the large scale use of a pesticide. Treatment of invasive species would occur within the proposed treatment stands as part of FSI or as needed to ensure tree seedling survival and recruitment. Monitoring pre- and post-treatment would be conducted to determine the success of the treatment and adaptive management adjustments would be made based upon this analysis.

4) **Tree Planting.** Tree plantings are proposed for two of the stands. Tree planting is an important part of sustainable forest management. Tree planting can increase the number of tree species present and alter the composition of tree species to create a healthier forest community. Tree plantings will be well-planned, with careful pre-planting site preparation, selection of planting stock, planting arrangement, and post-planting management. Objectives of the tree planting are to:
   - Re-forest areas experiencing overstory mortality.
   - Improve water quality and protect soil resources.
   - Promote hardwood species for future hard mast production.
   - Improve forest health, species composition, biodiversity, and volume production.

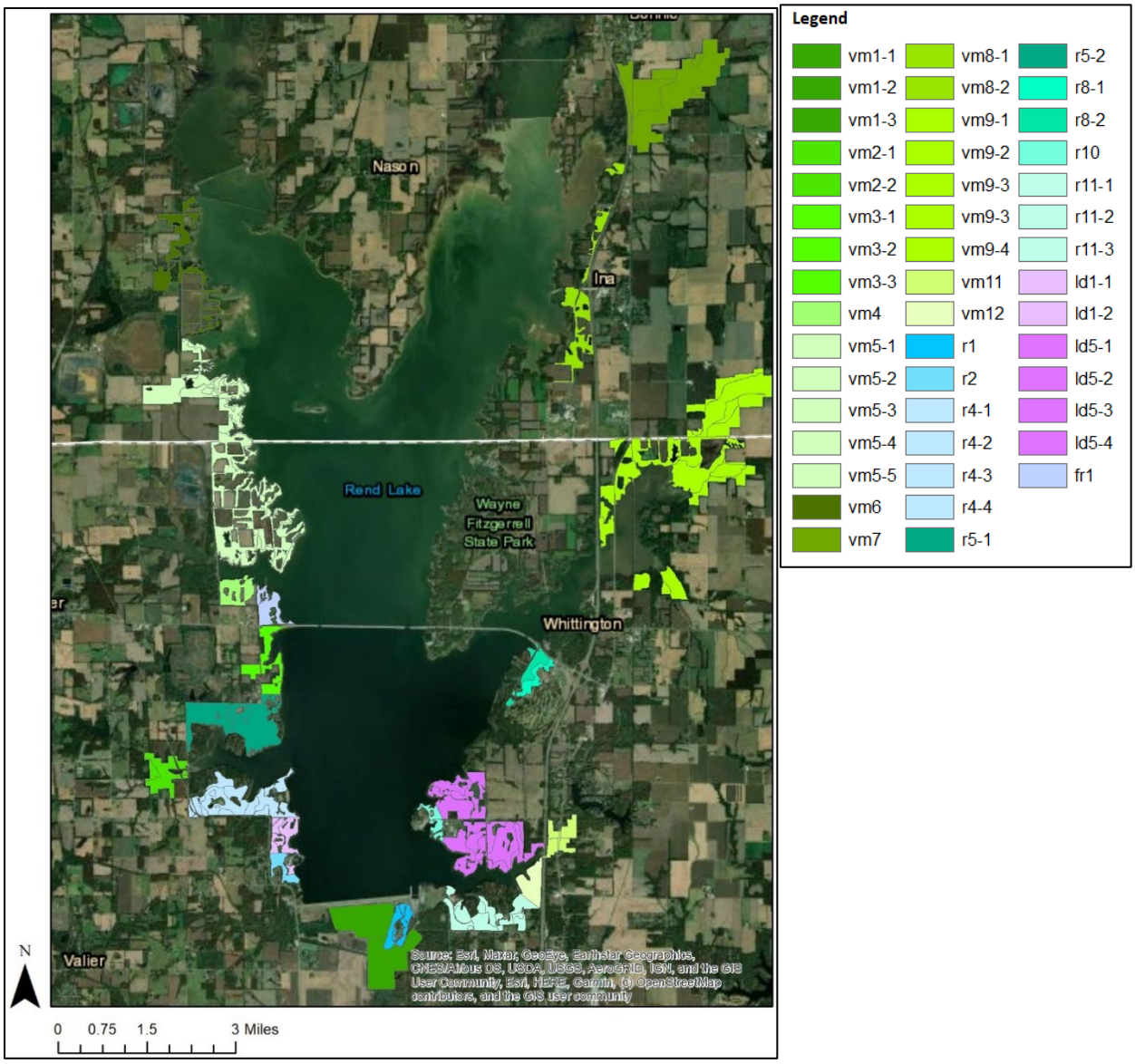

Figure 2. Map of forest stands where FSI actions are proposed.

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Table 1. A description of each of the management units at Rend Lake where FSI actions would take place.

Compartment	Stand	Treatment Acres/Total Acres	Existing basal area/acre	Reduction in basal area/acre	Proposed Treatment	Timber Harvest
VM-1	1	196.5	104	39	Invasive removal	No
	2	197.5	96	29	Invasive removal; midstory thinning, overstory thinning, tree planting	Yes
	3	212.0 =606.3/707.3	110	46	Invasive removal; midstory thinning, overstory thinning	Yes
VM-2	1	19.0	123	53	Invasive removal; midstory thinning, overstory thinning, crop-tree release	Yes
	2	98.0 =117.0/129.4	101.7	34.7	Invasive removal; midstory thinning	No
VM-3	1	67.3	120	51	Invasive removal; midstory thinning	No
	2	24.2	83.3	17.3	Invasive removal; midstory thinning	No
	3	23.0 =114.5/114.5	128.8	56.8	Invasive removal; midstory thinning	No
VM-4	1	19.0	70	8	Invasive removal	No
	2	27.2	66.3	10.3	Invasive removal	No
	3	76.1 =153.1/=153.1	79.3	15.3	Invasive removal, crop-tree release	No
VM-5	1	416	96	32	Invasive removal; midstory thinning	No
	2	45.3	107	35	Invasive removal; midstory thinning, overstory thinning, crop-tree release	Yes
	3	98.7	86	22	Invasive removal; midstory thinning	No
	4	209.7	120	53	Invasive removal; midstory thinning	No
	5	14.7 =784.4/1230.2	133	59	Invasive removal, overstory thinning	No
VM-6	1	221.0	110.8	47.8	Invasive removal	No
	2	87 =308.0/492.3	106.4	53.4	Invasive removal, midstory thinning	No
VM-7	1	244.4	121	64	Invasive removal; crop-tree release	No
	2	151.6 =396.0/598.0	119	52	Invasive removal, midstory thinning, overstory thinning	Yes
VM-8	1	15.7	106	33	Invasive removal, overstory thinning, crop-tree release	Yes
	2	171.6	116	50	Invasive removal, midstory thinning	No
	3	217.0	103	38	Invasive removal, midstory thinning	No

		=404.3/605.8				
VM-9	1 2 3 4 5 6 7	500.8 249.8 313.6 79.7 118.2 19.3 19.5 =1300.9/2094.0	100 105 114 64 85 140 108	37 43 49 11 18 72 34	Invasive removal, midstory thinning, crop-tree release Invasive removal, midstory thinning Invasive removal, midstory thinning Invasive removal, tree planting None at this time Invasive removal, midstory thinning Invasive removal, midstory thinning	No No No No No No No
VM-10	1	=144.1/180.0	120	54	Invasive removal	No
VM-11	1 2	25.5 58.0 =83.5/88.0	83 123	17 57	Invasive removal, midstory thinning Invasive removal, midstory thinning	No No
VM-12	1	=83.3/83.3	91	30	Invasive removal, midstory thinning	No
R-1	1	=64.2/117.2	112	48	Invasive removal, overstory thinning	No
R-2	1	=42.2/65.4	108	43	Invasive removal, midstory thinning	No
R-4	1 2 3 4	57.7 36.6 151.6 26.8 =412.6/477.0	113 149 116 104	47 71 49 45	Invasive removal, overstory thinning, crop tree release Invasive removal, overstory thinning Invasive removal, midstory thinning Invasive removal, midstory thinning	No No No No
R-5	1 2	313.0 26.1 =339.1/507.8	103 153	38 83	Invasive removal, midstory removal Invasive removal, midstory removal	No No
R-8	1 2	42.2 49.8 =92.0/217.8	120 87	56 28	Invasive removal, overstory thinning, crop tree release Invasive removal, midstory removal	No No
R-10	1	=36.5/76.6	100	36	Invasive removal, midstory thinning	No
R-11	1 2 3	54.1 106.7 43.2 =204/400.0	103 112 75	39 47 22	Invasive removal, midstory thinning, crop tree release Invasive removal, midstory thinning Invasive removal, midstory thinning	No No No
FR-1	1	=70/91.0	81	15	Invasive removal, midstory thinning	No
LD-1	1 2	61.6 24.4 =86.0/123.8	124 163	53 91	Invasive removal, midstory thinning Invasive removal, midstory thinning	No No

LD-5	1 2 3 4	36.6 146.5 19.3 238.0 =440.4/628.9	102 93 160 160	40 28 86 97	Invasive removal, overstory thinning, crop tree release Invasive removal, overstory thinning Invasive removal, overstory thinning Invasive removal, midstory thinning	No No No No
Totals		**6282.4/9234.7**				

The reduction in stocking would enhance the forest to meet wildlife habitat and forest health objectives. An increase in open forest structure would enhance suitable foraging for various bat species. Individual tree removal would encourage wider variety of tree diameters while allowing for enhancement of desirable forest regeneration.

Tree removal would be accomplished with mechanical methods over the 5–10-year period of FSI actions. In some cases, construction of temporary staging areas would be required. Figures 3, 4 , 5, and 6 show the locations of the access roads that would be used to access the stands. No new haul/access roads would be built. These areas would be rehabilitated following the completion of the FSI actions by restoring areas of disturbed soil with a native seed mix with fast-growing vegetation.

2.3. Timber Harvest

While the purpose of the tree removal is to improve forest health, some of the felled trees may be sold commercially. The Operations Element would prepare the determination of availability for forest products to be sold on Rend Lake Project lands. The sale of forest products would be administered by the Real Estate Element, in accordance with ER 405-1-12. Minor sales may be accomplished by the Operations Project Manager on water resources development projects under the general guidance (ER 405-1-12) issued by the Real Estate Element. Determinations of availability would contain as a minimum:

- A statement of the purpose of the proposed sale.
- An estimate of the volume of the various products made available and the basis for the estimate.
- A statement on the accuracy of the estimate to serve as the basis for a lump sum sale (if forest products are intended to be sold on lump sum basis).
- A listing of voluntary Best Management Practices (BMPs) published by state forestry agencies would be included in the sales contract. Examples of BMPs include seasonal harvesting requirements, riparian protection zones, maximum log lengths, and allowable equipment size.
- Provisions for a final joint Operations Element-Real Estate Element compliance inspection before release of the contractor at completion of the contract, as required.

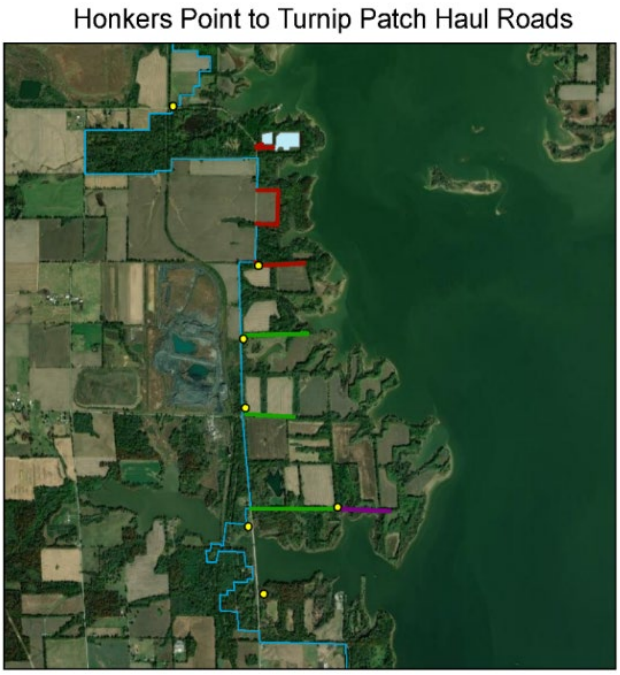


Figure 3. Honkers Point to Turnip Patch access roads and landing areas.

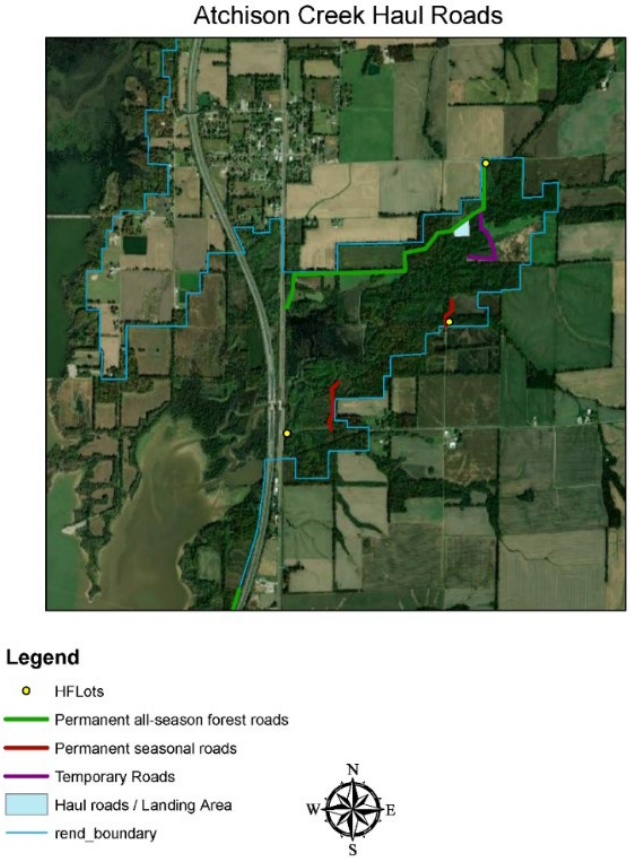


Figure 4. Atchison Creek access roads and landing areas.

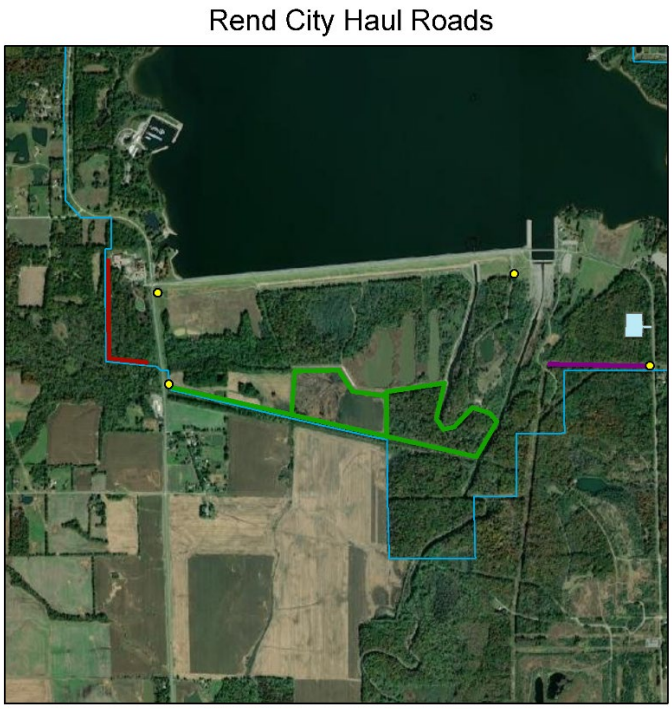


Figure 5. Rend City access roads and landing areas.

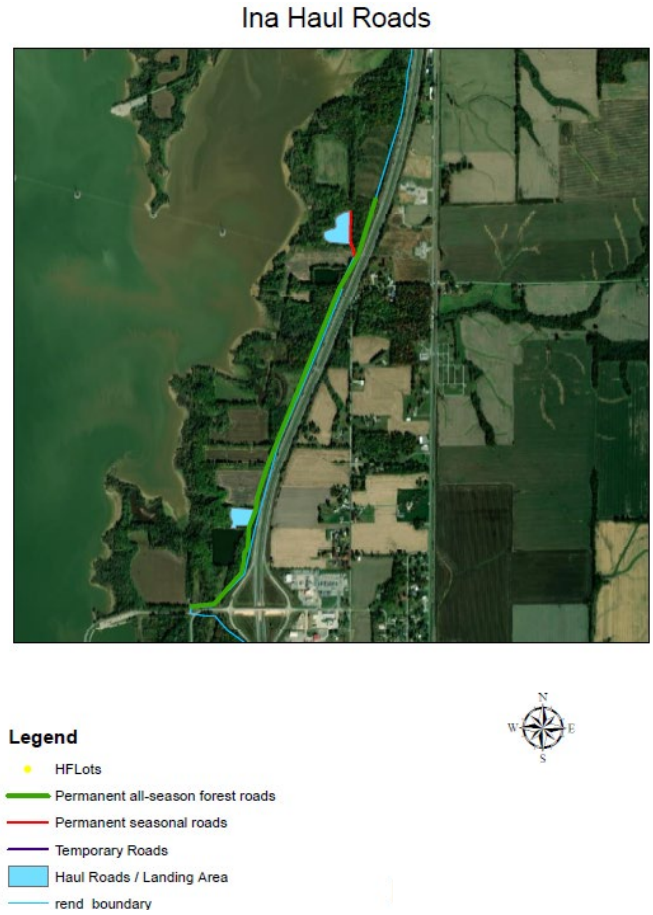


Figure 6. Ina access roads and landing areas.

2.4. Overall Conservation Measures and Best Management Practices

Conservation measures are incorporated into the Proposed Action to avoid or minimize adverse impacts to specific protected natural resources. The conservation measures below are focused on resources connected to the treatment actions. Conservation measures would consist of accepted government and private FSI activities practices.

- Stream and Wetland Protection – Forested buffers a minimum of 50 feet would be retained on each side of all perennial and intermittent streams to prevent any soil, bank, and bed disturbance.
- Soil Protection - Access roads would consist of ridge tops, agricultural fields, interior and existing roads. Landings would be established where necessary on ridge tops and flat areas suitable for access and appropriate to minimize soil disturbance. Tree removal would cease during periods of saturated soil conditions to protect against excessive compaction.
- Protection of Special Features – Resources such as wetlands and cultural sites would be excluded from tree removal areas.
- Protection from Invasive Species - Use of invasive, exotic plant species will be avoided when re-foresting and when stabilizing soils.
- All tree removal would be limited to between 1 October to 31 March.
- The FSI activities would be spread out over a period of 10 years, involving only a maximum of 1/10th of the total forested acres per year.
- Trees that exhibit roost-characteristics would be retained unless they pose a safety threat.
- All trees that are girdled in the FSI process will be left standing for wildlife habitat and allowed to fall down naturally unless they pose a hazard to public safety or property.

Best Management Practices (BMPs)

Soil disturbance from vehicle use and equipment staging is another concern. The following BMPs will be used to mitigate sediment erosion and runoff:

- Existing road systems and staging areas would be used when possible.
- Traffic will be kept to a minimum during wet and muddy conditions.
- Staging areas will be located on currently disturbed areas, when possible. Otherwise, staging areas will be limited to areas with firm, well-drained soils with a slight slope to allow for drainage.
- Sediment control structures will be installed where appropriate to slow the flow of runoff and to arrest sediment until vegetation cover is established.
- Areas of bare soil will be restored by applying seed and mulch.
    - Seed mixes will include fast-growing vegetation to arrest soil movement and perennial species for longer soil protection.
    - Seed mix used will be restricted to those approved by the Illinois DNR

Pesticides are utilized on Rend Lake for turf management and weed control in recreation areas, rights-of-way, agricultural fields and for invasive species control. Any operator that uses herbicide as part of these FSI actions will be licensed by the State of Illinois and abide by the following BMPs:

- Maintain a spill containment and cleanup kit appropriate for the materials used and report all spills.
- Follow all EPA product label instructions on chemical containers.
- Mix and load chemicals in a staging area that is outside streamside management zones or other sensitive areas.
- Apply chemicals only under favorable weather conditions to prevent drift.
- Calibrate spray equipment to apply chemicals uniformly and in the correct quantities.
- Dispose of chemical containers according to label instructions.
- Prevent chemical leaks from equipment. Do preventative maintenance and repair on all equipment for leaking hoses, connections, and nozzles.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1. Physical Resources

3.1.1. Topography, Geology, and Soils

The geology of Illinois is characterized by widespread deposits of Paleozoic marine sedimentary rocks, with relatively minor deposits of Mesozoic and Cenozoic sedimentary rocks (Illinois Department of Natural Resources, 2021). There are two major sedimentary basins in Illinois: the Illinois Basin, and the Michigan Basin. These basins formed as a result of the highly vaulted Precambrian rocks that form the "basement" of the state's geology, which allowed sedimentary rock to be deposited throughout the Paleozoic era. The Illinois Basin is oriented roughly northwest to southeast and is about four kilometers deep, covering most of the state of Illinois, and parts of western Indiana and Kentucky.

The modern topography of the state is largely a result of the three glacial periods: the pre-Illinoian, Illinoian, and Wisconsinian (Frankie, 2004). While glaciers covered up to 85% of the state at times, the extreme northwestern and extreme southern parts of the state were not covered. Calhoun, Pike, Jersey, Monroe, and Randolph Counties were not glaciated. The extreme northwestern part of Illinois is part of the "Driftless Area", which was never covered by glaciers during the last ice age. In contrast to the Driftless Area, the topography around the Rend Lake project is influenced by glacial periods. The movement of the glaciers carried material forward, filling and leveling out low areas and valleys. Melting glacial waters would create new waterways while more deeply incising existing rivers. Characteristically, Rend Lake is surrounded by relatively shallow hillsides and ridges while the lake itself likes in a low area between these hillsides (Figure 7). The topography of the area ranges from 500.0 feet NGVD at the Big Muddy and Casey impoundment to 380.0 feet NGVD at the main Rend Lake dam. The forest stands vary from 0-2% slopes to 5-10% slopes.

Figure 7. Illinois LIDAR relief map of Rend Lake and surrounding area.

The soils at the Rend Lake project are typical of rural areas of the region. The soils of the area formed as a result of Pleistocene glaciation movements and subsequent erosion over time (Frankie, 2004). Generally speaking, the soil types are stratified into three layers: a 1.0-1.5-foot layer of silt loam over 2 feet of silty clay or silty clay loams which lie over silty clay loam glacial till (Illinois Department of Natural Resources, 2021). These soils have a low permeability. The loess soils around the lake are highly erodible, contributing to shoreline erosion around the lake.

Alternative 1 – No Action (Future without Project Condition (FWOP))
In the FWOP condition, no FSI actions would be taken on the forested areas surrounding Rend Lake. The geological formations beneath Franklin and Jefferson Counties would not be altered from their present state in the FWOP condition. Soil types and soil composition at Rend Lake would not be altered but could be expected to change naturally in the future depending on erosion along the lake edge and on slopes. In addition, there may be development of hydric soils in wetter areas. The overall topography of the area is unlikely to change from existing slope/relief of the land. Some future erosion may change local relief to some degree.

Alternative 2 – Forest Management (Forest Stand Improvement)
Similar to the No Action alternative, the FSI alternative would not propose to alter the topography, geology, or soils of the forest stands surrounding Rend Lake. The local relief and slope of the stands would remain the same as existing conditions. The underlying geology of Franklin and Jefferson Counties would not be altered from existing conditions. Finally, the FSI actions would not propose to alter the soil types and composition in any way.

3.1.2. Land Use and Land Cover

The 2018 Rend Lake Master Plan is the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources located on fee and easement lands and waters at the Rend Lake project. The land use at the Rend Lake project is primarily for outdoor recreation. Rend Lake has over 50 outdoor recreation areas, over 750 campsites, over 100 picnic sites, 30 boat ramps, 235 marina slips, and over 34 miles of multi-use trails (U.S. Army Corps of Engineers, 2018). In addition to the recreation areas, there are thousands of acres of forest habitat, open fields/grasslands, and wetlands.

The land cover at Rend Lake is largely open water in the form of the Rend Lake reservoir. The waters of the lake are divided into open water areas (17,124 acres), restricted waters (29 acres), no-wake zones (553 acres), out grant areas (45 acres), and refuge waters (2,882 acres). Surrounding the lake itself are the aforementioned recreation areas (4,396 acres), low-density recreation areas (820 acres), project operations areas (315 acres), vegetation management units (6,016 acres), and wildlife management units (7,799 acres).

Alternative 1 – No Action (Future without Project Condition)
In the FWOP condition, the lack of Forest Stand Improvement would not alter the land cover -it would remain as forest. However, the land cover composition would change as invasive species grow and spread, converting open areas to shrub cover and possibly eventually to forest. The understory of existing forests would likely be converted to primarily consist of invasive shrubs and trees as well. Land use in the Rend Lake project as a whole would not change based on the lack of FSI improvements to the forested areas.

Alternative 2 – Forest Management (Forest Stand Improvement)
The FSI actions do not propose to alter land use form existing land uses. Similar to the No Action alternative, the land cover would change slightly with the FSI alternative. The FSI actions

would remove land cover of invasive shrubs and trees, which would ultimately benefit the land cover through the creation of more diverse and healthy forest community types. Land use would not be affected by the FSI alternative, but land cover would be benefitted by the FSI alternative.

3.1.3. Prime Farmland

Using the USDA's WebSoil Survey tool, a broad area around the Rend Lake project was examined for the presence of Prime Farmland (Figure 8). Excluding the water of the lake itself, over 90% of the land is considered Prime Farmland (Natural Resources Conservation Service, 2021). The Rend Lake project has been created, in part, for the purposes of recreation and providing fish and wildlife habitat. While much of the soils surrounding Rend Lake may qualify as Prime Farmland, these areas would already have been converted away from farmland use as part of the establishment of the Rend Lake project. Current uses for recreation and fish & wildlife habitat do not necessarily preclude future uses as Prime Farmland, if for some reason the land is put back into private agriculture. There are 750.5 acres of agricultural leases at Rend Lake. A combined area of 682 acres allows lessee farmers to plant and harvest row crops including corn, soybeans, and wheat. A further 68.5 acres allows the lessee farmer to grow and harvest corn and winter cover crops for silage and hay crop for their livestock.

<u>Alternative 1 – No Action (Future without Project Condition)</u>

While much of the soils around Rend Lake are considered Prime Farmland, their existing land use has already been converted away from agricultural use in order to create the recreation areas. However, USACE allows some lease farming, as mentioned above. Therefore, the Prime Farmland resource would not be affected by the No Action alternative.

<u>Alternative 2 – Forest Management (Forest Stand Improvement)</u>

The FSI actions would not alter, disturb, or reduce the area of Prime Farmland in Franklin and Rend Counties. Prime Farmland would not be affected by the FSI alternative.

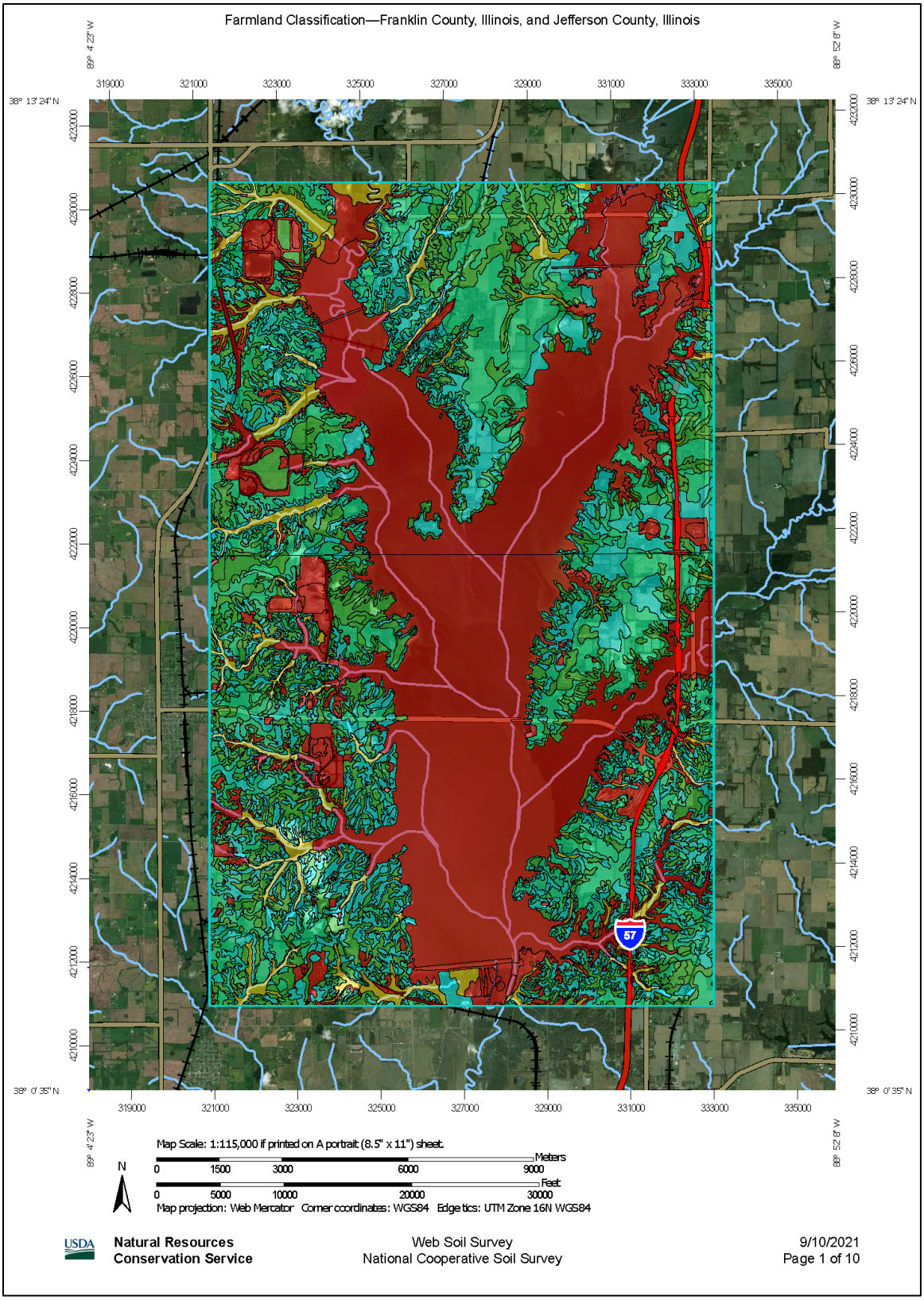
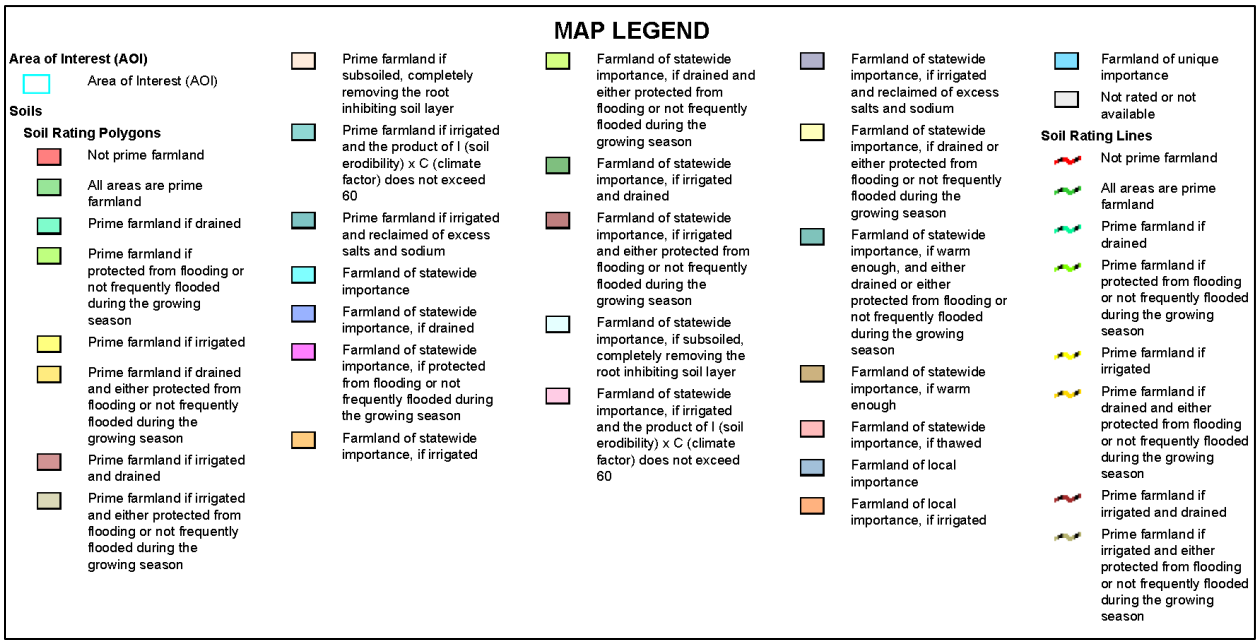


Figure 8. WebSoil Survey map of all areas of Prime Farmland near Rend Lake.



3.1.4. Noise

Inadequately controlled noise presents a risk for adverse impact to humans. Therefore, the Federal government has enacted several measures to control noise pollution. The Noise Control Act of 1972 established by statutory mandate a national policy “to promote an environment for all Americans free from noise that jeopardizes their public health and welfare”. The 1990 Clean Air Act Amendments include Subchapter IV, relating to noise pollution. Section (c) of this subchapter IV requires that in any case where any Federal department or agency is carrying out or sponsoring any activity resulting in noise which the Administrator (of the Office of Noise Abatement and Control) determines amounts to a public nuisance or is otherwise objectionable, such department or agency shall consult with the Administrator to determine possible means of abating such noise.

Noise levels at the Rend Lake project would be characteristic of rural areas, but with a large contribution by recreational activities on and around the lake. Boating and vehicle traffic/use generate high noise levels, and large congregations of people can also contribute to higher noise levels. Compared to the surrounding rural area, the noise levels at the Rend Lake project would be expected to be greater than ambient levels during peak days of recreational use. These uses typically have noise levels in the range of 34-70dB (Figure 9).

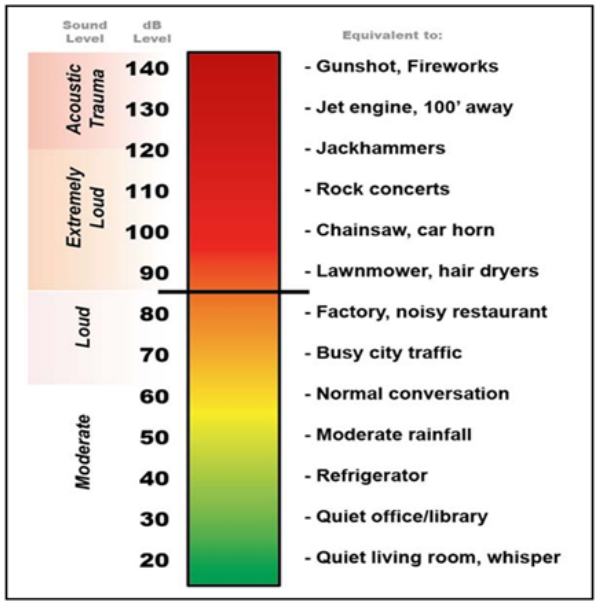


Figure 9. Examples of the sound level and decibel (dB) level of various sources.

Alternative 1 – No Action (Future without Project Condition)

If the FSI improvements are not carried out at the forested areas, the spread of invasive species may limit the recreational opportunities on those areas. This would reduce ambient noise generated from recreation. However, given that recreation is one of the primary purposes/uses of Rend Lake, it is likely that the land managers would maintain recreational use areas for that purpose. Noise levels at the Rend Lake project would not be affected by the No Action alternative.

Alternative 2 – Forest Management (Forest Stand Improvement)

Noise levels would increase from ambient levels during the FSI actions. Equipment used to haul and move felled trees and the operation of chainsaws would create noise levels around 100 decibels in the immediate vicinity of the work. Best management practices can be used to reduce the impact to recreational visitors including quiet hours and work buffer zones. Noise levels would return to normal ambient levels following the work, leaving no permanent long-term noise impacts. Noise levels would be temporarily, minorly impacted by the FSI alternative.

3.1.5. Water Quality

Water Quality Standards (WQS) are the foundation of the Clean Water Act. Water pollution control programs are designed to protect the beneficial uses of the water resources of the state. Each state has the responsibility to set water quality standards that protect these beneficial uses, also called “designated uses.” Illinois waters are designated for various uses including aquatic life, wildlife, agricultural use, primary contact (e.g., swimming, water skiing), secondary contact (e.g., boating, fishing), industrial use, public and food-processing water supply, and aesthetic quality. Illinois’ water quality standards provide the basis for assessing whether the beneficial uses of the state’s waters are being attained.

The Illinois Pollution Control Board is responsible for setting water quality standards to protect designated uses (Illinois Pollution Control Board, 2021). The Illinois EPA is responsible for developing scientifically based water quality standards and proposing them to the Illinois Pollution Control Board for adoption into state rules and regulations. The federal Clean Water Act requires the states to review and update water quality standards every three years. Illinois EPA, in conjunction with USEPA, identifies and prioritizes those standards to be developed or revised during this three-year period. The Illinois Pollution Control Board has established four primary sets (or categories) of narrative and numeric water quality standards for surface waters. Each set of standards is intended to help protect various designated uses established for each category. The standards are available at the Pollutions Control Board website: https://pcb.illinois.gov/SLR/IPCBandIEPAEnvironmentalRegulationsTitle35.

According to the 2018 Illinois 303d List, Rend Lake is a medium priority water with two designated uses: aesthetic quality and fish consumption (Illinois Environmental Protection Agency, 2021). It has been placed on the 303d list for Total Suspended Solids, phosphorus, and Mercury (Illinois Environmental Protection Agency, 2021). The source of these pollutants has been identified as originating from atmospheric deposition, shore area modifications, municipal point-source discharges, recreational pollution sources, crop production, urban runoff/storm sewers, and runoff from forest, grassland, and parklands.

<u>Alternative 1 – No Action (Future without Project Condition)</u>
Future water quality conditions are likely to change over time with contributions of pollutants from sources previously identified: lakeshore modifications, municipal point-source discharges, recreational pollution sources, crop production, urban runoff/storm sewers, and runoff from forest, grassland, and parklands. However, none of these sources would be expected to have an increased contribution to water quality pollution if the FSI actions are not carried out on the forested areas around Rend Lake. None of these pollution sources increase or decrease in relation to the quality of the forest around Rend Lake. Water Quality would not be affected by the No Action alternative.

<u>Alternative 2 – Forest Management (Forest Stand Improvement)</u>
The FSI actions will be in upland areas, limiting the amount of impact to the lake and streams in the project area. Best management practices to reduce soil disturbance and sedimentation will be used, regardless. The pollutants identified in the 303d list would not have increased contributions as a result of the FSI actions. Pollutants in the form of herbicide drift/contamination are possible. However, all pertinent BMPs will be used to minimize the impact over-application, drift, and spills. Water Quality would have temporary, minor impacts from the FSI alternative, but no permanent long-term adverse impacts.

3.1.6. Hydraulics and Hydrology
Hydraulics is the study of how water moves through natural water bodies like rivers, lakes, and oceans and through artificial channels like pipes and ditches. Hydrology is the study of how precipitation and water move in relation to the adjacent land. Hydrology represents the volume of water generated from a given watershed, in this case, the Rend Lake watershed.

Understanding the hydrology of the Rend Lake watershed will help hydraulic engineers create an appropriate design to account for changes in hydraulics and hydrology that might occur because of the project.

Alternative 1 – No Action (Future without Project Condition)
The state of the forest habitat at Rend Lake is unrelated to the hydraulics and hydrology of the Rend Lake watershed. The hydraulics and hydrology of the Rend Lake watershed would not be affected by the No Action alternative.

Alternative 2 – Forest Management (Forest Stand Improvement)
Promoting new and existing hardwood tree growth with deep root systems would improve soil stabilization and reduce watershed flow through the soil. Hydraulics and hydrology of the Rend Lake watershed would be minorly benefitted by the FSI alternative.

3.1.7. Air Quality

The Clean Air Act of 1963 requires the U.S. Environmental Protection Agency (EPA) to designate National Ambient Air Quality Standards (NAAQS). The USEPA has identified standards for six criteria pollutants: ozone, particulate matter (PM_{10} = less than 10 microns; and $PM_{2.5}$ = less than 2.5 microns in diameter), sulfur dioxide, lead, carbon monoxide, and nitrogen dioxide. The EPA Greenbook provides a list of which counties in Illinois which are in nonattainment status for these pollutant criteria. The project lies in Franklin and Jefferson counties; neither county is in nonattainment status for any pollutant criteria (U.S. Environmental Protection Agency, 2021).

Alternative 1 – No Action (Future without Project Condition)
In the No Action Alternative, the air quality would not be adversely impacted via construction disturbance resulting from the FSI activities. Additionally, the state of the forest stands around Rend Lake is not related to contributions of the six criteria pollutants. In the long-term, the air quality would not be affected by the No Action alternative.

Alternative 2 – Forest Management (Forest Stand Improvement)
The FSI actions would involve the operation of equipment that would release emissions. This would result in a temporary minor impact to air quality. None of the proposed actions are expected to contribute substantially to the six criteria pollutants over the long-term.

3.1.8. Climate

The overall weather in the Rend Lake watershed is a mild continental climate. Existing climate data was obtained from the Du Quoin, IL weather station, the nearest weather station operated by the National Weather Service (National Weather Service, 2021). Annual precipitation varies between a low of 2.9 inches in February, to a high of 5.51 inches in May. The annual precipitation, cumulatively, is 47.71 inches. Mean monthly average temperature, predictably, is the lowest in January at 32.1°F and the highest in July at 77.4°F. The National Weather Service's online data was used to generate a graph that illustrates the monthly average precipitation and temperatures near Rend Lake (Figure 10). Summers are generally mild with daily highs occasionally reaching at least 100°F. The winters are short and moderate with temperatures

occasionally reaching below zero. The hottest period of the year typically occurs in July and August, while the coldest period occurs from December thru February.

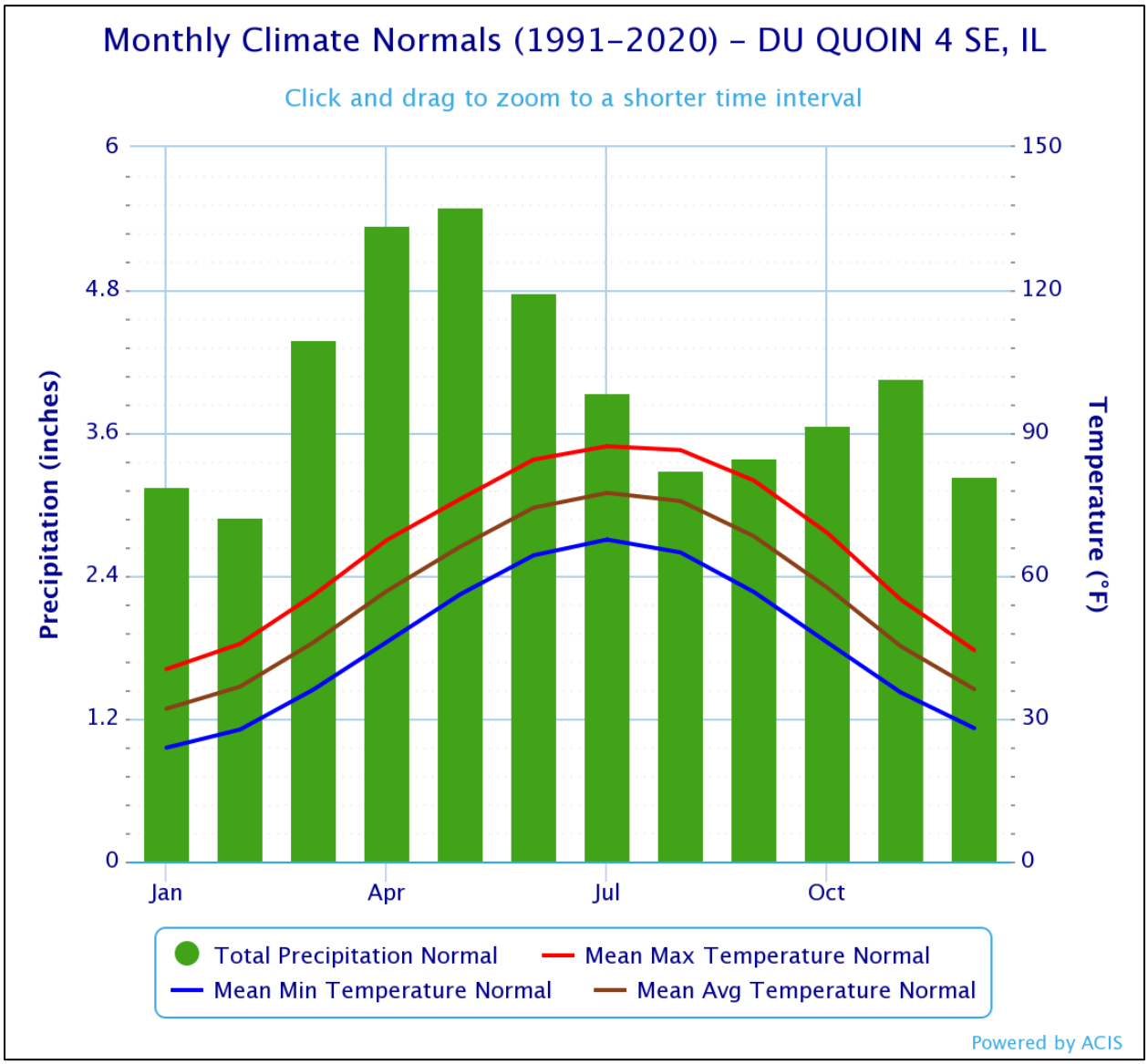


Figure 10. A line and bar graph of the monthly average precipitation (inches) and temperature (F).

<u>Alternative 1 – No Action (Future without Project Condition)</u>

While the climate is likely to change over time, these general changes would not be related to the state or quality of the forest stands at Rend Lake. Local increases in seasonal temperature may result in an easier spread of insect pests that threaten the health of forest stands. The spread of invasive insect pests would decrease the sustainability of healthy forest stands at Rend Lake. However, as previously stated, the specific changes in future climate patterns would be unrelated to FSI actions at the Rend Lake project. The local climate would not be affected by the No Action alternative.

Alternative 2 – Forest Management (Forest Stand Improvement)
The climate in the Rend Lake watershed would not be impacted by the proposed FSI actions. As with the No Action, changes in forest stand composition would not be expected to impact climate patterns directly or indirectly. The cumulative impacts from the temporary GHB emissions produced during operations are discussed in the Cumulative Impacts section.

3.1.9. Hazardous, Toxic, and Radioactive Waste (HTRW) Concerns

The U.S. Army Corps of Engineers (USACE) regulations (ER-1165-2-132, ER 200-2-3) and District policy requires procedures be established to facilitate early identification and appropriate consideration of potential HTRW in feasibility, preconstruction engineering and design, land acquisition, construction, operations and maintenance, repairs, replacement, and rehabilitation phases of water resources studies or projects by conducting Phase I Environmental Site Assessment (ESA). USACE specifies that these assessments follow the process/standard practices for conducting Phase I ESA's published by the American Society for Testing and Materials (ASTM). The purpose of a Phase I ESA is to identify, to the extent feasible in the absence of sampling and analysis, the range of contaminants (i.e. RECs) within the scope of the U.S. Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products. Current policy is to avoid known HTRW sites. However, the USACE Environmental Quality Section should be contacted immediately if HTRW material is encountered at any point during construction activities.

Alternative 1 – No Action (Future without Project Condition)
There would be no construction or other work disturbances that could disturb known or unknown hazardous waste. Therefore, there are no HTRW concerns associated with the No Action alternative.

Alternative 2 – Forest Management (Forest Stand Improvement)
A Phase I study was not recommended for this project because the likelihood of hazardous substances adversely affecting the project area is very low. There is still a potential of encountering hazardous substances during the proposed actions. If HTRW material is encountered at any point during the proposed FSI activities, the USACE Environmental Quality Section should be contacted to assess the conditions. USACE does not and cannot represent that the site contains no hazardous waste or material, including petroleum products. There are no HTRW concerns associated with the FSI alternative.

3.2. Biological Resources

3.2.1. Aquatic Habitat and Organisms

Rend Lake is within the Big Muddy watershed, which drains approximately 2,390 square miles. Within the Big Muddy watershed lies the lesser Rend Lake watershed, which drains approximately 485.9 square miles. The primary lacustrine habitat at the Rend Lake project is Rend Lake itself, one of the largest lakes in the state of Illinois. In addition to the reservoir, there are several smaller farm ponds, sloughs, and wetlands in the areas surrounding the lake. Riparian habitat at Rend Lake takes the form of several streams that feed into the Rend Lake

reservoir. These streams include the Big Muddy River, Casey Fork, Atchison Creek, and Gun Creek. In addition to the lake and stream habitats, several wetlands can also be found around the lake. The primary wetland types include freshwater emergent, shrub/scrub, and forested wetlands (Figure 11, Figure 12). Three wetland complexes were created specifically for waterfowl and waterbird habitat: The Rend Lake Wetland Complex below Rend Lake Dam, the Atchison Creek Wetland Complex on the east side of the lake, and the Gun Creek Wetland Complex on the east side of the lake. These wetlands are managed to create moist-soil habitat, green-tree wetland, and semi-permanent emergent wetlands.

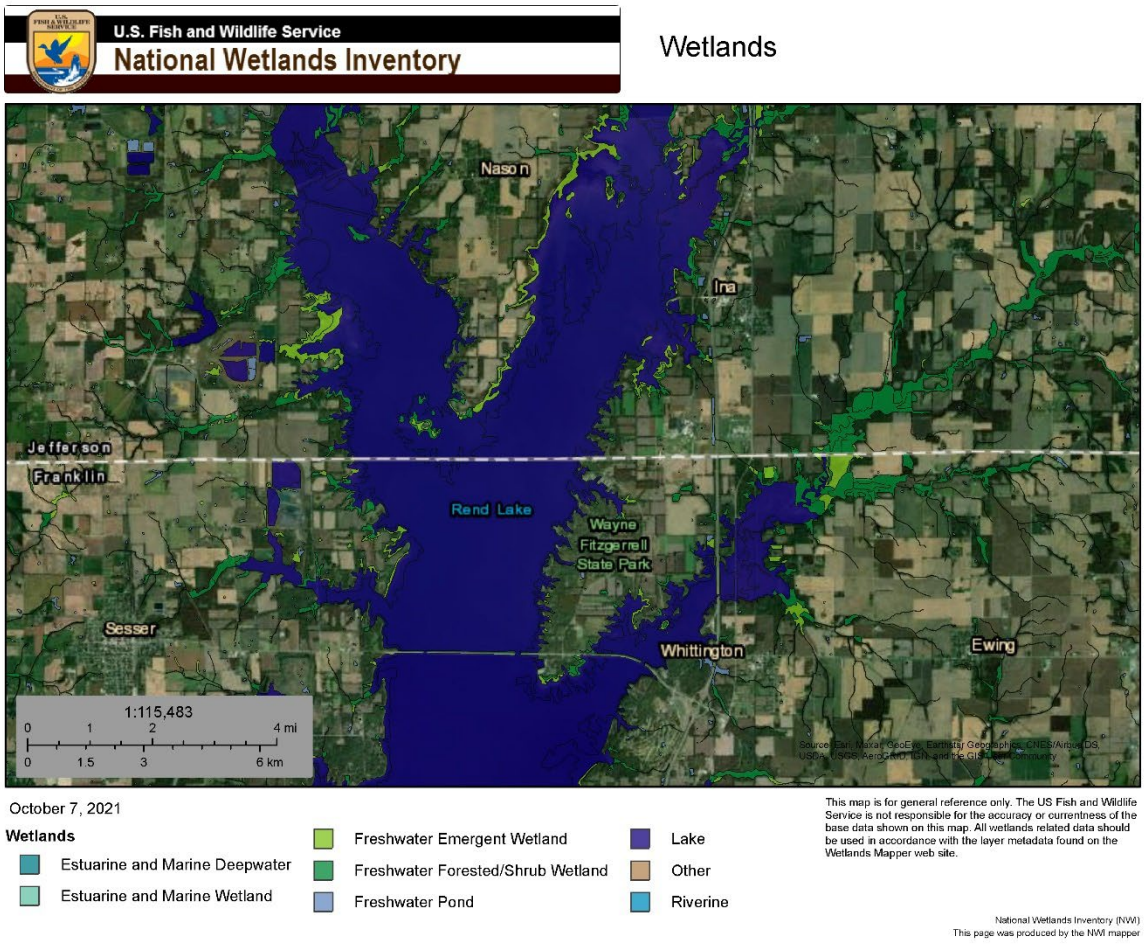


Figure 11. National Wetland Inventory map of the north side of Rend Lake.

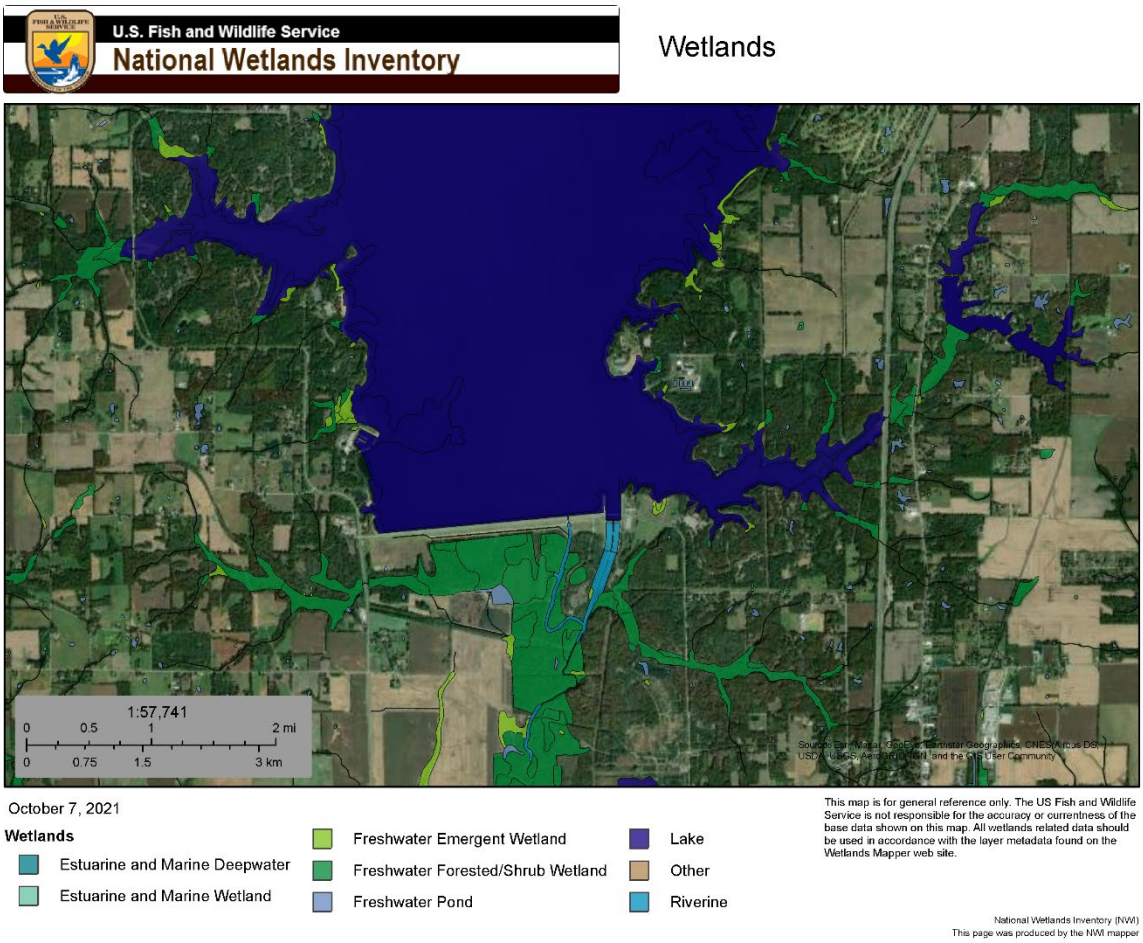


Figure 12. National Wetland Inventory map of the south side of Rend Lake.

The reservoir is home to a variety of fish species and is very popular with recreational anglers. Common fish species include Largemouth Bass (*Micropterus salmoides*), White Bass (*Morone chrysops*), Crappie (*Pomoxis spp.*), Bluegill (*Lepomis macrochirus*), Channel Catfish (*Ictalurus punctatus*), Flathead Catfish (*Pylodictis olivaris*), and Blue Catfish (*Ictalurus furcatus*). Rend Lake is also managed for non-sport fish including Common Carp (*Cyprinus spp.*), Buffalo, Gar, Drum, and Shad. The lake and tail-water also have diverse forms of phytoplankton, zooplankton, aquatic insects, crustaceans, amphibians, reptiles, and mollusks. A variety of aquatic reptiles, amphibians, snakes, turtles, salamanders, frogs, and toads can all be expected to occur in the aquatic habitats in and around the lake. Snapping Turtles (*Chelydra serpentina*), River Cooter (*Pseudemys concinna*) and Red-eared Slider (*Trachemys scripta*) are common in many palustrine waterbodies, including large reservoirs like Rend Lake and in the smaller sloughs, farm ponds, and wetlands surrounding the reservoir. These aquatic habitats are also used by American Toad (*Anaxyrus americanus*), Spring Peeper (*Pseudacris crucifer*), Green Frog (*Lithobates clamitans*), Bullfrog (*Lithobates catesbeianus*), and Northern Leopard Frog (*Lithobates pipiens*). Swans, ducks, geese, shorebirds, and other waterbirds also use the lake and surrounding wetlands in the hundreds of thousands during migration.

Alternative 1 – No Action (Future without Project Condition)
The lack of FSI management actions would not cause an adverse impact to aquatic habitats. The health and function of the aquatic habitats in the project area are likely to change over time but are unlikely to be related to the condition of forest habitat.

Alternative 2 – Forest Management (Forest Stand Improvement)
The FSI actions propose to alter terrestrial habitats. While all habitats are ultimately connected, the FSI actions would be unrelated to the health of aquatic habitats at Rend Lake. Short-term, minor adverse impacts resulting from construction disturbance may occur in this alternative. However, best management practices would be used to minimize sedimentation runoff. Therefore, adverse impacts to the health and function of aquatic habitats as a result of alternative 2 are anticipated to be minimal to non-existent.

3.2.2 **Regulatory Authorizations**

While some of the forested areas may be designated as forested/shrub wetland, this project does not propose to excavate or add fill to any area. No wetland habitat would be removed or destroyed because of the FSI activities. No Regulatory authorization is required because the project would be above the ordinary high-water mark of all waters and would not impact wetland habitat.

Furthermore, the Federal Clean Water Act, Section 404 (33 CFR Part 323.4 & 40 CFR Part 232.3), exempts normal established, ongoing silvicultural activities from the permitting process for discharges of dredged or fill material in wetlands, streams and/or other jurisdictional waters of the US. However, fifteen (15) baseline provisions for forest road construction and maintenance in and across waters of the US (33 CFR Part 328.3 & 40 CFR Part 230.3) are mandated to qualify for the forest road exemption. The burden of maintaining silvicultural exemptions through historical activity, current activities, and future plans falls on the landowner. The ultimate determination of whether activities are exempt can only be made by the USACE and the USEPA. In this case, the USACE has determined that the FSI activities are exempt.

3.2.3. **Terrestrial Habitat and Organisms**

There are many terrestrial habitats types in the areas surrounding Rend Lake, including grassland, oldfields, croplands, bottomland hardwood forest, and upland hardwood forest. The 12,833 acre Rend Lake State Fish & Wildlife lies on the north end of Rend Lake. The Illinois Department of Natural Resources (IDNR) is licensed to manage 7,799 acres of this refuge to create and maintain habitat for wildlife. The refuge has numerous wetlands and upland fields that are managed to benefit wildlife. Some fields in this refuge are planted in corn, Japanese millet, buckwheat, and winter wheat in order to provide a food source for wildlife.

Tree species in the bottomland hardwood forest are a mixture of Red Maple (*Acer rubrum*), Sweetgum (*Liquidambar styraciflua*), Green Ash (*Fraxinus pennsylvanica*), and Pin Oak (*Quercus palustris*), Elm (*Ulmus spp.*), River Birch (*Betula nigra*), American Sycamore (*Platanus occidentalis*), and Black Willow (*Salix nigra*). In forest stands with more well-drained soils, the

tree species are a mix of White Oak (*Quercus alba*), Bur Oak (*Quercus macrocarpa*), Swamp White Oak (*Quercus bicolor*), and Shagbark Hickory (*Carya ovata*). The understory in each bottomland hardwood stand varies, but generally consists of the young of these dominant overstory trees and a wide-variety of vines, shrubs, and herbaceous plants. Common understory plants in the bottomland hardwood stands include a mix of Buttonbush (*Cephalanthus occidentalis*), Poison Ivy (*Toxicodendron radicans*), Spotted Touch-me-not (*Mimosa pudica*), and smartweeds (*Persicaria spp* and *Polygonum spp)*.

The upland hardwood forest stands are a mix of Black Oak (*Quercus velutina*), Northern Red Oak (*Quercus rubra*), Southern Red Oak (*Quercus falcata*), Shingle Oak (*Quercus imbricaria*), Post Oak (*Quercus stellata*), Black Cherry (*Prunus serotina*), Sassafras (*Sassafras albidum*), Red Mulberry (*Morus rubra*), Black Walnut (*Juglans nigra*). Understory vegetation in the upland hardwood stands consists of a mix of dogwood (*Cornus spp.*), Witch Hazel (*Hamamelis spp.*), Hop Hornbeam (*Ostrya virginiana*), and Eastern Red Bud (*Cercis canadensis*). In disturbed, open areas in the canopy and at the forest edge, the understory is a mix of Autumn Olive (*Elaeagnus umbellate*), Poison Ivy (*Toxicodendron radicans*), Blackberry (*Rubus spp.*), Coralberry (*Ardisia crenata*), Multiflora Rose (*Rosa multiflora*), Greenbrier (*Smilax spp.*), and Virginia Creeper (*Parthenocissus quinquefolia*).

Many mammal species can be found at Rend Lake, including White-tailed Deer (*Odocoileus virginianus*), Cottontail Rabbit (*Sylvilagus floridus*), Fox Squirrel (*Sciurus niger*), Gray Squirrel (*Sciurus carolinensis*), River Otter (*Lontra canadensis*), American Mink (*Neovison vison*), Muskrat (*Ondatra zibethicus*), American Beaver (*Castor canadensis*), Raccoon (*Procyon lotor*), Opossum (*Didelphis virginiana*), Striped Skunk (*Mephitis mephitis*), Long-tailed Weasel (*Mustela frenata*), Bobcat (*Lynx rufus*), Coyote (*Canis latrans*), and Red Fox (*Vulpes vulpes*), and Grey Fox (*Urocyon cineroargenteus*). A variety of nocturnal species are also present, including Marsh Rice Rat (*Oryzomys palustris*), Deer Mouse (*Peromyscus maniculatus*), Prairie Vole (*Microtus ochrogaster*), Short-tailed Shrew (*Blarina brevicauda*), and many bats (*Myotis spp.*). The reptiles, amphibians, and frogs mentioned in the Aquatic Habitat section can also be expected to use the terrestrial habitats, where appropriate. Eastern Box Turtle (*Terrapene carolina*), Rat Snake (*Pantherophis obsoletus*), Eastern Racer (*Coluber constrictor*), and Northern Water Snake (*Nerodia sipedon*) are common at Rend Lake. These open fields and forests are also important breeding and migratory stopover habitat for migratory birds.

<u>Alternative 1 – No Action (Future without Project Condition)</u>
Without the FSI improvements to forest stands at Rend Lake, the quality of the forested habitat would be adversely impacted. The existing conditions of the terrestrial habitat require some amount of artificial intervention in order to eliminate invasive species and to improve the diversity and composition of tree species in the forest stands. The heavy invasive shrub layer restricts foraging movement for bats, while providing little in the way of food for wildlife compared to native vegetation. Without the regeneration of new oak seedlings, when the existing mature oaks die, there will be few individuals able to replace the dead oaks in the overstory. A variety of tree species in compositions that are similar to natural conditions before

human settlement create a wide variety of foods and habitats for wildlife when compared to dense monoculture stands of invasive species.

Alternative 2 – Forest Management (Forest Stand Improvement)
The FSI actions are science-driven management principals designed to create resilient and diverse forest habitat. The FSI actions would result in substantial beneficial impacts to the condition of the forest stands, and thus the wildlife habitat around Rend Lake by removing invasive species and allowing for the development of greater species diversity, beneficial species compositions, open corridors for bat and bird foraging, and reduced competition for desirable species. Desirable tree species would include shagbark hickory (*Carya ovata*), bitternut hickory (*Carya cordiformis*), mockernut hickory (*Carya tomentosa*), black cherry (*Prunus serotina*), cherrybark oak (*Quercus pagoda*), pin oak (*Quercus palustris*), shingle oak (*Quercus imbricaria*), white oak (*Quercus alba*), and northern red oak (*Quercus rubra*). Undesirable tree and other plant species would include red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), sweetgum (*Liquidambar* spp.), elm (*Ulmus spp.*), hackberry (*Celtis spp.*), any poorly formed midstory trees, regardless of species. Invasive plants, both woody and herbaceous, negatively affect the forest community composition through competition for light, water, and nutrients. Widespread invasive shrubs and vines include autumn olive (*Eleagnus umbellata*), multiflora rose (*Rosa multiflora*), bush honeysuckle (*Lonicera maackii*), Japanese honeysuckle (*Lonicera japonica*), and winter creeper (*Euonymus fortunei*). During FSI activities, the use of chainsaws, skid-steers, and other equipment would cause temporary minor adverse impacts as a result of noise, disturbance, soil compaction, and *de minimis* levels of air pollutants and sedimentation.

3.2.4. **Bald Eagle**

Although the Bald Eagle (*Haliaeetus leucocephalus*) was removed from the federal list of threatened and endangered species in 2007, it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (BGEPA). The BGEPA prohibits unregulated take of bald eagles, including disturbance (U.S. Fish & Wildlife Service, 2020). Bald Eagles (*Haliaeetus leucocephalus*) occur regularly in Illinois as both migrants and breeders, with some populations of year-round residents along major rivers and reservoirs in the state. There are three active Bald Eagle nests at Rend Lake that are monitored by biologists within the forest stands where FSI activities would take place. However, the recommended 660-foot buffer would be maintained at all times.

Alternative 1 – No Action (Future without Project Condition)
Bald Eagle nests are typically built in large, tall, mature trees. If forest health continues to decline resulting in less mature trees around the reservoir, there would be less nesting habitat available. The foraging opportunities for Bald Eagles at Rend Lake are more tied to aquatic than terrestrial forest habitat, given the diet of Bald Eagles. Bald Eagle breeding efforts would be minorly adversely impacted by the No Action, whereas foraging needs would not be impacted by the No Action.

Alternative 2 – Forest Management (Forest Stand Improvement)

The operation of loud equipment like chainsaws and the use of skid-steers and hauling trucks would cause a temporary minor adverse impact to nesting Bald Eagles within the vicinity of the work. Any active Bald Eagle nests would be afforded a 660-foot buffer, per BGEPA guidelines. If, for some reason, this buffer can't be adhered to, a disturbance permit would be requested from the USFWS prior to the disturbance event.

3.2.5. **Migratory Birds**

The Migratory Bird Treaty Act (MBTA) of 1918 provides protection for bird species native to North America. The Rend Lake project is an important nesting and feeding area within the Mississippi Flyway for many migratory birds and waterfowl species. A variety of migratory birds might occur in the project areas, some as migrants and some as breeders. Waterfowl, wading birds, shorebirds, passerines, and raptors use the Rend Lake watershed for resting, feeding, nesting, and for other life-history needs. The Illinois Ornithological Society has recorded 451 species representing 62 families and 21 orders of birds that are known to occur in the state of Illinois (Illinois Ornithological Society, 2018). Over 300 species have been documented at the Rend Lake project including 29 species of waterfowl, 33 species of shorebird, 9 species of hawk, 5 species of owl, and 28 species of warbler. Many dozens of other migratory bird species are known to use the habitats in and around Rend Lake for migration stopover and for breeding. There are 14 eBird hotspots at various locations around the lake. The hotspot with the most species is the Ward Branch hotspot on the west side of the lake, with 196 species over 132 checklists. Large reservoir lakes like Rend are important for migrating waterfowl. According to IDNR annual aerial waterfowl surveys from 2009-2017, waterfowl numbers are stable or increasing, topping out at over 250,000 geese and 140,000 ducks in 2016 alone.

<u>Alternative 1 – No Action (Future without Project Condition)</u>

Similar to the terrestrial habitat resource, the level to which forest stands at Rend Lake provide for the life-history needs of migratory birds would suffer adverse impacts in the No Action alternative. Forest bird species, like any forest-dependent species, require healthy, functioning forests to complete their life-history. The degraded condition of the forests at Rend Lake contributes to adverse impacts to the life-history needs of migratory birds that rely on forested areas around Rend Lake. The heavy invasive component in the understory provides good cover but does not provide food in the form of fruit, nuts, and associated insects. It also does not provide the required nesting opportunities when compared to highly functioning oak-hickory forest. In addition, the lack of regeneration would mean the forest itself would eventually be replaced by less desirable woody shrubs and young trees.

<u>Alternative 2 – Forest Management (Forest Stand Improvement)</u>

The FSI actions are carefully designed to improve the quality of the forest habitat, which would, in turn, benefit the animals that rely on quality forest habitat, like migratory birds. As with the Bald Eagle, the operation of loud equipment like chainsaws and the use of skid-steers and hauling trucks would cause a temporary minor adverse impact to migratory birds using the areas within the vicinity of the work. Direct adverse impact would result from trees felled that are currently used by wintering year-round residents. Per the USFWS guidance, incidental take can result from the taking or killing of migratory birds that results from, but is not the purpose

of, an activity. Nest in the trees targeted for removal would be felled between 1 October to 31 March, limiting the impact to wintering year-round residents. If any active or inactive nests are in any of the trees targeted for removal, a USACE Biologist would determine if the species were protected by the MBTA. If the species is protected under the MBTA, USACE Biologist would conduct further coordination with the USFWS. Any required permits would be obtained after that additional coordination.

3.2.6. **Invasive Species**

An invasive species is one that is not native to an ecosystem and which causes, or is likely to cause, economic or environmental harm or harm to human health (U.S. Fish & Wildlife Service, 2012). In accordance with Executive Order 13122 signed in 1999, the National Invasive Species Council was established. The National Invasive Species Council is comprised of Federal land management agencies and provides leadership regarding the control of invasive species. If a Federal agency action would affect the status of an invasive species, the EO 13122 provides the following authorizations:

a. Prevent the introduction of invasive species.
b. Detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner.
c. Monitor invasive species populations accurately and reliably.
d. Provide for restoration of native species and habitat conditions in ecosystems that have been invaded.
e. Conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species.
f. Promote public education on invasive species and the means to address them.
g. Not authorize, fund, or carry out actions that the agency believes are likely to cause or promote the introduction or spread of invasive species.

Invasive species control is an ongoing problem for forestry management at Rend Lake. There are several invasive woody shrubs and vine species that occur at Rend Lake, including: Autumn Olive (*Elaeagnus umbellata*), Bradford Pear (*Pyrus calleryana*), Burning Bush (*Euonymus alatus*), Bush Honeysuckle (*Lonicera tatarica*) (Figure 13), Japanese Honeysuckle (*Lonicera japonica*), Kudzu (*Pueraria montana*), Winter Creeper (*Euonymus fortunei*) (Figure 14), and Multiflora Rose (*Rosa multiflora*) (Figure 15). Invasive grasses found at Rend Lake include Common Reed (*Phragmites australis*), Johnsongrass (*Sorghum halepense*), and Japanese Stilt-grass (*Microstegium vimineum*) (Figure 16), The invasive species that present the most concern for Rend Lake are Autumn Olive and Bush Honeysuckle. These two woody species have proliferated throughout the forests, oldfields, and grasslands surrounding the reservoir. In some forest stands, these invasive shrubs dominate the understory, inhibiting the growth of more desirable trees, flowers, and forbs. In aquatic habitats, the primary concern is the Common Reed (also known by its genus name Phragmites), and Silver Carp (*Hypophthalmichthys molitrix*). While only two Silver Carp have been documented in the reservoir, they are found in the spillway exit channel, the sluice ditch, and the Big Muddy River below the Rend Lake Dam (U.S. Army Corps of Engineers, 2018). Several control measures are in place to prevent the spread of Asian carp in Rend Lake.

Alternative 1 – No Action (Future without Project Condition)

Without the invasive species management proposed in the FSI actions, these species are likely to grow and spread through existing stands and colonize new stands where they are not already present. New invasive species that don't currently occur at Rend Lake may also appear and grow out of control. Invasive species concerns would be adversely impacted in the No Action alternative.

Alternative 2 – Forest Management (Forest Stand Improvement)

One of the primary purposes of the FSI actions is specifically to eliminate invasive trees and shrubs within select forest stands. If the FSI actions are carried out, invasive species management concerns would be substantially benefitted by the FSI alternative. However, the FSI actions only propose to eliminate those invasive trees and shrubs within the forested areas. Other invasive species, like invasive fish, bivalves, and insect pests, would not be targeted by this alternative, and impacts are not anticipated.

Figure 13. Photo of the understory of VM-1, showing dense stand of Privet, Honeysuckle, and Autumn Olive.

Figure 14. Photo of Winter Creeper parasitizing mature trees at VM-1.

Figure 15. Photo of the understory of VM-1, showing dense stands of Multiflora Rose.

Figure 16. Photo of the complete ground cover of Japanese Stiltgrass in Stand 1 at VM-1.

3.2.7. **Illinois Department of Natural Resources (IDNR) Coordination (State-Listed Species)**

An IDNR EcoCAT report was generated on 13 July 2021 (Project# 2200475). The Illinois Natural Heritage Database shows that there may be Little Blue Heron (*Egretta caerulens*), Ornate Box Turtle (*Terrapene ornata*), and Osprey (*Pandion haliaetus*) in the vicinity of Rend Lake. In addition, the Capp Pond Illinois Natural Areas Inventory (INAI) site is near Rend Lake. The Illinois Natural Areas Inventory program is administered by the Illinois Department of Natural Resources Division of Natural Heritage. The INAI provides a set of information about high quality natural areas, habitats of endangered species, and other significant natural features. There are no proposed FSI actions or any other management that would take place within the Capp Pond site, which lies over 10 miles to the south of the Rend Lake project.

3.2.6.1 Little Blue Heron (*Egretta caerulea*)

The Little Blue Heron is a small bird in the heron family that occurs in Illinois during migration. The two sexes are similar in plumage, being slate-blue on the body and wings, with a purple neck and head and a bi-colored bill. During migration, they use a variety of freshwater and estuarine wetlands and riparian habitats. Human-made impoundments like Rend Lake as well as flooded ditches, agricultural fields, and fish-farms are commonly used. Conservation issues facing the Little Blue Heron include hunting and poaching near aquaculture, where the herons feed on young fish. Pesticides and other contaminants/toxins are found in body tissue and eggs, reducing the sustainability of the species. Loss of habitat and disturbances at roosts and rookeries are a major concern as well.

<u>Alternative 1 – No Action (Future without Project Condition)</u>

The degradation of forest habitat is unlikely to directly impact Little Blue Heron. The existing wetland and other aquatic habitats would continue to be managed for waterbirds including herons.

<u>Alternative 2 – Forest Management (Forest Stand Improvement)</u>

The FSI operations could cause a direct adverse impact if existing roosts and rookeries were targeted for tree-removal, but there are no rookeries in or near the project areas. The use of herbicides can cause indirect adverse impacts to many bird species, reducing their ability to reproduce successfully. All relevant pesticide BMPs would be adhered to during the application of chemical treatments to invasive species. There are few records for this species in the Illinois Heritage Database. Coordination with the IL DNR has been conducted to ensure minimal impact to this species.

3.2.6.2 Ornate Box Turtle (*Terrapene ornate*)

Ornate Box Turtles can be found in both Franklin and Jefferson Counties. The Ornate Box Turtle is a small terrestrial turtle about 4-5 inches long with a high, domelike carapace. It is listed as state-threatened by IDNR. This box turtle forages for insects, snails, worms, bird eggs, and berries in sand prairies in the state of Illinois (Illinois Department of Natural Resources, 2020). It

is usually active during the morning and late in the afternoon towards evening. It uses underground burrows to escape unfavorable weather conditions during the heat of summer and the cold of winter. Females nest at the edge of forested areas, like those found at the Rend Lake project (Illinois Department of Natural Resources, 2020). Destruction of sand prairie habitat and disruption of nesting efforts contribute to declines in this species throughout much of its range. The Illinois Heritage Database shows one record for this species in the vicinity of Rend Lake.

Alternative 1 – No Action (Future without Project Condition)

There is one record of Ornate Box Turtle at Rend Lake, but what few individuals do use terrestrial habitat would be adversely impacted by the No Action alternative. Ornate Box turtles rely on high-quality forest habitat. Without some future FSI intervention, the quality of forest stands at Rend Lake would decrease, causing an adverse impact.

Alternative 2 – Forest Management (Forest Stand Improvement)

The FSI operations would cause a temporary adverse impact to this species. These disturbances take the form of vehicle traffic and tree and shrub removal. The improvements in forest condition would cause a long-term beneficial impact, however. There is only one record for this species in the Illinois Heritage Database. Coordination with the IL DNR has been conducted to ensure minimal impact to this species.

3.6.2.3 Osprey (*Pandion haliaetus*)

Osprey are large migratory hawks with white undersides and dark brown plumage on the wings and back. Osprey feed primarily on live fish, catching them directly from the surface of the water by plunge-diving (Bierregaard, Poole, Martell, Pyle, & Patten, 2020). The habitat used by Osprey varies greatly, but generally they need an adequate supply of fish within 10-20km of the nest, shallow waters from which to access fish prey, open nest sites that are protected from nest-predators, and access to ice-free water during the fledging period (Bierregaard, Poole, Martell, Pyle, & Patten, 2020). Osprey are known to use artificial nesting platforms with great success. In Illinois, Osprey forage along rivers, wetlands, reservoirs, and natural ponds and lakes, where individuals feed in both shallow shoreline zones as well as in deeper water (Bierregaard, Poole, Martell, Pyle, & Patten, 2020). Major threats to Osprey include pesticides/toxins destroying eggs, egg collecting by humans, and shooting and trapping near fish farms/aquaculture farms. There is one known active Osprey nest at Rend Lake that is actively monitored by IDNR and USACE biologists. Coordination with the IL DNR has been conducted to ensure minimal impact to this species.

Alternative 1 – No Action (Future without Project Condition)

Impacts to Osprey from the No Action would be similar to impacts to the Bald Eagle. The number of active Osprey nests around Rend Lake may increase or decrease over time but would be unrelated to the forest condition. The foraging opportunities for Osprey at Rend Lake are more tied to aquatic than terrestrial forest habitat, given the diet and foraging behavior of Osprey. Osprey life history needs and nests would not be impacted by the No Action Alternative.

Alternative 2 – Forest Management (Forest Stand Improvement)

Adverse impacts to Osprey would take the form of disturbances to nesting efforts. Osprey foraging efforts on the open water surface of Rend Lake would not be impacted. Nesting attempts can be disrupted by loud noises and nearby human activity. The use of chainsaws and other tree removal tools and the operation of large vehicles and the resulting vehicle traffic are all temporary adverse impacts that may result from the FSI alternative. Osprey would indirectly benefit from having healthy forest habitat surrounding the reservoir. While Osprey aren't a forest-associated bird species, they do nest in forest adjacent to large bodies of water. A healthy forest would have plenty of snags and tall trees available for nesting.

In a letter dated 13 October 2021, IDNR determined that impacts are due to the Proposed Actions are unlikely, and made the following recommends in order to avoid causing adverse impacts to state listed species:

1. Large tree removal be done within appropriate dates. The standard Department recommended dates are 1 November – 31 March. However, because this project is being done on federal lands under federal jurisdiction, federal bat dates may be applicable.

2. Temporary access roads be constructed between the dates of 1 November – 31 March. (however, no new access roads will be built)

3. Follow-up consultation on a 2-year basis is recommended to remain informed on any new records of listed species in the timber management area.

3.7 Biological Assessment

3.7.1 Federally Threatened and Endangered Species

In compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, official lists of species and critical habitats potentially occurring in the vicinity of the proposed work areas was acquired from the USFWS Information for Planning and Conservation (IPaC) website at (https://ecos.fws.gov/ipac/) on 4 February 2022 (Project Code: 2022-0003883).; Table 2). There are no designated Critical Habitat locations in the project area. Habitat requirements and impacts of the proposed action are discussed for each listed species.

Table 2. List of federally threatened and endangered species and habitat potentially occurring in the vicinity of the proposed project, acquired from the USFWS Information for Planning and Conservation (IPaC) website.

Common Name (Scientific Name)	Classification	Habitat
Indiana Bat (*Myotis sodalis)*	Endangered	Uses caves and mines for winter hibernacula; uses trees for summer roosting. Forages along small stream corridors with well-developed riparian woods and in upland forests.
Northern Long-eared Bat (*Myotis septentrionalis*)	Threatened	Similar to Indiana Bat, will use caves and mines for winter hibernacula; uses trees for summer roosting. Forages along large water bodies adjacent to forests.
Piping Plover (*Charadrius melodus*)	Endangered	Piping Plover does not breed in Illinois. During migration, they use the shorelines of reservoirs, lakes, rivers, and wetlands. Selects wide, flat, open, sandy beaches or mudflats with very little grass or other vegetation.
Monarch Butterfly (*Danaus plexippus*)	Candidate	Missouri River; Mississippi River downstream of the Missouri River

3.7.1.3 Indiana Bat

During late fall and winter, Indiana Bats hibernate in caves and mines. During the spring and summer, Indiana Bats roost in trees. Suitable roosting trees can be alive or dead, but all would have loose, exfoliating bark, holes, and other damage that can be used by a roosting bat. These damages allow bats to crawl inside and be sheltered from predators and weather. Indiana Bat roost trees have been found to be as small as 3 inches diameter at breast height (dbh) with suitable roosting characteristics (U.S. Fish & Wildlife Service, 2019). Preferred roost sites are in forest openings, at the forest edge, or where the overstory canopy allows some sunlight exposure to the roost tree, which is usually within 1 km (0.6 mi.) of water. Indiana Bats forage for flying insects (particularly moths) in and around the tree canopy of floodplain, riparian, and upland forests. The most significant threat facing Indiana Bat populations today is white-nose syndrome (WNS), a fungal disease. Other major range wide threats to the Indiana Bat include habitat loss/degradation, forest fragmentation, winter disturbance, and environmental contaminants. Suitable Indiana Bat summer habitat likely occurs in the forested areas adjacent to and within the proposed project sites.

<u>Alternative 1 – No Action (Future without Project Condition)</u>

As the forest understory becomes even more overgrown with invasive shrubs and trees, regeneration of desirable trees would be greatly inhibited. Over time, existing mature trees would eventually die and fall, and without regeneration from the understory, the overall number of suitable roosting trees would decrease. The reduced quality and condition of forest

stands as a result of the No Action alternative could result in long-term adverse impacts to Indiana and Northern Long-eared Bats.

Alternative 2 – Forest Management (Forest Stand Improvement)
Direct impacts would result from disturbance to roosting bats if an occupied tree is felled. Indirect impacts can result from construction noise disturbance from chainsaws, vehicles, and other equipment. Tree removal activities can also cause indirect impacts by manipulating travel corridors and migration habitat used by Indiana bats when moving to/from foraging and drinking areas from roosting areas in the summer or when moving to/from winter caves in the fall and spring. Other indirect impacts can result from the removal of now healthy trees that, over the course of time, would become snags with good roosting characteristics. All tree cutting activities would take place between 1 October and 31 March of any given year, during the non-active roost season for woodland bat species.

Further impacts resulting from the tree removal would include some interrelated activities such as the transport of trees using access roads and possible establishment of landings. Access roads will consist of ridgetops, agricultural fields, and preexisting roads (agricultural, county, USACE, etc.). Landings may be established on ridge tops and flat areas suitable for access and for minimizing soil disturbance. Landings would be established in locations in which removal of potential roost trees is unnecessary, and most landings would be sited in naturally open areas. We do not anticipate permanent adverse impacts to the Indiana Bat and NLEB from interrelated activities.

With the implementation of this project, optimal foraging and roosting habitat would be created where FSI is proposed. Timber removal that retains a somewhat lower basal area of standing trees, such as that proposed in this project, would benefit the Indiana bat because it would allow individuals to move more easily in an “uncluttered” forest and still allow for some protection during flight. Indiana bat habitat enhancement would be favored where possible through forest thinning and construction of linear corridors to create open canopy structure for travel and foraging areas for a diversity of bat species. Thinning activities would increase travel and allow sunlight to reach potential roost trees. All dead trees, split trees, trees that have cavities, and trees with exfoliating bark would be favored for retention. Snags would be created as dictated by habitat type conditions to protect/provide a specific habitat for Indiana bats and NLEB. Loss of familiar roost trees and associated foraging habitat, while negative in the short term, are not expected to have long term consequences for a colony because of the remaining forested habitat nearby and the propensity of the species to utilize alternative roost sites (Carter & Feldhammer, 2005). Additionally, FSI actions implemented in unmanaged forest habitat would serve to benefit bats in the long-term by improving the quality of forested areas they use for foraging and roosting.

Indiana Bat Conservation Measures - The USFWS has developed guidance for various land development and land use activities to reduce the loss, degradation, and fragmentation of Indiana bat habitat (USFWS 2011). Forest stand improvement is considered by the U.S. Fish and Wildlife Service to be an acceptable practice for improving Indiana Bat and NLEB summer

habitat. Avoidance and minimization measures specific to Indiana bats that have been incorporated into the Proposed Action are presented below.

- Trees with characteristics of suitable roosts (i.e., dead or dying with exfoliating bark or large living trees with flaking bark) will be maintained wherever possible with regard for public safety and accomplishment of overall resource goals and objectives. Snags greater than 12 inches DBH will be retained within regeneration harvest areas. All non-hazard snags will be retained within FSI treatment areas.

- All occupied Indiana bat maternity roost trees discovered, will be protected from physical disturbance until they naturally fall to the ground.

- Stringent erosion and sedimentation controls to protect water quality and the Indiana bat prey base in streams and wetlands will be developed and implemented. Forestry BMPs would be implemented in all timber harvest areas.

- Any activities that are determined to impact potential Indiana bat habitat will prohibit tree removal/clearing during the period of April 1 to September 30, unless surveys indicate that no bats are present and there is no known roosting at the site.

- Forest management efforts within the range of the Indiana bat will be carried out to establish and maintain forest species and size class diversity in order to ensure a long-term supply of potential Indiana bat roosting trees.

3.7.1.4 Northern Long-eared Bat

The northern long-eared bat (NLEB) is listed as a federally threatened species throughout its range (Federal Register 4 May 2015). The northern long-eared bat is sparsely found across much of the eastern and north central United States and spend winter hibernating in caves and mines (U.S. Fish and Wildlife Service, 2020) . They typically use large caves or mines with large passages and entrances; constant temperatures; and high humidity with no air currents. Within hibernacula, they are found in small crevices or cracks. During summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Males and non-reproductive females may also roost in cooler places, like caves and mines. This bat seems opportunistic in selecting roosts, using tree species based on suitability to retain bark or provide cavities or crevices. They have also been found, rarely, roosting in structures like barns and sheds. Foraging occurs in floodplain and upland forests. Forest fragmentation, logging and forest conversion are major threats to the species. One of the primary threats to the northern long-eared bat is the fungal disease, white-nose syndrome, which has killed an estimated 5.5 million cave-hibernating bats in the Northeast, Southeast, Midwest and Canada. Suitable northern long-eared bat summer habitat likely occurs in the forested areas adjacent to and within the proposed project sites.

There is no designated critical habitat for either bat species at Rend Lake, although suitable summer roosting habitat does exist. There are no documented hibernacula within the treatment areas, but bats would be using forested areas during foraging and to find summer roost trees. There are likely many bat species that occur in Franklin and Jefferson counties, including the Indiana and NLEB.

Alternative 1 – No Action (Future without Project Condition)
As the forest understory becomes more overgrown with invasive shrubs and trees, regeneration of desirable trees would be greatly inhibited. Over time, existing mature trees will eventually die and fall, and without regeneration from the understory, the overall number of suitable roosting trees would decrease. The reduced quality and condition of forest stands in the No Action alternative could result in long-term adverse impacts to Indiana and Northern Long-eared Bats.

Alternative 2 – Forest Management (Forest Stand Improvement)
As previously described, the ecology and behavior of NLEBs are similar to that of Indiana bats, thus, potential effects of the Proposed Action on these bats species are expected to be closely related. Forest management actions which specifically target Indiana bat habitat enhancement, would likely benefit the northern long-eared bat as well. The proposed action could have site-specific impacts on northern long-eared bats and northern long-eared bat habitat but are not anticipated to individually or cumulatively to have an adverse impact on the population as a whole. Indirectly, NLEBs may be affected with the removal of now healthy but later potential roost trees that over the course of time would become snags. With present snag densities and the overall age of the forest along with natural mortality in present timber, it is believed that sufficient snags would likely remain present as suitable roosts and colony trees.

Northern Long-Eared Bat (NLEB) Conservation Measures - The USFWS has developed conservation measures for the protection of this species per the 2016 Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions. Incidental take involving tree removal in the White Nose Syndrome (WNS) Zone is not prohibited if two conservation measures are followed (USFWS 2016). The Proposed Project Area lies within the WNS zone and the following two conservation measures would be implemented per 4(d) rule (USFWS 2017a).

- Year-round application of a 0.25-mile radius buffer around known NLEB hibernacula. (will be implemented where applicable).

- All known occupied maternity roost trees shall be protected from damage resulting from the proposed action. All known occupied maternity roost trees shall be buffered by a 150-foot radius or greater no treatment zone during the pup season (1 June - 31 July). The 150-foot buffer is equivalent to approximately 1.6 acres.

- Additional USFWS recommended conservation measures related to the Proposed Action that have been incorporated in the project design that would be implemented as part of the proposed action, per the key to the NLEB 4(d) rule.

- The forest stands within the Proposed Action Area will be managed to ensure a continual supply of snags and other suitable maternity roost trees.

- Minimal use of herbicides and pesticides would occur.

- Participation in actions to manage and reduce impacts of white-nose syndrome on NLEB will occur.

Cumulative Impacts to Indiana and Northern Long-eared Bat

The total area of FSI treatments is 6282 acres. Of the total 6282 acres, 5700 acres have a FSI treatment planned that would include tree removal. The Cumulative Effects boundary is a five-mile buffer around the Vegetation Management Units and Recreation Management Units (Figure 17). The National Land Cover Database (NLCD) land cover/land use data was used to determine how much forested area lies within the buffer (Homer, et al., 2015). Within this buffer area is a total of 370,931 acres of deciduous forest, 734 acres of evergreen forest, and 20 acres of mixed forest. Taken cumulatively, this amounts to 371,685 acres of forested area within the 5-mile buffer zone. The 5700 acres of forest stand that are prescribed a FSI treatment comprise 1.5% of the total forested area within the 5-mile buffer zone. If these acres are distributed evenly over the 10-year span (570 acres per year), each year would impact 0.15% of the total forested area within the 5-mile buffer. Additionally, the proposed actions within the stands mentioned above would improve the long-term availability of potential roost trees for interior forest bat species such as Indiana and NLE bats through forest regeneration. Short term foraging habitat would be enhanced by increasing the amount of available sunlight to the forest floor, encouraging herbaceous vegetation habitat for insects, and better access by foraging bats. Snag retention would stabilize potential roosting habitat. Tree cutting actions would take place during the non-active roost season, therefore, effects to these bat species would be minimized.

Determination for Indiana Bat and NLEB - Based upon the type and duration of impacts discussed above, the St. Louis District has made a **May Affect, Not Likely to Adversely Affect (NLAA)** determination for the Indiana Bat and NLEB. This determination is based on the following considerations:

- Forest stand improvement is considered by the U.S. Fish and Wildlife Service to be an acceptable practice for improving Indiana Bat and NLEB summer habitat.
- Tree removal would only occur between 1 October to 31 March in any given year.
- Overall forest health would be vastly improved.
- Impacts to known hibernacula or maternity trees would be avoided.
- There is no critical habitat for the Indiana or NLEB in the affected area.
- The impact of the tree removal will be spread out in time and area

- There are 371,685 acres of forest within a 5-mile buffer of the project area. The 5700 treatment acres comprise only 1.5% of the total area of forest in this 5-mile buffer.
- Approximately 570 acres would be worked on in a given year. This value is simply 1/10th of the total acres.

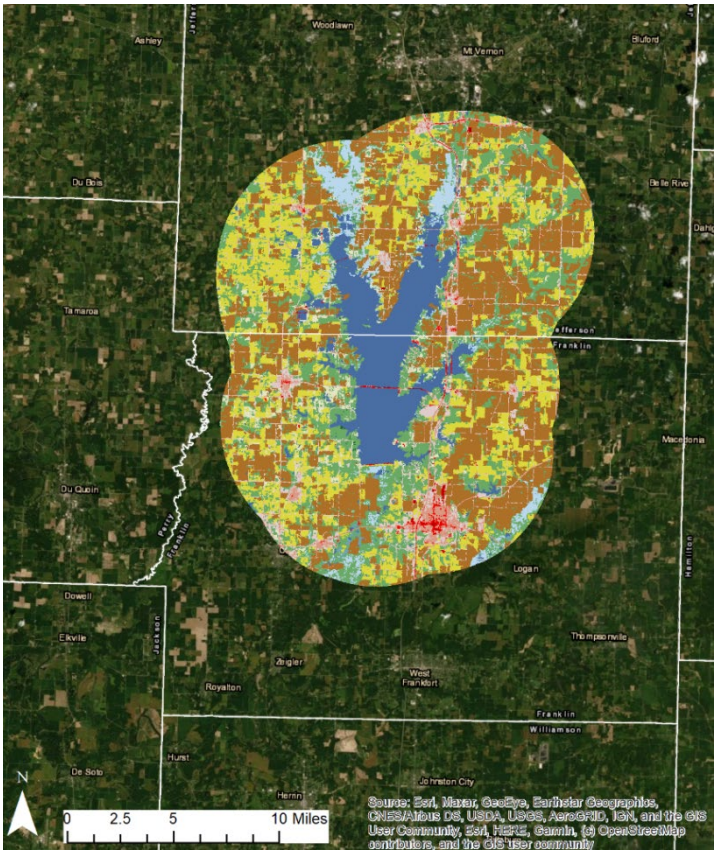


Figure 17. A figure showing the land use land cover in a five-mile buffer around Rend Lake.

3.7.1.5 Piping Plover

Piping plovers breed in northern United States and Canada. There are three locations where piping plovers nest in North America: the shorelines of the Great Lakes, the shores of rivers and lakes in the Northern Great Plains, and along the Atlantic Coast. Piping Plovers are not known to breed in the state of Illinois. In the fall, plovers migrate south and winter along the coast of the Gulf of Mexico or other southern locations (U.S. Fish & Wildlife Service, 2021). Piping Plovers can be seen in Illinois during migration while they briefly use stopover habitats. The shoreline of large reservoirs is the most common migration stopover habitat. These shorelines would be wide, flat, open, mudflats with very little grass or other vegetation. There are also migration records from natural lakes, rivers, wetlands, industrial ponds, and fish farms. Conservation efforts for the Piping Plover focus on establishing more and safer breeding habitat that excludes nest predators and human interference.

Piping Plovers do not breed on the shorelines of Rend Lake. According to checklists submitted to eBird, the Piping Plover is rarely observed in Franklin and Jefferson counties during late summer and early fall, during their fall migration (Cornell Lab of Ornithology, 2021). Despite its rarity, the Piping Plover is included on the Illinois Ornithological Society's Field Checklist, which means the bird has been seen in Illinois (Illinois Ornithological Society, 2018).

Alternative 1 – No Action (Future without Project Condition)
The life-history needs of Piping Plover would not be adversely impacted by the No Action alternative. Whatever state the forest stands would be in in the absence of FSI management would not be related to the shoreline/beach habitat used by Piping Plover during migration stopovers.

Alternative 2 – Forest Management (Forest Stand Improvement)
Direct impacts could result from disturbing the mudflats and beaches used by shorebirds like the Piping Plover during the spring and fall when they would be expected to be present. Constant disturbances cause birds to flush, expending energy fleeing that would otherwise be used to forage and complete necessary life-history needs. The proposed FSI actions would not require movement of vehicles or equipment across mudflats or beaches. Indirect impacts could result from the noise generated by chainsaws and other equipment near the beach areas used by Piping Plover and other migratory shorebirds. Noise disturbances are unlikely to flush or disturb foraging shorebirds, however. The St. Louis District has made a **NLAA** determination for the Piping Plover.

Piping Plover Conservation Measures –

- Minimize human interference in areas used by the piping plover.
- Movement of vehicles or equipment across mudflats or beaches would be avoided.

3.7.1.6 Monarch Butterfly

The Monarch Butterfly is a large orange butterfly that is a candidate for listing on the Endangered Species List. Monarch populations of eastern North America have declined 90%. Much of the monarch butterfly's life is spent migrating between Canada, Mexico, and the U.S. Monarchs do not overwinter in Illinois (U.S. Fish & Wildlife Service, 2021). The Monarch occurs in a variety of habitats where it searches for its host plant, milkweed. Of the over 100 species of milkweed that exist in North America, only about one fourth of them are known to be important host plants for monarch butterflies. The main monarch host plant is Common Milkweed (*Asclepias syriaca*) (Kaul & Wilsey, 2019). Other common hosts include Swamp Milkweed (*Asclepias incarnata*), Butterflyweed (*Asclepias tuberosa*), Whorled Milkweed (*Asclepias verticillata*), and Poke Milkweed (*Asclepias exaltata*) (U.S. Fish & Wildlife Service, 2021). Three factors appear most important to explain the decline of Monarchs: loss of milkweed breeding habitat, logging at overwintering sites, and climate change and extreme weather. In addition, natural enemies such as diseases, predators, and parasites, as well as insecticides used in agricultural areas may also contribute to the decline. The project area is likely to have some milkweed in the wetland areas and in more wet areas of the open fields.

Alternative 1 – No Action (Future without Project Condition)
The amount of milkweed at Rend Lake would be the main determining factor in how well terrestrial habitats at Rend Lake can provide for Monarch life-history needs. Without the invasive species management proposed as part of the FSI actions, the growth of milkweed in the bottomland forest stands may be inhibited. Therefore, the No Action is likely to result in minor adverse impacts to Monarch Butterfly.

Alternative 2 – Forest Management (Forest Stand Improvement)
As previously mentioned, loss of milkweed is a major threat to Monarch Butterflies at all life-stages (larvae and adult). Direct impacts to larvae and adults would involve the removal of host milkweed plants. Some milkweed may be found along the access roads and in the more open areas where invasive species management is proposed. Some milkweed may be accidentally destroyed as a consequence of the invasive species removal. However, the seedbank would not be impacted, and permanent losses of milkweed are unlikely. Indirect impacts to the butterfly could result from construction noise and other disturbances. Any indirect disturbances would be minimized or avoided as most of the work will be conducted in the cold winter months when Monarchs are not present. Logging at over-wintering sites is another threat to Monarch conservation but Rend is not an over-wintering site for this butterfly. The St. Louis District has made an **NLAA** determination for the Monarch Butterfly.

Monarch Butterfly Conservation Measures –

- Minimal use of herbicides and pesticides would occur.
- Removing woody plants and other invasive plants in grassland areas to promote the growth of grassland plants, like milkweed species.
- Using conservation mowing to enhance floral resources and habitat.

USFWS Consultation
On 17 May 2022, the USFWS concurred with a NLAA determination for the Piping Plover, the Indiana Bat, and the Northern Long-eared Bat. Based on the scale of the proposed activities and proposed conservation measures, the Service determined that the proposed project is not likely to jeopardize the continued existence of the Monarch Butterfly.

3.8 Social and Economic Resources

3.8.1 Economics

The annual visitors to the recreational areas at Rend Lake contribute substantially to the local economy by providing jobs and income. Surrounding the reservoir are resorts, hotels, marinas, grocery stores, convenience marts, gas stations, and other services that cater to visitors traveling to Rend Lake. More indirectly, the participation in outdoor recreation involves large purchases of equipment like boats, fishing tackle, camping equipment, recreational vehicles, and other items too numerous to count. According to the 2018 Rend Lake Master Plan, in an average year, Rend Lake visitors spend approximately $34,172,063 within 30 miles of the lake for things such as gas, food, and lodging. An additional $23,818,370 in sales is generated for

durable goods, such as boats and camping equipment. This spending supports approximately 328 jobs resulting in labor income of about $8,268,520 within 30 miles of the lake.

Alternative 1 – No Action (Future without Project Condition)
As described in the Economics section above, the recreational opportunities at Rend Lake contribute substantially to the local economy in Franklin and Jefferson counties. Any damage to the recreational experience at Rend Lake could translate into declining visitorship. In the absence of FSI actions at Rend Lake, the quality of the natural habitats in the forest stands and recreational areas used by recreational visitors would be expected to decrease. While boating, swimming, and other aquatic recreational activities would be less affected, the campgrounds, trails, and other upland areas may be less inviting. If this results in fewer visitors to these recreational areas, then the No Action alternative could result in minor adverse impacts to the local economy.

Alternative 2 – Forest Management (Forest Stand Improvement)
Forest management is designed to result in forest stands with an improved condition over existing conditions. If the reduction in invasive species in the understory and more open recreational areas increases the quality of the visitor experience, this may translate into increased visitorship over time. In this way, the FSI alternative could result in minor beneficial impacts to the local economy.

3.8.2 Aesthetics and Recreation

Aesthetics at the Rend Lake project are important, given that Rend Lake is used by thousands of visitors each day. It is for this reason that it is reasonable to consider both aesthetics and recreation together. Recreational uses are one of the primary purposes of the Rend Lake project, and are authorized by PL 78-534, December 2, 1944, Flood Control Act of 1944 and PL 85-500, River and Harbor Act, Title 1. The primary mission of recreation is to provide a sustainable level of high-quality water-oriented outdoor recreation opportunities within a safe and healthful environment that meets the needs of present and future generations. The Rend Lake project contains 53 recreation areas, with 756 campsites, 104 picnic sites, 30 boat ramps, 235 marina slips and over 34 miles of trails. Each year, on average, over two-million people visit the lake, which annually generates nearly $35 million in visitor spending within 30-miles of the project. The existing aesthetics of the recreational areas are attained through regular maintenance and cleaning. Adverse impacts to aesthetics could result from docks, trails, buildings, and other infrastructure becoming degraded or damaged. The excessive growth of undesirable or invasive vegetation can both limit the ability of visitors to enjoy recreational opportunities and adversely affect the overall aesthetics of the area.

Alternative 1 – No Action (Future without Project Condition)
The No Action alternative would have adverse impacts similar to those of the local economic conditions. In the absence of FSI actions at Rend Lake, the quality of the natural habitats used by recreational visitors would be expected to decrease. The decline in forest condition may make the campgrounds, trails, and wooded areas less desirable to recreational visitors. This could result in a minor adverse impact to recreation. Similarly, the lack of FSI management

would also decrease the overall aesthetics of the area, though aesthetics is subjective. Understories choked with invasive shrubs and trees may be viewed as less aesthetic than diverse understories composed of regenerating trees, saplings, forest wildflowers, and other herbaceous flowering plants.

Alternative 2 – Forest Management (Forest Stand Improvement)
The improved forest condition resulting from the FSI alternative could make the forest stands and recreational areas more desirable to visitors. Recreational opportunities provided by these areas include bird watching, camping, hiking, and interpretive nature experiences. For many recreational visitors seeking these experiences, the aesthetics of an area important, and would be tied to the natural beauty of their surroundings. A healthy forest presents a more diverse and aesthetically pleasing experience to visitors seeking these recreational opportunities at Rend Lake. In this way, Recreation and Aesthetics would be substantially benefitted by the FSI alternative.

3.8.3 Cultural Resources

In 1961 as a result of proposed lake construction, the Rend Lake Reservoir Salvage Project was initiated by Southern Illinois University Museum at Carbondale (SIUM-C) under the auspices of the U. S. Department of the Interior, National Park Service. The initial survey, which was limited to the proposed flood pool area, was conducted during 1961 to 1963 and resulted in the location of 143 archaeological sites (Chadwick 1963; Bowles 1963). Cultural resources investigations have continued to occur at the lake project from this early 1960's work to the present day. Over this time period 367 archaeological sites have been recorded on the USACE fee-title land at Rend Lake dating from Palaeo-Indian through Historic period. Sixty of the known archaeological sites fall within or partially within the Forest Stand Improvement areas. No historic properties at Rend Lake have been listed on the National Register of Historic Places. However, there are several known Rend Lake archaeological sites that have been determined eligible for listing and specifically two of the determined eligible sites are located partially within or adjacent to the Forest Stand Improvement areas of this study.

Alternative 1 – No Action (Future without Project Condition)
The absence of FSI actions would not be expected to result in adverse impacts to Cultural Resources at Rend Lake. No actions would be taken that would disturb existing known or unknown archeological sites or historic properties.

Alternative 2 – Forest Management (Forest Stand Improvement)
Given the potential for only minor surficial soil disturbance from the FSI operations, Cultural Resources would not be impacted by the FSI alternative. In the unlikely event that, forest management activities associated with the proposed work did encounter potentially significant archeological/historic properties, all actions in the immediate vicinity of the sites would be held in abeyance until the potential significance of the sites could be determined. The precise nature of such investigations would be developed by the Saint Louis District in concert with the professional staff of the Illinois SHPO. However, because the affected trees will be left as above ground stumps (or snags) the soil would receive minimal surficial disturbance, a Historic

Properties Preliminary Review was completed on 25 February 2022 that made a "no historic properties affected" determination.

3.8.4 Tribal Resources

The information gathered from the 1963 study was comprehensive and allows for a brief chronological overview of the prehistory of Rend Lake.

While it is known that Paleo-Indian (ca. 11,000-8,000 B.C.) occupation existed, that period of prehistory is poorly represented at Rend Lake. It is believed that a more substantial Paleo-component was once present, undisputed proof has been obliterated by prehistoric flooding and erosion. The Early Archaic period (ca. 8,000-5,000 B.C.) is represented at 14 sites clustered in areas adjacent to the mouths of tributaries. The Middle Archaic period (ca. 5,000-2,000 B.C.) is represented by 15 sites, concentrated near major tributaries or the main channel, near what was probably more heavily forested terrain. The Late Archaic period (ca. 2,000-1,000 B.C.) represents a time span that is only one third as long as either of the preceding two periods and is represented in over twice as many (38) sites. A system of "continuity in settlement" is suggested by a number of middle-to-late multi-component sites.

The Early Woodland period (ca. 1,000-300 B.C.) is difficult to identify, because of unresolved chronological issues. However, three sites have been tentatively assigned to the Early Woodland Period, on the basis of projectile point typology. Middle Woodland status (ca. 300 B.C. - A.D. 600), has been assigned to 59 sites, three of which are known to have contained structures. Salvage excavation has been conducted at one of those sites. Many of the 59 sites may well represent or be mixed with Early Woodland material, pending resolution of typological problems. Sites are found in all environmental zones, but center in the uplands near the main channels of Casey Fork and the Big Muddy. Forty-eight Late Woodland components (A.D. 600-900) have been identified. It is believed that site distribution, similar to that of the Middle Woodland period, reflects the cultivation of plants occurred on the enriched soils of the abandoned Middle Woodland sites.

The Mississippian period (A.D. 900 -?) is represented by only 8 sites, all of them multi-component. Structures are known at two sites, one of which has undergone salvage data recovery. The Mississippian Period, during which large towns, earthworks, and extensive trade networks developed elsewhere in the Midwest, appears to have been represented by a few farmsteads or hamlets in the Rend Lake Area.

<u>Alternative 1 – No Action (Future without Project Condition)</u>

The absence of FSI actions would not be expected to result in adverse impacts to Tribal Resources at Rend Lake. No actions would be taken that would disturb existing known or unknown archeological sites or other prehistoric sites.

<u>Alternative 2 – Forest Management (Forest Stand Improvement)</u>

Similar to the Cultural Resources section, the main potential adverse impact would come from the construction of temporary access roads and staging areas. However, no new roads or

staging areas would be built. This project does not propose to conduct ground disturbances and the land cover will remain the same. No Tribal Resources will be impacted by the FSI alternative.

3.8.5 Environmental Justice

Environmental justice refers to fair treatment of all races, cultures, and income levels with respect to development, implementation and enforcement of environmental laws, policies, and actions. Environmental Justice Analysis applies to both minority and low-income populations. For the analysis of Environmental Justice, minority populations are defined as any person who is Black, Hispanic, Asian American, American Indian, or Alaskan Native. Environmental justice analysis was developed following the requirements of: Executive Order 12898 ("Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations," 1994), and "Department of Defense's Strategy on Environmental Justice" (March 24, 1995). This mandates that federal agencies identify and address, as appropriate, disproportionately high, and adverse human health, or environmental effects of proposed projects on minority and low-income populations. Environmental Justice builds on Title VI of the Civil Rights Act of 1964. Environmental Justice has three guiding principles:

1. Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental impacts, including social and economic effects on minority and low-income populations
2. Ensure full and fair participation by all potentially affected communities in the decision-making process
3. Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

Demographic information for Franklin and Jefferson counties was obtained from the United States Census. The total population of Jefferson County is 37,113, with 14,985 households, and a median household income of $49,896 (U.S. Census Bureau, 2020). The employment rate in Jefferson County is 52.9%, and 17.9% of residents have a bachelor's degree or higher (U.S. Census Bureau, 2020). The population of Franklin County is 37,804, with 16,235 households, and a median income of $42,769 (U.S. Census Bureau, 2020). About 16.7% of residents have a bachelor's degree and the employment rate is 50.6% (U.S. Census Bureau, 2020). Existing environmental justice conditions were obtained in an EJSCREEN report obtained on 21 September 2021 (Figure 17). The selected area for the report included the entirety of both Franklin and Jefferson Counties. These two counties have a People of Color population of 9%, less than the state average of 38%. The low-income population is 40%, greater than the state average of 29%. The percent of residents without a high school education is 13%, greater than the state average of 11%. Environmental indicators like particulate matter, ozone, and lead paint are similar to the state average.

EPA United States Environmental Protection Agency

EJSCREEN Report (Version 2020)

the User Specified Area, ILLINOIS, EPA Region 5

Approximate Population: 77,315

Input Area (sq. miles): 1017.62

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	9.26	9.13	53	8.4	78	8.55	73
Ozone (ppb)	47	46.5	67	43.8	90	42.9	82
NATA* Diesel PM (µg/m³)	0.268	0.67	15	0.446	<50th	0.478	<50th
NATA* Cancer Risk (lifetime risk per million)	27	33	31	26	60-70th	32	<50th
NATA* Respiratory Hazard Index	0.35	0.42	32	0.34	60-70th	0.44	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	130	630	37	530	43	750	39
Lead Paint Indicator (% Pre-1960 Housing)	0.39	0.41	50	0.38	58	0.28	70
Superfund Proximity (site count/km distance)	0.031	0.096	21	0.13	22	0.13	27
RMP Proximity (facility count/km distance)	0.21	1.2	23	0.83	36	0.74	40
Hazardous Waste Proximity (facility count/km distance)	0.81	4.1	25	2.4	41	5	46
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.48	6.4	76	2.4	91	9.4	93
Demographic Indicators							
Demographic Index	25%	34%	46	28%	58	36%	40
People of Color Population	9%	38%	20	25%	37	39%	19
Low Income Population	40%	29%	71	30%	71	33%	67
Linguistically Isolated Population	0%	5%	45	2%	59	4%	45
Population With Less Than High School Education	13%	11%	69	10%	74	13%	64
Population Under 5 years of age	6%	6%	54	6%	55	6%	53
Population over 64 years of age	19%	15%	74	16%	71	15%	73

Figure 18. Results of EJSCREEN Report for Franklin and Jefferson Counties

Alternative 1 – No Action (Future without Project Condition)

Forest stand improvements, or lack thereof, in the case of the No Action, are unrelated to Environmental Justice concerns in Franklin and Jefferson counties. The No Action Alternative would not result in disproportionately high impacts to minority or low income populations.

Alternative 2 – Forest Management (Forest Stand Improvement)

The FSI alternative would not create adverse impacts to minorities, low-income, or cause other Environmental Justice concerns. The improved forest condition after FSI actions would result in many ecological benefits but would be unrelated to any Environmental Justice concerns in Franklin or Jefferson counties. The Action Alternative would not result in disproportionately high adverse impacts to minority or low income populations.

4.0. CUMULATIVE IMPACTS

Cumulative impacts are defined as those impacts that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes the actions. Cumulative impacts are not caused by a single project but include the effects of a particular project in conjunction with other projects (past, present, and future) on the resource. Cumulative effects are studied to enable the public, decision-makers, and project proponents to consider the "big picture" effects of a given project on the community and the environment. In a broad sense, all impacts on affected resources are probably cumulative; however, the role of the analyst is to narrow the focus of the cumulative impacts analysis to important issues of national, regional, and local significance (CEQ, 1997).

4.1. Step 1: Identify Potentially Affected Resources

In this step, each resource affected by the action alternatives are identified. Resources were not assessed for cumulative impacts if the analysis in the Affected Environment and Environmental Impacts Chapter determined there would be no impact to that resource from the action alternatives. Resources that would be affected by the FSI actions at Rend Lake could include biological and social/economic resources. Potentially affected biological resources could include the terrestrial habitat, Bald Eagles, migratory birds, invasive species, and the federally-listed and state-listed threatened & endangered species. Potentially affected social/economic resources could include aesthetics, recreation, and economics.

4.2. Step 2: Establish Boundaries (Geographic and Temporal)

In identifying past, present, and reasonably foreseeable actions to consider in the cumulative impact analysis, affected resource-specific spatial and temporal boundaries were identified. The spatial boundary is where impacts to the affected resource could occur from the action alternatives and therefore where past, present, and reasonably foreseeable future actions could contribute to cumulative impacts to the affected resource. This boundary is defined by the affected resource and may be a different size than the project area.

The temporal boundary describes how far into the past and forward into the future actions should be considered in the impact analysis. The temporal boundary is guided by CEQ guidance on considering past action and a rule of reason for identifying future actions. For each resource topic, the geographic and temporal boundaries were identified. For all resource topics, the consideration of past actions is reflected in the existing condition. A default future temporal boundary of 50 years from the baseline condition was used as an initial timeframe; however, the impacts are based on their likelihood of occurring and whether they can be reasonably predicted.

4.3. Step 3: Identify the Cumulative Action Scenario

In this step, past, present, and reasonably foreseeable future actions to be included in the impact analysis for each specific affected resource were identified. These actions fall within the spatial and temporal boundaries established in Step 2.

The FSI actions are expected to be completed over the next 5-10 years but would require regular maintenance throughout the life of the Rend Lake project. The cumulative impacts resulting from these FSI actions would be expected to be included in reasonably foreseeable future actions. Management of the natural resources on public lands, like those at Rend Lake, are expected continue over the next fifty years. Invasive species control is also expected to continue over the coming decades, especially on public lands. It is likely that private landowners would also contribute to invasive species control in order to prevent damage to crops and orchards. While current invasive species control efforts at Rend Lake center on invasive plants, the spread of Asian carp is a threat that could become a major problem in the reservoir over the next fifty years.

The alterations to the bottomland and upland hardwood forest stands could contribute to cumulative impacts by making substantial changes to the species diversity and composition in those areas. Given that the FSI actions are designed to improve forest habitat, it is likely that they would cause a long-term beneficial cumulative impact to terrestrial habitat and the migratory birds, eagles, and listed species that rely on forest habitat.

The aesthetics of the area and the associated recreational opportunities are other potentially affected resources. Cumulative impacts to aesthetics and recreation could, subsequently, contribute to cumulative impacts to local economics as well. Improvements to forest habitat could contribute to provide long-term beneficial impacts to aesthetics and recreational opportunities, which would, in turn, contribute to long-term benefits to the local economy. Invasive species removal actions will be a primary component of the FSI actions. The annual growth and spread of invasive species would be greatly limited if the FSI actions take place. In this way, the proposed actions would have long-term beneficial impacts to efforts to control the spread of invasive species.

4.4. Step 4: Analyze Cumulative Impacts

For each resource, the actions identified in Step 3 are analyzed in combination with the impacts of the action alternatives being evaluated. This analysis describes the overall cumulative impact related to each resource and the contribution to this cumulative impact of each alternative being evaluated. None of the alternatives were determined to significantly adversely impact the resources discussed. Cumulative impacts to the various resources are summarized in Table 3.

Table 3. Summary of the "No Action" and Tentatively Selected Plan alternatives to physical, biological, and socioeconomic resources.

No Action Alternative Future Effects Compared to Existing Conditions (Effects of Nature)			Symbols: X = Long-Term Effect T = Temporary Effect C = Cumulative Impact	**Proposed Alternatives, Effects of Action Alternatives to No Action Effects (Effects of Project)**		
BENEFICIAL		ADVERSE		BENEFICIAL		ADVERSE

SIGNIFICANT	SUBSTANTIAL	MINOR	NO EFFECT	MINOR	SUBSTANTIAL	SIGNIFICANT	Affected Resource	SIGNIFICANT	SUBSTANTIAL	MINOR	NO EFFECT	MINOR	SUBSTANTIAL	SIGNIFICANT
							A. Physical Effects							
			X				Topography, Geology, & Soils				**X**			
				X			Land Use/Land Cover			**X**				
			X				Prime Farmland				**X**			
			X				Noise					**T**		
			X				Water Quality					**T**		
			X				Hydraulics & Hydrology			**X**				
			X				Air Quality					**T**		
			X				Climate				**X**			
			X				Hazardous Waste				**X**			
							B. Biological Effects							
			X				Aquatic Habitat					**T**		
					C		Terrestrial Habitat		**C**					
			X				Bald Eagle				**X**			
				X			Migratory Birds					**T**		
					C		Invasive Species		**C**					
				X			State-listed Species					**T**		
				X			Federally-listed Species					**T**		
							B. Social Effects							
				X			Economics			**X**				
				C			Aesthetics		**X**					
				C			Recreation			**X**				
			X				Cultural Resources, Historic Prop.				**X**			
			X				Tribal Resources				**X**			
			X				Environmental Justice				**X**			

5.0. COMPLIANCE WITH ENVIRONMENTAL POLICY

The relationship of the Tentatively Selected Plan to environmental requirements, environmental acts, and /or executive orders is shown in Table 4.

Table 4. Relationship of the Tentatively Selected Plan to environmental requirements, environmental acts, and/or executive orders.

Environmental Requirement	Compliance
American Indian Religious Freedom Act, as amended, 42 USC § 1996	FC
Bald Eagle Protection Act, 42 USC 4151-4157	FC
Clean Air Act, 42 USC 7401-7542	FC
Clean Water Act, 33 USC 1251-1375	FC
Comprehensive Environmental Response, Compensation, and Liability Act, (HTRW) 42 USC 9601-9675	FC
Endangered Species Act, 16 USC 1531-1543	FC
Farmland Protection Policy Act, 7 (Prime Farmland) USC 4201-4208	FC
Fish and Wildlife Coordination Act, 16 USC 661-666c	FC
Food Security Act of 1985 (Swampbuster), 7 USC varies	FC
Land and Water Conservation Fund Act, (Recreation)16 USC 460d-4601	FC
Migratory Bird Treaty Act of 1918, as amended, 16 USC § 703, et seq.	FC
National Environmental Policy Act of 1969, 42 USC 4321-4347	PC[2]
National Historic Preservation Act, 16 USC 470 et seq.	FC
Noise Control Act of 1972, 42 USC 4901-4918	FC
Resource, Conservation, and Rehabilitation Act, (Solid Waste) 42 USC 6901-6987	FC
Rivers and Harbors Appropriation Act, (Sec. 10) 33 USC 401-413	FC
Water Resources Development Acts of 1986 and 1990 (Sec 906 – Mitigation; Sec 307 - No Net Loss - Wetlands)	FC
Floodplain Management (EO 11988 as amended by EO 12148)	FC
Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, EO 12898, February 11, 1994, as amended	FC
Federal Compliance with Pollution Control Standards (EO 12088)	FC
Invasive Species, EO 13112, February 3, 1999, as amended	FC

Protection and Enhancement of Environmental Quality (EIS Preparation) (EO 11991)	FC
Protection and Enhancement of the Cultural Environment (Register Nomination) (EO 11593)	FC
Protection of Wetlands (EO 11990 as amended by EO 12608)	FC

FC = Full Compliance, PC^1 = Partial Compliance (on-going, will be accomplished prior to decision to sign the FONSI), PC^2 full compliance will be achieved upon signing of the NEPA document.

6.0 COORDINATION AND PUBLIC REVIEW

Notification of the DRAFT Environmental Assessment and unsigned Finding of No Significant Impact was sent to relevant officials, agencies, organizations, and individuals for review and comment. Additionally, an electronic copy of the EA was available on the St. Louis District's website during the 30-day public review period beginning on 3 June 2022 at the following url:

https://www.mvs.usace.army.mil/Portals/54/docs/pm/Reports/EA/2021DRAFTEAFONSIRendLakeForestStandImprovementActions.pdf

Please note that the Finding of No Significant Impact was unsigned during the public review period. These documents would be signed into effect only after having carefully considered comments received as a result of the public review. To assure compliance with the National Environmental Policy Act, Endangered Species Act, and other applicable environmental laws and regulations, coordination with these agencies will continue as required throughout the planning and construction phases of the proposed levee repairs.

Notification of Draft Environmental Assessment and unsigned Finding of No Significant Impact was sent to the following entities:

MVS External Government Stakeholder
Office of the Governor
Pritzker, J.B.
United States Senator for Illinois
Durbin, Dick
Illinois State Senator for Rend Lake
Fowler, Dale
Illinois Congressional District 12 Representative
Bost, Michael

Local Municipalities
Benton, IL
Kondritz, Fred
Christopher, IL
Bartolotti, Gary
Buckner, IL
Eubanks, Aaron
Sesser, IL
Ashmore, Jason
Mt Vernon, IL
Lewis, John
Bonnie, IL
Beal, Robert
Ina, IL
Hutchens, Andy
Valier, IL
McMurray, Bruce
Waltonville, IL
Dees, Randy

MVS External Agency Stakeholder
Environmental Protection Agency, Region 5
Shore, Debra
Illinois Environmental Protection Agency
Seith, William
National Oceanic and Atmospheric Administration
Buan, Steve
National Park Service
Lange, James
U.S. Fish and Wildlife Service, Missouri Office
Mangan, Matthew
U.S. Department of Agriculture-NRCS, IL Office

Dozier, Ivan
Illinois Dept of Natural Resources
Hayes, Bradley

Illinois Historic Preservation Agency
Leibowitz, Rachel
Rend Lake College President
Wilkerson, Terry

MVS External Environmental Stakeholder
Rend Lake Conservancy District
Thomason, Keith
Ducks Unlimited Illinois
Johnson, Galen
The Nature Conservancy, Illinois Office
Carr, Michelle

MVS External Tribe Stakeholder
Absentee-Shawnee Tribe
Devon Frazier
Caddo Nation
Historic Preservation Office
Chairman of Caddo Nation
Francis, Tamara
Citizen Potawatomi Nation
Kelli Mosteller
Eastern Shawnee Tribe of Oklahoma
Brett Barnes
Forest County Potawatomi
Melissa Cook
Hannahville Indian Community
Earl Meshigaud
Ho-Chunk Nation of Wisconsin
William Quackenbush
Iowa Tribe of Kansas and Nebraska
Lance Foster
Iowa Tribe of Oklahoma
Dr. Robert Fields
Kickapoo Tribe of Indians of Kansas
Fred Thomas
Kickapoo Tribe of Oklahoma
Kent Collier
Miami Tribe of Oklahoma
Diane Hunter
Nottawaseppi Band of Huron Potawatomi
Fred Jacko, JR
Peoria Tribe of Indians of Oklahoma
Charla EchoHawk
Pokagon Band of Potawatomi
Matthew Bussler
Prairie Band Potawatomi Nation
Warren Wahweotten
Sac & Fox Nation of Missouri in Kansas and Nebraska
Chairperson Tiauna Carnes
Sac & Fox Nation of Oklahoma
Principal Chief Kay Rhoads
Sac & Fox Tribe of the Mississippi in Iowa
Buffalo, Jonathon
Shawnee Tribe
Tonya Tipton
SOARRING Foundation
Joseph Standing Bear Schranz
The Osage Nation
Chief John Red
Dr. Andrea Hunter
The Quapaw Tribe of Indians
Everett Bandy
United Keetoowah Band of Cherokee of Oklahoma
Sheila Bird
Winneb be of Nebraska
Randy Tebeo

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Draft unsigned FONSI

9.0 FINDING OF NO SIGNIFICANT IMPACT

REND LAKE FOREST STAND IMPROVEMENT
Jefferson and Franklin Counties, Illinois

The U.S. Army Corps of Engineers, St. Louis District (Corps) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 2020, as amended. The draft Environmental Assessment (EA) dated **3 June 2022**, for the **Rend Lake Forest Stand Improvement** addresses **forest management** opportunities at **Rend Lake**.

The Environmental Assessment evaluated various alternatives that would **improve the sustainability and health of forest stands** in the study area. The Tentatively Selected plan is the Forest Stand Improvement (FSI) alternative and includes:

- Restore and maintain forest diversity, health, and sustainability on Federal lands, in order to provide native vegetation communities sufficient to support favorable wildlife habitat.
- Improve tree species diversity by removing trees and other vegetation that compete for resources with desirable tree species.
- Create a favorable composition of these desirable tree species.
- Improve the structure of the forest stand by manipulating age-classes and density of trees.
- Preserve some dead snags for wildlife habitat while removing some snags that pose a safety risk.
- Remove invasive and undesirable tree and vegetation species.

A “no action” plan was also evaluated in the EA

SUMMARY OF POTENTIAL EFFECTS:

For all alternatives, the potential effects were evaluated, as appropriate. Potential adverse impacts include minor temporary adverse impacts from the use of access roads and staging areas, the use of chainsaws, skidsteers, dump trucks, and other equipment, and adverse impact risk from the use of pesticides to treat invasive species. There would be minor amounts of ozone, particulates, and sedimentation. Temporary noise impacts during forestry activities are also expected. Beneficial impacts resulting from the forestry activities would include improved forest species diversity, a more sustainable composition of tree species, less invasive species, and open understory, oak regeneration, and restoration of the herbs, flowers, and other non-woody vegetation in the understory. These beneficial impacts would increase the capacity of forested areas around the Rend Lake Project to provide for the life-history needs of forest-dependent wildlife.

Overall Conservation Measures

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the Tentatively Selected plan. Conservation measures are incorporated into the Proposed Action to avoid or minimize adverse impacts to specific protected natural resources. The conservation measures below are focused on resources connected to the treatment actions. Conservation measures would consist of accepted government and private FSI activities practices.

- Stream and Wetland Protection – Forested buffers a minimum of 50 feet would be retained on each side of all perennial and intermittent streams to prevent any soil, bank, and bed disturbance.
- Soil Protection - Access roads would consist of ridge tops, agricultural fields, interior and existing roads. Landings would be established where necessary on ridge tops and flat areas suitable for access and appropriate to minimize soil disturbance. Tree removal would cease during periods of saturated soil conditions to protect against excessive compaction.
- Protection of Special Features – Resources such as wetlands and cultural sites would be excluded from tree removal areas.
- Protection from Invasive Species - Use of invasive, exotic plant species will be avoided when re-foresting and when stabilizing soils.
- All tree removal would be limited to between 1 October to 31 March.
- The FSI activities would be spread out over a period of 10 years, involving an average of $1/10^{th}$ of the total forested acres per year.
- Trees that exhibit roost-characteristics would be retained unless they pose a safety threat.
- All trees that are girdled in the FSI process will be left standing for wildlife habitat and allowed to fall down naturally unless they pose a hazard to public safety or property.

Best Management Practices (BMPs)
Soil disturbance from vehicle use and equipment staging is another concern. The following BMPs will be used to mitigate sediment erosion and runoff:

- Existing road systems and staging areas would be used when possible.
- Traffic will be kept to a minimum during wet and muddy conditions.
- Staging areas will be located on currently disturbed areas, when possible. Otherwise, staging areas will be limited to areas with firm, well-drained soils with a slight slope to allow for drainage.
- Sediment control structures will be installed where appropriate to slow the flow of runoff and to arrest sediment until vegetation cover is established.
- Areas of bare soil will be restored by applying seed and mulch.
    - Seed mixes will include fast-growing vegetation to arrest soil movement and perennial species for longer soil protection.
    - Seed mix used will be restricted to those approved by the Illinois DNR

Pesticides are utilized on Rend Lake for turf management and weed control in recreation areas, rights-of-way, agricultural fields and for invasive species control. Any operator that uses herbicide as part of these FSI actions will be licensed by the State of Illinois and abide by the following BMPs:

- Maintain a spill containment and cleanup kit appropriate for the materials used and report all spills.
- Follow all EPA product label instructions on chemical containers.
- Mix and load chemicals in a staging area that is outside streamside management zones or other sensitive areas.
- Apply chemicals only under favorable weather conditions to prevent drift.
- Calibrate spray equipment to apply chemicals uniformly and in the correct quantities.
- Dispose of chemical containers according to label instructions.
- Prevent chemical leaks from equipment. Do preventative maintenance and repair on all equipment for leaking hoses, connections, and nozzles.
-

Species-specific Conservation Measures

Indiana Bat Conservation Measures - The USFWS has developed guidance for various land development and land use activities to reduce the loss, degradation, and fragmentation of Indiana bat habitat (USFWS 2011). Forest stand improvement is considered by the U.S. Fish and Wildlife Service to be an acceptable practice for improving Indiana Bat and NLEB summer habitat. Avoidance and minimization measures specific to Indiana bats that have been incorporated into the Proposed Action are presented below.

- Trees with characteristics of suitable roosts (i.e., dead or dying with exfoliating bark or large living trees with flaking bark) will be maintained wherever possible with regard for public safety and accomplishment of overall resource goals and objectives. Snags greater than 12 inches DBH will be retained within regeneration harvest areas. All non-hazard snags will be retained within FSI treatment areas.

- All occupied Indiana bat maternity roost trees discovered, will be protected from physical disturbance until they naturally fall to the ground.

- Stringent erosion and sedimentation controls to protect water quality and the Indiana bat prey base in streams and wetlands will be implemented. Forestry BMPs would be implemented in all timber harvest areas.

- Any activities that are determined to impact potential Indiana bat habitat will prohibit tree removal/clearing during the period of April 1 to September 30, unless surveys indicate that no bats are present and there is no known roosting at the site.

- Forest management efforts within the range of the Indiana bat will be carried out to establish and maintain forest species and size class diversity in order to ensure a long-term supply of potential Indiana bat roosting trees.

Northern Long-Eared Bat (NLEB) Conservation Measures - The USFWS has developed conservation measures for the protection of this species per the 2016 Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions. Incidental take involving tree removal in the White Nose Syndrome (WNS) Zone is not prohibited if two conservation measures are followed (USFWS 2016). The Proposed Project Area lies within the WNS zone and the following two conservation measures would be implemented per 4(d) rule (USFWS 2017a).

- Year-round application of a 0.25-mile radius buffer around known NLEB hibernacula. (will be implemented where applicable).

- All known occupied maternity roost trees shall be protected from damage resulting from the proposed action. All known occupied maternity roost trees shall be buffered by a 150-foot radius or greater no treatment zone during the pup season (1 June - 31 July). The 150-foot buffer is equivalent to approximately 1.6 acres.

- Additional USFWS recommended conservation measures related to the Proposed Action that have been incorporated in the project design that would be implemented as part of the proposed action, per the key to the NLEB 4(d) rule.

- The forest stands within the Proposed Action Area will be managed to ensure a continual supply of snags and other suitable maternity roost trees.

- Minimal use of herbicides and pesticides would occur.

- Participation in actions to manage and reduce impacts of white-nose syndrome on NLEB will occur.

Piping Plover Conservation Measures –

- Minimize human interference in areas used by the piping plover.
- Movement of vehicles or equipment across mudflats or beaches would be avoided.

Monarch Butterfly Conservation Measures –

- Minimal use of herbicides and pesticides would occur.
- Removing woody plants and other invasive plants in grassland areas to promote the growth of grassland plants, like milkweed species.
- Using conservation mowing to enhance floral resources and habitat.

COMPENSATORY MITIGATION:

No compensatory mitigation is required as part of the Tentatively Selected plan.

PUBLIC REVIEW:

Public review of the draft EA and FONSI began on 6 June and for a period of 30 days. All comments submitted during the public review period will be considered in the Final EA and FONSI.

OTHER ENVIRONMENTAL AND CULTURAL COMPLIANCE REQUIREMENTS:

ENDANGERED SPECIES ACT

INFORMAL CONSULATION:

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers determined that the Tentatively Selected Plan may affect, but is not likely to adversely affect, the following federally listed species or their designated critical habitat: Indiana Bat, Northern Long-eared Bat, and Monarch Butterfly. The U.S. Fish and Wildlife Service (FWS) concurred with the Corps' determination on **17 May 2022**

NO EFFECT:

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers determined that the Tentatively Selected Plan would have no effect on the Piping Plover.

NATIONAL HISTORIC PRESERVATION ACT

NO EFFECT TO HISTORIC PROPERTIES:

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the U.S. Army Corps of Engineers determined that the Tentatively Selected Plan has no effect on historic properties.

CLEAN WATER ACT SECTION 401 COMPLIANCE*:*

The Tentatively Selected Plan does not propose to add dredged or fill material to any water of the United States.

OTHER SIGNIFICANT ENVIRONMENTAL COMPLIANCE:

All applicable environmental laws have been considered and coordination with appropriate agencies and officials has been completed.

FINDING

Technical, environmental, and scientific criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other Federal, State, and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the Tentatively Selected Plan would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

_____ _____

Kevin R. Golinghorst
Colonel, U.S. Army,
District Commander

Appendix to the Environmental Assessment

IPaC Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Southern Illinois Sub-Office
Southern Illinois Sub-office
8588 Route 148
Marion, IL 62959-5822
Phone: (618) 997-3344 Fax: (618) 997-8961
http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html

In Reply Refer To: February 04, 2022
Project Code: 2022-0003883
Project Name: Rend Lake Forestry Management FY21

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 attached species list identifies any federally threatened, endangered, proposed and candidate species that may occur within the boundary of your proposed project or may be affected by your proposed project. The list also includes designated critical habitat if present within your proposed project area or affected by your project. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-federal representative) must consult with the Service if they determine their project “may affect” listed species or critical habitat. Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service to make "no effect" determinations. If you determine that your proposed action will have "no effect" on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.

Under 50 CFR 402.12(e) (the regulations that implement Section 7 of the Endangered Species Act) the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally. You may verify the list by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation and

completing the same process you used to receive the attached list. As an alternative, you may contact this Ecological Services Field Office for updates.

Please use the species list provided and visit the U.S. Fish and Wildlife Service's Region 3 Section 7 Technical Assistance website http://www.fws.gov/midwest/endangered/section7/s7process/index.html. This website contains step-by-step instructions which will help you determine if your project will have an adverse effect on listed species and will help lead you through the Section 7 process.

For all wind energy projects and projects that include installing towers that use guy wires or are over 200 feet in height, please contact this field office directly for assistance, even if no federally listed plants, animals or critical habitat are present within your proposed project or may be affected by your proposed project.

Although no longer protected under the Endangered Species Act, be aware that bald eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*) and Migratory Bird Treaty Act *(*16 U.S.C. 703 *et seq*), as are golden eagles. Projects affecting these species may require measures to avoid harming eagles or may require a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website USFWS Midwest Region - Bald and Golden Eagle Permits to help you determine if you can avoid impacting eagles or if a permit may be necessary.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries

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:

Southern Illinois Sub-Office
Southern Illinois Sub-office
8588 Route 148
Marion, IL 62959-5822
(618) 997-3344

Project Summary

Project Code: 2022-0003883
Event Code: None
Project Name: Rend Lake Forestry Management FY21
Project Type: Timber Stand Improvement (TSI) Treatment
Project Description: A variety of forestry management actions will be taken on USACE lands at Rend Lake. Actions would include tree removal, and mechanical and chemical invasive species removal. A thorough Biological Assessment is being prepared for Marion IL Field Office.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.12807495,-88.96597213322514,14z

Counties: Franklin and Jefferson counties, Illinois

Endangered Species Act Species

There is a total of 4 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 Fisheries[1], 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.

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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 *Myotis sodalis* 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 *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.) 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	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* 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.

Concurrence from the USFWS

United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Southern Illinois Sub-Office (ES)
8588 Route 148
Marion, Illinois 62959

In Reply Refer To:
FWS/SISO
Consultation Code: 2022-0003883

May 17, 2022

Teri C. Allen, Ph.D.
Chief, Environmental Compliance Section
U.S. Army Corps of Engineers, St. Louis District
1222 Spruce Street
St. Louis, MO 63103-2833

Attention: Evan Hill

Teri C. Allen:

Thank you for your April 13, 2022, letter requesting review of the Biological Assessment (BA) addressing the implementation of Timber Stand Improvement (TSI) methods at the Rend Lake Project Office in Franklin and Jefferson Counties, Illinois. These comments are provided under the authority of and in accordance with the provisions of the Endangered Species Act of 1973, as amended; the Fish and Wildlife Coordination Act; the Migratory Bird Treaty Act, and the National Environmental Policy Act.

Threatened and Endangered Species

To facilitate compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, Federal agencies are required to obtain from the Fish and Wildlife Service (Service) information concerning any species, listed, or proposed to be listed, which may be present in the area of a proposed action. In your letter you provided a list of species which may be present within the project area that was obtained from the Services IPaC system on (February 4, 2022). That list includes the endangered Indiana bat (*Myotis sodalis*), endangered piping plover (*Charadrius melodus*), threatened northern long-eared bat (*Myotis septentrionalis*), and candidate monarch butterfly (*Danaus plexippus*). There is no designated critical habitat in the project area at this time.

Information in the BA indicates that suitable habitat for the piping plover and monarch butterfly does not occur within the forested areas proposed for treatment and the activities would occur primarily during the winter months when the species would not be present, thus the USACE has determined that the proposed project is not likely to adversely affect either species. Based on this information the Service concurs that the proposed project is not likely to adversely affect the piping plover. The monarch butterfly and habitat for the species may be exposed to project activities during implementation of invasive species removal and road management during the summertime period, thus a may affect, likely to adversely affect determination is more appropriate. Proposed conservation measures include limited use of herbicides, removing woody

plants and invasive species in grassland areas, and utilizing conservation mowing to promote floral species and habitat. Based on the scale of the proposed activities and proposed conservation measures, the Service concurs that the proposed project is not likely to jeopardize the continued existence of the species.

Information in the BA indicates that the proposed project is not likely to adversely affect the Indiana bat and northern long-eared bat and is the focus of the consultation below.

Description of the Proposed Action

The following project background is summarized from the BA. The proposed action involves Forest Stand Improvement FSI and invasive species control to restore and maintain forest diversity, health, and sustainability within the project area. The total project area is approximately 9237 acres, and 6282 acres are forested. Specifically, the proposed action involves Forest Stand Improvement (FSI) on approximately 5,700 acres of forest and will be implemented over the next 10 years or approximately 570 acres annually on average. The FSI treatments will involve overstory tree thinning, midstory tree thinning, and crop tree release. Invasive species control will occur within the proposed treatment stands as part of the FSI or as needed.

Conservation Measures

Conservation measures are those actions taken to benefit or promote the recovery of the species. These actions taken by the federal agency or the applicant that serve to minimize or compensate for project effects on the species under review and are included as an integral portion of the proposed action. The proposed action includes implementation of several conservation measures to protect the endangered Indiana bat and threatened northern long-eared bat. These standards and guidelines will be discussed further in the effects section of this document and are fully described in the BA.

Action Area

As defined in the ESA Section 7 regulations, “action area” is defined as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” The action area includes approximately 9,234 acres managed by the USACE at Rend Lake and specifically involves 6,282 acres of forest stands within the boundaries of the Rend Lake Project.

Status of the Species in the Action Area

The USACE is not aware of either species being documented within the project area; however, forest inventories indicate that suitable roosting habitat is present; therefore, presence of the Indiana bat and northern long-eared bat is assumed.

Effects of the Action

Implementation of the proposed action could result in adverse consequences for individuals occurring within the action area. These adverse consequences would likely be either as injury or death of individual Indiana bats or northern long-eared bats from direct exposure to FSI practices

during the summertime period. In order to avoid direct take as a result of the proposed action, the USACE has proposed to conduct all FSI activities outside of the April 1 to September 30th active season. In addition, the USACE is proposing to retain all trees that could provide roosting habitat to further minimize the likelihood of mortality or injury of individuals and forest management efforts would be designed to maintain a long-term supply of snags and suitable roost trees.

Adverse consequences could also result from a loss of roosting and foraging habitat. While habitat may be lost in the short term, the long-term forest management goal is to maintain and improve habitat for Indiana bats and northern long-eared bats by improving foraging and roosting opportunities. In addition, the overall project will only impact a small portion (approximately 1.5%) of the available habitat within a 5-mile buffer around the project area and only 0.15% would be impacted annually. Therefore, suitable roosting and foraging habitat should be readily available if bats needed to seek new roosting and/or foraging areas.

The USACE has determined that the proposed action is not likely to adversely affect the Indiana and northern long-eared bats given that the proposed action will impact a small portion of the available habitat within a 5-mile buffer and will occur over a 10 year period, the proposed action area is small relative to the species range, the potential for direct effects through loss of occupied roost trees has been avoided or minimized as a result of the conservation measures, and the proposed action will improve forest health in the future and improve foraging and roosting opportunities for the Indiana and northern long-eared bats. These include conducting tree removal activities outside the active season, managing forests to ensure a continual supply of snags and other suitable maternity roost trees, and minimizing the use of herbicides and pesticides. **Based on this information, the Service concurs that the proposed project is not likely to adversely affect the Indiana bat and northern long-eared bat.** Should this project be modified, or new information indicate listed or proposed species may be affected, consultation or additional coordination with this office, as appropriate, should be initiated.

Given the scope, scale, and implementation period of the proposed project, the Service recommends continued coordination/consultation as needed to evaluate impacts of specific actions on listed species including future listed species, to ensure that the conservation measures are being implemented correctly, and to update any conservation measures/project criteria, if necessary.

Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies, in consultation with and with the assistance of the Secretary (a function delegated to the Service), to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary federal agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service has identified the following actions that, if undertaken by the USACE, would further the conservation of the Indiana bat and northern long-eared bat (NLEB) within the proposed project area.

1. Perform Indiana bat/northern long-eared bat surveys according to the most recent Range-wide Indiana Bat and northern long-eared bat Summer Survey Guidelines. Benefits from agencies voluntarily performing surveys include:
    a. Surveys will help federal agencies meet their responsibilities under section 7(a)(1) of the Act. The Service and partners will use the survey data to better understand habitat use and distribution of each species, track the status of each species, evaluate threats and impacts, and develop effective conservation and recovery actions. Active participation of federal agencies in survey efforts will lead to a more effective conservation strategy for the Indiana and northern long-eared bats.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the conservation recommendations carried out.

Migratory Bird Resources

Although the bald eagle has been removed from the threatened and endangered species list, it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (BGEPA). The Service developed the National Bald Eagle Management Guidelines to provide landowners, land managers, and others with information and recommendations regarding how to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the BGEPA. The Service is unaware of any bald eagle nests in the proposed project area; however, if a bald eagle nest is found in the project area or vicinity of the project area then our office should be contacted, and the guidelines implemented. A copy of the guidelines is available at:

National Bald Eagle Management Guidelines | U.S. Fish & Wildlife Service (fws.gov)

Fish and Wildlife Resources

The proposed actions are designed to restore and maintain forest diversity, health, and sustainability within the project area. Therefore, the Service agrees that the proposed actions are likely to be beneficial to a wider variety of wildlife resources.

Thank you for the opportunity to provide comment on the BA. For additional coordination, please contact me at (618) 998-5945.

Sincerely,

/s/ Matthew T. Mangan

Fish and Wildlife Biologist

EcoCAT report

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: Army Corps of Engineers
Contact: Evan Hill
Address: 1222 Spruce St
St. Louis, MO 63116

IDNR Project Number: 2205334
Date: 09/20/2021

Project: Rend Lake Timber Stand Improvement
Address: Rend City Road, Benton

Description: Timber stand improvement actions in the forested areas at the Rend Lake project in Franklin and Jefferson Counties. Timber stand improvement actions will include tree removal, mechanical and chemical removal of invasive species, and soil disturbance from the construction and removal of temporary access roads.

Natural Resource Review Results

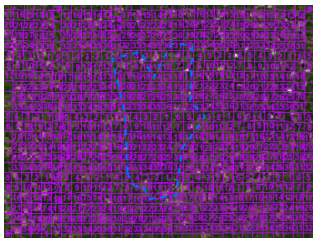
The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Little Blue Heron *(Egretta caerulea)*
Ornate Box Turtle *(Terrapene ornata)*
Osprey *(Pandion haliaetus)*

An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

Location

The applicant is responsible for the accuracy of the location submitted for the project.



County: Franklin	*County:* Jefferson
Township, Range, Section:	*Township, Range, Section:*
5S, 2E, 1	, ,
5S, 2E, 2	, ,
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IL Department of Natural Resources Contact
Bradley Hayes
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
U.S. Army Corps of Engineers

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

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Response from Illinois DNR

Illinois Department of
Natural Resources
One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

October 13, 2021

Evan Hill
U.S Army Corps of Engineers
1222 Spruce Street
St. Louis, MO 63116

RE: Rend Lake Timber Stand Improvement
Consultation Program
EcoCAT Review #2205334
Jefferson, Franklin County

Dear Mr. Hill,

The Department has received your submission of this project for the purposes of consultation pursuant to the Illinois Endangered Species Protection Act [520 ILCS 10/11], the Illinois Natural Areas Preservation Act [525 ILCS 30/17], and Title 17 Illinois Administrative Code Part 1075. Additionally, the Department may offer advice and recommendations for species covered under the Fish & Aquatic Life Code [515 ILCS 5, et seq.]; the Illinois Wildlife Code [520 ILCS 5, et seq.]; and the Herptiles-Herps Act [510 ILCS 69].

The proposed action consists of timber stand improvement actions in the forested areas at the Rend Lake project in Franklin and Jefferson Counties. Timber stand improvement actions will include tree removal, mechanical and chemical removal of invasive species, and soil disturbance from the construction and removal of temporary access roads. All lands are owned by the U.S Army Corps of Engineers, however lands which are leased from the U.S Army Corps of Engineers by the Illinois Department of Natural Resources will not be involved.

EcoCAT has indicated records for the following state listed species within the project vicinity:

Ornate Box Turtle *(Terrepen ornate)*
Little Blue Heron *(Egretta caerulea)*
Osprey *(Pandion haliaetus)*

Additionally, the Department has records of the state and federally listed **Indiana Bat** *(Myotis sodalis)* and **Northern Long-eared Bat** *(Myotis septentrionalis)* to be within 10 miles of the proposed project sites.

Due to the project location and proximity to threatened resources, the Department recommends the following actions be considered in order to avoid causing adverse impacts:

1. Large tree removal be done within appropriate dates. The standard Department recommended dates are November 1st – March 31st. However, because this project is being done on federal lands under federal jurisdiction, federal bat dates may be applicable.
2. Temporary access roads be constructed between the dates of November 1st – March 31st.
3. Follow-up consultation on a 2-year basis is recommended to remain informed on any new records of listed species in the timber management area.
    a. Alternatively, a data agreement may also provide foresters and project planners with the desired information.
    b. Please contact Tara Kieninger (Tara.Kieninger@Illinois.gov) for more information.

Given the above recommendations are adopted, the Department has determined that impacts are unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed unless additional information or advice related to this proposal is required. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal and should not be regarded as a final statement on the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

Please contact Kyle Burkwald of this office at 217-785-4984 or Kyle.Burkwald@illinois.gov for additional information on this review, or if providing a response to this correspondence.

Thank you,

Bradley Hayes

Bradley Hayes
Resource Planner
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
Phone: (217) 782-0031

USACE Cultural Review and Determination

Historic Property Preliminary Review

Project Information

Corps File Number, Name: Rend Lake Forestry Management Project

Coordinates: (Various areas around Rend Lake)

EC-Z Review

Name of Reviewer, Date: Lara Anderson February 10, 2022

Arch Site Found Within Property? ☑ Yes ☐ No

Arch Site ID Number: _____

Arch Survey Found Within Property? ☑ Yes ☐ No

Arch Survey ID Number: _____

Has Applicant Received Prior SHPO Concurrence?	☐ Yes	☑ No
Has Applicant already conducted an Archaeological Survey?	☐ Yes	☑ No
Are there Historic Properties or Historic Architecture Concerns?	☐ Yes	☑ No
Does the topography/setting warrant an archaeological survey?	☑ Yes	☐ No

Findings by MVS Archaeologist

☑ **No Potential to Affect Historic Properties** *(no earth moving activity AND not likely to affect sites in the foreseeable future)*

☐ **No Historic Properties or Structures Affected** *(disturbed, previous survey)*

☐ **No Adverse Affect** *(eligible NRHP sites, but project will not affect fabric of historic property)*

☐ **Archaeologist would like to attend a site visit to the property with Regulatory PM**

☐ **Architectural Survey recommended**

☐ **Phase 1 Survey recommended**

☐ **Additional Archaeological work recommended** (see notes)

☐ **Additional information required to review:**

_____

☐ **Coordinate with MO/IL SHPO about**_____

☐ **Tribal Consultation Recommended** _____

Contact Meredith Trautt (e-mail, 925-5031) for tribal consultation when permit area has been determined.
****Always check with Tribal Liaison (Meredith) on Individual Permits and when PM has any concerns****

Notes/Opinions/Rationale

Because no excavation is proposed with this projects timber stand improvements there should be no potential to affect historic properties.

EC-Z Signature: _____

USACE Hazardous Waste determination

From: Greeling, Benjamin A CIV USARMY CEMVS (USA)
To: Hill, Evan B CIV USARMY CEMVP (USA); Archeski, Richard D CIV USARMY CEMVS (USA)
Subject: RE: Rend Lake timber stand improvement project
Date: Monday, January 31, 2022 7:36:10 AM

Hey Evan, It looks like I let this fall through the cracks… sorry about that!

With the TSI described below, I do not foresee any HTRW concerns or reason for further investigation.

Thanks
Ben

From: Hill, Evan B CIV USARMY CEMVP (USA) <Evan.B.Hill@usace.army.mil>
Sent: Friday, January 28, 2022 10:47 AM
To: Greeling, Benjamin A CIV USARMY CEMVS (USA) <Benjamin.Greeling@usace.army.mil>; Archeski, Richard D CIV USARMY CEMVS (USA) <Richard.D.Archeski@usace.army.mil>
Subject: RE: Rend Lake timber stand improvement project

Hi Rick and Ben,

I just want to touch base on this project at the Rend Lake Project lands.
Do you guys think there would be any HTRW concerns with the forestry tree removal?
Let me know if you'd like to chat about the project, or if you need any more info/details.

Thanks,

Evan Hill
Environmental Compliance Section
Wildlife Biologist
U.S. Army Corps of Engineers
1222 Spruce St
St. Louis, MO 63103
Work: (314) 925-5004
Cell: (612) 310-0610
evan.b.hill@usace.army.mil

From: Hill, Evan B CIV USARMY CEMVS (USA)
Sent: Wednesday, November 3, 2021 3:00 PM
To: Greeling, Benjamin A CIV USARMY CEMVS (USA) <Benjamin.Greeling@usace.army.mil>; Archeski, Richard D CIV USARMY CEMVS (USA) <Richard.D.Archeski@usace.army.mil>
Subject: RE: Rend Lake timber stand improvement project

Hi Ben,

Thanks for getting back to me! I attached an image file of the various sites they want to work at, and a zip file with the shapefiles. I think the issue might be that the shapefiles are saved on a drive you don't have mapped. You can take these shapefiles and load them onto one of your maps now-that should work better.
They would not be digging up the root-ball of the trees, just leaving the stumps.
The roads labeled "temporary" would not exist right now, but would be created when they are needed. They might put down some material in the temp roads but it would have to be removed when they are all finished. They would not involve grubbing or disturbing the root zone for the temp roads and staging/landing areas. However, if temp roads have triggered that concern in the past, then it's definitely something to look into. Would the temp road trigger the NPDES permit? Are there any particular BMPs we could ask for that would help with this?

Thanks again,

Evan Hill
Environmental Compliance Section
Wildlife Biologist
U.S. Army Corps of Engineers
1222 Spruce St
St. Louis, MO 63103
Work: (314) 925-5004
Cell: (612) 310-0610
evan.b.hill@usace.army.mil

From: Greeling, Benjamin A CIV USARMY CEMVS (USA) <Benjamin.Greeling@usace.army.mil>
Sent: Wednesday, November 3, 2021 2:38 PM
To: Hill, Evan B CIV USARMY CEMVS (USA) <Evan.B.Hill@usace.army.mil>; Archeski, Richard D CIV USARMY CEMVS (USA) <Richard.D.Archeski@usace.army.mil>
Subject: RE: Rend Lake timber stand improvement project

Hi Evan,

My initial thoughts are that TSI as you describe it is does not bring up any HTRW concerns, especially since there is no excavation or building demo involved. Herbicides might be the only issue to note. I couldn't get the ARC mxd file to open. It sounds like they will be using existing roads for the most part to access the areas and minimal staging. On the different maps there were multiple types of roads described. Are any of them new? Does any of the staging or clearing involve grubbing or removal/destruction of the root zone? I'm assuming it would be minimal – hoping it would not trigger a 402 NPDES storm water permit.

Rick, any thoughts? Do you have an example of language for similar work?

Thanks,
Ben

From: Hill, Evan B CIV USARMY CEMVS (USA) <Evan.B.Hill@usace.army.mil>
Sent: Wednesday, November 3, 2021 11:49 AM
To: Greeling, Benjamin A CIV USARMY CEMVS (USA) <Benjamin.Greeling@usace.army.mil>; Archeski, Richard D CIV USARMY CEMVS (USA) <Richard.D.Archeski@usace.army.mil>
Subject: Rend Lake timber stand improvement project

Hi Ben and Rick,

I am doing NEPA analysis for some forestry work that the Rend Lake office wants to do on their forest stands over the next 5-10 years. I am writing the usual NEPA document, which requires an evaluation of HTRW impacts. I need your help to evaluate the impacts and to make sure our language in the EA reflects your analysis. The areas around Rend Lake may have already been cleared for these concerns during the formation of the Rend Lake project, but I know sometimes those clearances/concurrences can expire.

The Rend Lake office is proposing to conduct some timber stand improvement (TSI) operations in the forested areas around Rend Lake. They will use access roads (maps attached) to drive into the forest stands, then use chainsaws to cut some trees down. They would probably use skid-steers to move the logs around, so there would be staging areas along the access roads. Other than that, there would not be any tracked vehicles in the woods. There is also no excavation proposed. Some material could be placed down for the temporary access roads, which would be removed once the actions are complete.

I attached an mxd and a png file that shows the locations of the forest stands where work will be performed. In some cases, many trees would be removed but in others only single trees scattered here and there would be removed. Therefore, the impact from soil disturbed by the workers moving through the forest would vary from stand to stand. The TSI actions would also include spraying herbicide, if that is relevant at all (not sure).

I am not entirely sure which details about TSI actions would be relevant to your evaluation, so please let me know if you have any questions. I would also be happy to arrange a meeting between us and the Rend Lake Biologists, if need be.

Thank you,

Evan Hill
Environmental Compliance Section
Wildlife Biologist
U.S. Army Corps of Engineers
1222 Spruce St
St. Louis, MO 63103
Work: (314) 925-5004
Cell: (612) 310-0610
evan.b.hill@usace.army.mil

USACE Regulatory Determination

From: Zobrist, Tyson J CIV USARMY CEMVS (USA)
To: Hill, Evan B CIV USARMY CEMVP (USA)
Subject: Prairie Power/Hardin to Eldred and Rend Lake Language
Date: Monday, November 8, 2021 9:37:02 AM
Attachments: MVS-2019-176 DD.docm
MVS-2019-176.docx
Silviculture_SAS_Appendix A & B.pdf

Evan,

Attached is my permit letter and decision document for Prairie Power's Hardin to Eldred Transmission line project. Let me know if you have any questions.

Additionally, I have provided some language for the Rend Lake TSI work. As stated in our phone conversation the majority of the TSI work planned for Rend Lake will not require Section 404 authorization because there won't be a discharge of fill. The exemption will only be for the placement of fill associated with temporary access within wetlands or streams. Please consider the following language:

"The Federal Clean Water Act, Section 404 (33 CFR Part 323.4 & 40 CFR Part 232.3), exempts normal established, ongoing silvicultural activities from the permitting process for discharges of dredged or fill material in wetlands, streams and/or other jurisdictional waters of the US. However, fifteen (15) baseline provisions for forest road construction and maintenance in and across waters of the US (33 CFR Part 328.3 & 40 CFR Part 230.3) are mandated to qualify for the forest road exemption. The burden of maintaining silvicultural exemptions through historical activity, current activities and future plans falls on the landowner. The ultimate determination of whether activities are exempt can only be made by the USACE and the USEPA."

Please see the attached Appendix A for "Characteristics of Ongoing Silviculture" and Appendix B for "Forest Management Plan".

Let me know if you have any questions.

Thanks,

Tyson Zobrist
U.S. Army Corps of Engineers
Regulatory Division
1222 Spruce Street
St. Louis, MO 63103
314-331-8578