



**U.S. Army Corps
of Engineers
Baltimore District**

ENVIRONMENTAL ASSESSMENT: FOREST MANAGEMENT ACTIVITIES

**RAYSTOWN LAKE, HUNTINGDON AND BEDFORD COUNTIES,
PENNSYLVANIA**

August 2020

**U.S. Army Corps of Engineers
Baltimore District
2 Hopkins Plaza
Baltimore, Maryland 21201**

DRAFT FINDING OF NO SIGNIFICANT IMPACT
Raystown Lake Project
Forest Management Activities
Huntingdon and Bedford Counties, Pennsylvania

The U.S. Army Corps of Engineers, Baltimore District (USACE) is proposing to conduct forest management activities on approximately 500 acres of land per year at the Raystown Lake Project, located in south central Pennsylvania (PA). In compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, USACE has prepared this Environmental Assessment (EA) to evaluate potential environmental effects associated with the proposed action. Raystown Lake is a multipurpose water resources project constructed and operated by USACE. Project lands and waters provide flood-risk management, outdoor recreation, fish and wildlife habitat, plant habitat, timber, and hydropower. Project lands are primarily forested and managed to ensure long-term sustainability of the forest as well as maintain forest values to the project.

USACE prepared an EA in 2011 evaluating forest management on approximately 250 acres per year proposed through 2020. Activities evaluated and since undertaken included timber harvest and other forestry practices that avoided environmentally sensitive wetlands, shale barrens, and floodplains. The US Fish and Wildlife Service (USFWS) prepared a Biological Opinion (BO) in 2016 for the project that contained terms and conditions to ensure compliance with the Endangered Species Act (ESA) regarding potential impacts to threatened and endangered bat species that are forest-dependent. USACE implemented the USFWS terms and conditions in its forestry management activities, and set aside 2,492 acres of forest designated as Bat Conservation Areas (BCAs).

The 2011 EA was prepared with anticipation that NEPA efforts would be undertaken in the future when the period covered by that document elapsed. Accordingly, this EA provides updates on existing conditions, forestry management activities, and environmental effects of forestry activities and wildlife management over the period 2011-2020, as well as addressing impacts of future increased acreage of forestry activities. A separate EA has been prepared that broadly covers impacts of changes in land and water use classification described in an updated Raystown Lake Project Master Plan (MP) expected to be finalized in 2020.

USACE has determined that forest management activities should be increased sustainably on project lands from approximately 250 acres per year to approximately 500 acres per year. This increased forestry activity would affect up to 2.7% of the available land base per year. Even-age and uneven-age forestry practices would be utilized, both of which could include timber harvesting, prescribed burning, herbicide treatments, and reforestation. All management actions work cohesively to provide quality native vegetation for future use. A network of previously used log yards, skid trails, and haul roads already exist; however, some improvements to existing or construction of new roads or trails may be needed. Forest management activities shall not occur within environmentally sensitive shale barrens or historic properties, together totaling 508 acres, as established in the Project's 2020 MP. In addition, no commercial forest management shall occur within the BCAs without consulting the USFWS per the BO. Forest management activities may occur throughout the remaining 18,343 acre land base.

The proposed sustainable forest management activities would be optimized in accordance with the most recent Operational Management Plan and 2020 MP. Forest management activities would be conducted using sound silvicultural practices, and implemented after appropriate forest stand analysis is conducted that considers access, forest regeneration, soils, erosion and sedimentation, wildlife considerations, threatened and endangered species, and cultural resources. The locations and boundaries of forest management activities will be delineated to ensure protection of infrastructure, recreation features, and sensitive resources and to maximize ecological benefits.

To ensure compliance with the Clean Water Act, if any work would impact streams or wetlands, appropriate permits would be obtained from PA, and work would be conducted in accordance with permit requirements such that the action would have no net effect on wetlands. Erosion and Sediment Control (ESC) plans would be submitted to PA agencies for approval. In the event any work would occur in proximity to bald eagle nests, avoidance and minimization measures agreed to with the USFWS would be implemented to ensure compliance with the Bald and Golden Eagle Protection Act; therefore, no adverse impacts to bald eagles are expected. USACE is separately preparing an updated Biological Assessment for bat species for submission to the USFWS. USACE anticipates receiving an updated BO from USFWS, and will incorporate updated USFWS terms and conditions for the project into forest management activities (as well as other aspects of project lands and waters operations and maintenance) to ensure compliance with the ESA.

The proposed action will have short-term minor adverse impacts to topography, physiography, soils, and geology; air quality; climate change; and health and safety. In addition, the proposed action may possibly have short-term minor adverse impacts to prime and unique farmland soils; fisheries; wetlands, streams, and the lake; surface water quality; invasive species; and threatened and endangered species. The use of proper silviculture management techniques and best management practices will minimize these short-term adverse impacts. Short-term minor beneficial impacts associated with social and economic factors are anticipated due to employment opportunities with the hiring of workers for the harvesting, hauling, and processing of timber resources.

Long-term beneficial impacts to forest would accrue in the form of increased stand growth and vigor accompanying management of invasive and pest plant and animal species threatening forest health, as well as by reducing risk of severe wildfire occurrences caused by changed forest character in the absence of fire for decades. In addition, the proposed action will have long-term beneficial impacts to game and non-game wildlife, including migratory birds; threatened and endangered species; and improved aesthetic values. Forest management would be consistent with multiple-use management tenets of the Forest Cover Act of 1960 (Public Law 86-717), and USACE Project Operations – Environmental Stewardship Operations and Maintenance regulations and policies. Based upon these considerations, it is evident that the beneficial impacts outweigh the adverse impacts of the proposed action.

Coordination with resource agencies and the public was undertaken to prepare the 2011 EA. Input from the USFWS was incorporated through ESA consultation in 2015 and 2016. Additional input received during resource agency and public review of this draft EA will be

incorporated into the recommended plan, as appropriate. It is my finding that changes in forestry activities from what was described in the 2011 EA (increasing implementation of forest management activities at the Raystown Lake Project from 250 to approximately 500 acres per year) will have no significant adverse impact to the environment and will not constitute a major Federal action affecting the quality of the human environment. Therefore, an Environmental Impact Statement will not be prepared.

Date

John T. Litz
Colonel, U.S. Army
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TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
1.1 Background.....	1
1.2 Purpose and Need.....	2
1.3 Authorities and Guidance.....	4
1.4 Completed Forest Management.....	5
1.4.1 Seed Tree.....	5
1.4.2 Shelterwood.....	5
1.4.3 Clearcut.....	6
1.4.4 Border Harvest.....	6
1.4.5 Thinning.....	6
1.4.6 Single/Group Tree Selection.....	6
1.5 Prior Reports and Related Studies.....	7
1.6 Public Involvement Program.....	9
2.0 ALTERNATIVES.....	10
2.1 No-Action Alternative.....	10
2.2 Continue Forestry Activities on Approximately 250 Acre per Year.....	10
2.3 Increase Forestry Activities to Approximate 500 Acres per Year.....	10
2.4 Proposed Action.....	10
2.4.1 Even-age Management.....	11
2.4.2 Uneven-age Management.....	11
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION.....	13
3.1 Climate and Hydrology.....	13
3.2 Topography, Physiography, Soils and Geology.....	14
3.3 Land Use and Recreation.....	18
3.4 Terrestrial Resources.....	20
3.4.1 Forest.....	20
3.4.2 Prime and Unique Farmland.....	21
3.4.3 Shale Barrens.....	22
3.4.4 Wildlife and Migratory Birds.....	22
3.5 Aquatic and Water Resources.....	23
3.5.1 Fisheries.....	23
3.5.2 Wetlands, Streams, and Conservation Pool.....	24
3.5.3 Wild and Scenic Rivers (Public Law 90-542).....	25
3.5.4 Navigable Waters under Section 10 of the Rivers and Harbors Act.....	25
3.5.5 Waters of the U.S. (Section 404).....	26
3.5.6 Water Quality.....	26
3.6 Invasive Species.....	27
3.7 Threatened and Endangered Species.....	29
3.8 Cultural and Historic Resources.....	30
3.9 Socioeconomic Resources and Environmental Justice.....	32
3.9.1 Social and Economic Setting.....	32
3.9.2 Environmental Justice.....	36
3.10 Air Quality.....	37
3.11 Climate Change.....	37
3.12 Health and Safety.....	38
3.13 Cumulative Impacts.....	39

4.0 CONCLUSION.....	41
5.0 FEDERAL, STATE, AND LOCAL AGENCY COORDINATION.....	44
6.0 BIBLIOGRAPHY.....	45

Appendices

Appendix A Public Involvement and Correspondence	
Appendix B Maps of Forest Management Activities	
Appendix C Environmental Assessment, Raystown Lake Forest Management Activities (2011)	

List of Tables

Table 3-1 Recreation Area Visited by Percent.....	19
Table 3-2 High Density Recreation Areas.....	19
Table 3-3 Wetland Systems.....	24
Table 3-4 State and Federally Listed Species at Raystown Lake.....	30
Table 3-5 Population Total and Gender Composition.....	32
Table 3-6 Age Population Range – Numbers and Percent of Total.....	32
Table 3-7 Population Race Numbers.....	33
Table 3-8 Population Education Data.....	33
Table 3-9 Population Industry Data.....	34
Table 3-10 Summary of Effects of the Proposed Action.....	42
Table 3-11 Compliance with Federal Environmental Statues and Executive Orders.....	43

List of Figures

Figure 1-1 Location of Raystown Lake.....	3
Figure 3-1 Extent of the Ridge and Valley Province (inset map), and the distribution of the Brailer Shale bedrock in PA (Pennsylvania Geological Survey, 2018).....	15
Figure 3-2 Raystown Lake Watershed.....	16

1.0 INTRODUCTION

1.1 Background

Raystown Lake Project is located in south central Pennsylvania (PA) (Figure 1-1). The Project is comprised of 28,132 acres, of which approximately 21,343 acres are land. These acreages are inclusive of all federally fee owned land including easements, leases, outgrants, etc. at the Project. Approximately 18,000 acres of these lands are primarily forested, and provide many benefits including, aesthetics, outdoor recreation, wildlife habitat, commercially valuable timber, maintaining natural watershed hydrologic functions, and serve as a filter for storm water runoff entering the lake. The forest resource is managed to ensure the long-term sustainability of these important benefits. Past, ongoing and future management of the forest at the Project provides and maintains a diverse forest landscape comprised of several successional habitats including grasslands, shrub thickets, young forests, maturing forests, and late successional forests that meet the needs of a wide variety of indigenous wildlife species.

At the time of European settlement, the forest in the region was predominantly comprised of the mixed oak-chestnut and some white pine-hemlock forest types. The forests surrounding the Project were subsequently heavily harvested multiple times and allowed to naturally regenerate. The American chestnut died off catastrophically in PA in the early 1900s following unintentional introduction of the chestnut blight fungus into North America. The result of past harvesting practices and loss of chestnut has been a forest comprised of mostly oak species and a loss of much of the white pine, hemlock, and spruce species. The invasion of the gypsy moth in the early 1980's caused massive mortality of mixed oak forests resulting in changed conditions favoring less desirable timber species. While gypsy moth have since declined as they themselves have since been subject to disease problems, they still remain a threat to oaks, as well some other deciduous tree species. Over browse by native white-tailed deer (whose population densities are un-naturally high because their natural predators have largely been eliminated) has facilitated establishment of invasive vegetation that interferes with natural forest regeneration. Former agricultural areas within the project have been replaced with low quality forested stands and are concentrated areas of established nuisance and invasive species. Virginia pine, a remaining evergreen tree species, is commonly found in shale barrens (Section 3.4.2), plantations, reverted fields, and within hardwood forest stands. Much of the Virginia pine is reaching its maximum age and is naturally dying out; causing some concern that thermal winter cover for wildlife is in decline in a region where conifer cover is naturally low.

The current forest is largely homogeneous pole to small sawtimber sized trees of marginal to low commercial quality. These forests also lack the plant diversity needed by many wildlife species. Currently, the forests are under siege by multiple invasive pests, with emerald ash borer, gypsy moth, hemlock woolly adelgid, and spotted lantern fly being of particular concern. Multiple plant species, both invasive and native, impede desirable forest regeneration. Changed forest character in the absence of fire for decades predisposes the forest to severe wildfire. The current degraded forest condition and increasing threats to forest health and commercial values present many challenges for forest management. Forest management is needed if resource health and values are to be maintained.

1.2 Purpose and Need

The primary goal of the proposed action (forest management program) is to insure the long term sustainability of a healthy forest for multiple uses: timber production, recreation, aesthetics, and to support a diverse ecosystem. The continuation of an active forest management program will provide a diverse landscape of different age forest that will provide early successional habitat (such as grasslands, old fields, shrub thickets and young forests) for rapidly declining early successional wildlife species, while also maintaining mature late successional forest for forest interior dwelling wildlife species. Early successional habitat is critical to the continued existence of early successional species such as the American woodcock, ruffed grouse, and golden-winged warbler. The decline of early successional habitat and population is a direct correlation. Of equal importance is mature late successional forest that is beneficial to wood thrush, eastern box turtle, forest dwelling bats, frogs, and salamanders. A combination of these forests are also desirable to a multitude of other species including white-tail deer, turkey, and bear.

The 2011 EA evaluated forestry impacts through 2020. USACE is preparing this EA to evaluate impacts of forestry activities into the future. Additionally, forestry activities are proposed to be increased from approximately 250 acres to 500 acres per year, and this NEPA document provides opportunity for public and agency review of this proposed change. This EA incorporates the 2011 EA by reference.

Figure 1. Site Location Map.

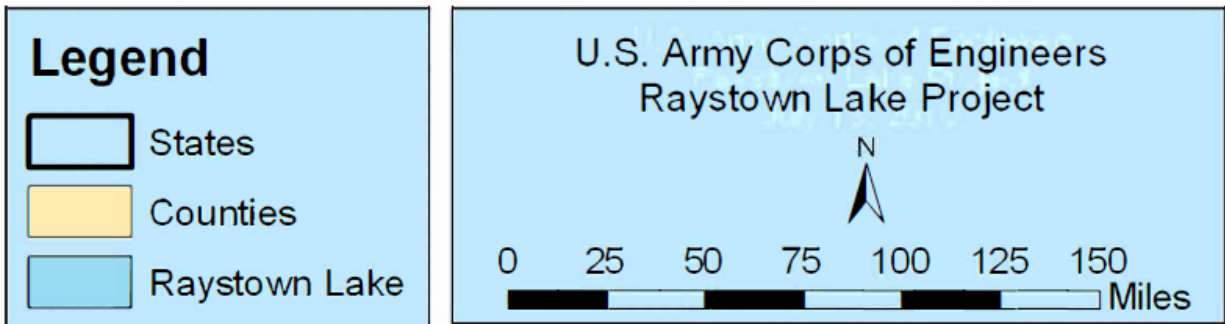


Figure 1-1. Location of Raystown Lake.

1.3 Authorities and Guidance

Engineer Regulation (ER) 1130-2-540, Project Operations - Environmental Stewardship Operations and Maintenance Policies, sets forth a framework for managing most USACE lands under an environmental stewardship concept. Forest management in particular is supported by the Forest Cover f Act of 1960 (Public Law 86-717). This public law provides broad discretionary authority for USACE to manage the forested lands administered by the Chief of Engineers and encourages implementation of sustained yield forest management as well as other conservation practices on project lands to the extent that such management is compatible with resource use objectives in the project's master plan (MP). Engineering Pamphlet (EP) 1130-2-540, Project Operations - Environmental Stewardship Operations and Maintenance Policies, and EP 1130-2-550, Project Operations - Recreation Operations and Maintenance Guidance and Procedures, each specify that USACE shall prepare Operational Management Plans (OMP) which shall include a section on management of natural resources. The OMP shall be consistent with the MP and shall address all natural resources at project. It is within the OMP that specific prescriptions, including estimated costs, are set forth for the management of all project natural resources including forests and woodlands. Federal reservoir area timber policy in 16 USC 580m states:

“It is declared to be the policy of the United States to provide that reservoir areas of projects for flood control, navigation, hydroelectric power development, and other related purposes owned in fee and under the jurisdiction of the Secretary of the Army and the Chief of Engineers shall be developed and maintained so as to encourage, promote, and assure fully adequate and dependable future resources of readily available timber, through sustained yield programs, reforestation, and accepted conservation practices, and to increase the value of such areas for conservation, recreation, and other beneficial uses: Provided, that such development and management shall be accomplished to the extent practicable and compatible with other uses of the project.”

The sale of wood products from a civil works facility is a real property action and must follow real estate regulations under ER 405-1-12, Real Estate Handbook, Chapter 11 Disposal, Section XII Disposal of Standing Timber, Crops and Embedded Gravel, Sand, and Stone. .

The District Engineer is authorized to dispose of standing timber or other forest products required to be removed incidental to construction and operational requirements of the project; that which is generated incident to recreational development or the management of public park and recreational areas or wildlife management areas; or that which is generated is in accordance with approved forest management supplements to the approved MP.

Guidance for use and management of forest resources is found within ER 1130-2-540, Project Operations - Environmental Stewardship Operations and Maintenance Policies. This guidance provides all civil works projects with details concerning the stewardship of Corps lands and waters.

At the Project level, the following are critical documents that provide guidance and requirements for forest management activities:

- **Environmental Assessment, Raystown Lake Forest Management Activities (2011).** In compliance with NEPA, the EA covers forest management activities on approximately 2,500 acres at the Raystown Lake Project over a ten year period, from 2011 - 2020. Objectives for the overall forest management program were to conduct 250 acres of commercial forest management per year. The proposed activities incorporated a variety of environmental stewardship measures. The 2011 EA is included as Appendix C.
- **Biological Opinion (2016).** After receipt of the Project's Biological Assessment (BA), the USFWS issued a Biological Opinion (BO) for Effects to the Indiana and Northern Long-eared Bat from Activities on the Raystown Lake Project, U.S. Army Corps of Engineers, over a 4-year period, 2016-2020 on February 24, 2016. The BO provides specific requirements, to include acres of impact, for all Operations and Maintenance at the Project. The Project has submitted an updated BA to the USFWS to reinitiate formal consultation anticipated to result in issuance of a new BO.
- **Operations Management Plan, Forest and Wildlife Management Plan (FWMP) (2016).** This document outlines specific silvicultural practices and locations for forest management across Raystown Lake. The FWMP breaks down project lands into eighteen compartments for management purposes (see Appendix B), and provides a brief description, soils information, recommended plan for forest and wildlife management, table of all forest types present and maps. The FWMP forms the basis of forest management recommendations.

1.4 Completed Forest Management

Depending on the current stand condition and goals, a mixture of even-age (seed tree, shelterwood, clearcut, or border harvest) and uneven-age (thinning or single/group tree selection) silvicultural practices have been implemented. Due to its historic importance in relation to forest management, deer management shall be considered during implementation of all forest management practices.

1.4.1 Seed Tree

This practice harvests all age classes, but widely spaced residual trees will be retained (not harvested) in order to provide uniform seed dispersal across a harvested area (2-12 seed trees per acre). Seed trees will be retained until regeneration has become established at which point they may or may not be removed. It may not always be economically viable or biologically desirable to re-enter the stand to remove the residual trees.

1.4.2 Shelterwood

A multi-stage harvest to improve and achieve advanced seedling densities. This system will result in stands where all the trees are about the same age. During initial harvest a percentage of the forest canopy will be removed to allow sunlight to reach the forest floor to promote seedling germination and growth. This stage will be made marketable by selling pulpwood and low quality sawtimber. The residual mature trees will serve as a seed source and to partially shade the ground. Once advanced regeneration has become established throughout the stand it is time to implement a second harvest. During the second harvest almost all of the residual mature trees are removed from the forest stand, thus allowing the advanced regeneration to grow freely. A small percentage of the mature residual trees shall remain to serve as a continued seed source, to provide shade, for aesthetic value, and to retain some vertical structure for wildlife species.

1.4.3 Clearcut

This practice removes all trees from the site. Clear-cutting is the primary silviculture practice to achieve early successional habitat.

1.4.4 Border Harvest

This practice reduces edge effect by creating a more complex edge that has multiple layers and merges gradually with the forest.

1.4.5 Thinning

This harvest regulates the distribution of growing space and reduces competition for the benefit of the residual stand. This treatment technique will help ensure only the most vigorous and desirable trees remain in the stand as the final crop.

1.4.6 Single/Group Tree Selection

Single tree selection is most suitable when promoting shade tolerant regeneration. Diseased, damaged, poor form, poor quality, undesirable species, and trees that have reached their maximum potential should be selected for removal. Group selection is most suitable when promoting mid-shade tolerant regeneration. During group selection a clump of trees are selected for removal. Group selections implemented within a forest stand can be used to create a mosaic of age and diameter classes.

1.4.7 Deer Population Management

The Raystown Project has an active deer management program. Through the use of the Deer Management Assistance Program (DMAP) and increased hunter access, the Project has aligned deer populations to the carrying capacity of the land base. Deer populations were formerly at levels that threatened future forest regeneration. Because deer populations are appropriately managed, tree plantings conducted after forestry activities have higher success and deer fences and tree tubes no longer need to be utilized. In addition, the deer herd has become healthier due to an abundant supply of browse.

From 1994 – 2019 a total of 3,498 acres have been managed, resulting in the harvest of 6,126,414 board feet of sawtimber and 102,368 tons of pulpwood, and generating \$1,882,869.83 in revenue. Revenue generated from the sale of timber is returned back to the Project as additional funding for the environmental stewardship program.

The acres of management, volume of timber harvested, and revenue generated from the sale of timber can vary considerably. Factors such as timber quality, timber markets, weather conditions, accessibility, and staff workload all impact timber sales. Management of the timber resource involves numerous tasks including, but not limited to, prescribed fire, invasive species management, gravel road maintenance, reforestation, wildlife management, threatened and endangered species management, timber sale preparation, and timber sale contract oversight.

All completed forest management was done in accordance with applicable laws, regulations, and approved documents to include the 2011 EA, 2016 BO, and 2016 FWMP. Environmental impacts as a result of forest management activities were minimal due to implementation of best management practices in accordance with approved erosion and sedimentation plans.

1.5 Prior Reports and Related Studies

1973 Final Environmental Impact Statement. Raystown Lake, Raystown Branch Juniata River, Pennsylvania

During the construction of the Project, the Final Environmental Statement (EIS) was completed to document impacts of the construction of the dam and associated features. The Final EIS stated that future project uses included natural resources, recreation, and fish and wildlife management.

1986 Forest, Fish, and Wildlife Management Plan

The 1986 Forest, Fish and Wildlife Plan was signed by the North Atlantic Division on 3 April 1986 approving the recommendations of the plan as part of the MP. This plan outlined general principles for forest and wildlife management in each compartment and was reviewed by all District elements. Between 1986 and 1994, few actions were implemented, but the document provided a sound assessment of the Project's resources and recommendations for forest and wildlife management. (Many measures in the 2011 EA were originally recommended in the 1986 document.)

1994 Forest Management Activities Environmental Assessment

Heavy gypsy moth infestations resulted in significant tree mortality throughout the late 1980's. This mortality prompted the decision to conduct salvage timber sales. The 1994 EA was intended to cover all forest management activities at the Project with specific prescriptions and recommendations for compartments 10, 12 and 13. A FONSI was signed on April 15, 1994 and stated that there would be no significant impacts to the human environment associated with the implementation of proposed forest management activities in compartments 10, 12, and 13.

1994 Raystown Lake Master Plan Update

The 1994 MP was a strategic land use management document that guided the comprehensive management and development of all recreational, natural, and cultural resources at the Project. It provided a framework built collaboratively with the public, agencies, public officials, and USACE operations experts to guide efficient and cost-effective management, development, and use of project lands. The MP articulated and implemented responsible stewardship and sustainability commitments toward project resources for the benefit of present and future generations. The MP had an effective lifespan of 15-25 years. The MP, which provided general objectives for forest, fish, and wildlife management, also included an EA and FONSI which was signed on 15 February 1995. At the time of the development of the MP, many more details were known about the potential development of recreational elements as compared to the natural resources features. The details for forest, fish, and wildlife management were too general to meet the intent of NEPA to make informed decisions about the proper management of natural resources.

1998-2001 Environmental Assessment for Gypsy Moth Suppression

Since the late 1980's, the Project coordinated with the U.S. Forest Service (USFS) to protect Project lands from gypsy moth. From 1998 to 2001, the gypsy moth pest suppression program moved from a recreation lands program to a Project wide program. This change was intended to protect valuable forest and wildlife resources. Due to the larger extent of potential impacts, site-specific environmental assessments were conducted each year to insure proper decisions were made concerning potential impacts of pesticide applications. Intensive coordination with agencies, especially the U.S. Fish and Wildlife Service (USFWS), prompted changes in application rates and pattern to insure protection of butterfly (*lepidotera*) communities around shale barrens and as a food source for the federally endangered Indiana bat. This coordination also provided insights for the development of protective measures for these species under other actions, such as forest management, and is incorporated into this report.

2011 Forest Management Activities Environmental Assessment

The 1994 Forest Management Activities EA focused on a small portion of Project lands. Recognizing the need for a Project wide approach a new EA was prepared. In compliance with the NEPA, the EA which evaluated and documented the potential environmental effects associated with the forest management activities on approximately 2,549 acres at Project over a ten-year management period, 2011-2020. The primary objective of the forest management program was to conduct approximately 250 acres of forest management per year. A FONSI was signed on March 10, 2011 and stated there would be no significant impacts to resources considered and that an EIS is not required.

2016 Biological Opinion

After receipt of the Project's Biological Assessment (BA), the USFWS issued a Biological Opinion (BO) for Effects to the Indiana and Northern Long-eared Bat from Activities on the Raystown Lake Project, U.S. Army Corps of Engineers, over a 4-year period, 2016-2020 on February 24, 2016. The BO provides specific requirements, to include acres of impact, for all for all Operations and Maintenance at the Project. The Project has submitted an updated BA to the USFWS to reinitiate formal consultation.

2020 Raystown Lake Master Plan Update

Similarly to the 1994 MP, the 2020 MP serves as a comprehensive land and recreation management plan with an effective life of approximately 15-25 years. The MP, which provides general objectives for forest, fish, and wildlife management programs, also included an EA and FONSI. The MP stated that a new EA (this document) shall be prepared to cover commercial forest management activities after 2020.

Operational Management Plan

The operational management plans for civil works projects represent the working document for implementation of annual work plans. These documents, revised annually, include chapters and appendices providing details on the land management of the Project's approximately 21,343 acres of land. Specifically, Appendix 13, Forest and Wildlife Management Plan, and Appendix 14, Threatened and Endangered Species

Management Plan, outline specific management practices and locations across the Project.

Regional Initiatives of Other Agencies and Organizations

Management of Raystown Lake Project is generally consistent with activities of numerous other agencies and organizations who also have some involvement in activities on project lands. These include the items listed below.

- National Wild Turkey Federation: Promoting quality habitat availability
- PA Game Commission: Deer management to reduce browse impacts and control Chronic Wasting Disease
- Pennsylvania Bureau of Forestry/PA Prescribed Fire Council: Pennsylvania Prescribed Fire Standards
- Pennsylvania: Prescribed Burning Practices Act
- Ruffed Grouse Society: Promoting quality habitat availability
- Sustainable Forestry Initiative
- The American Chestnut Foundation: Reintroduction of blight resistant chestnut
- USDA Pollinator Habitat Initiative
- USDA/USFWS Working Lands for Wildlife
- USFS Healthy Forest Initiative

1.6 Public Involvement Program

Public involvement including agency coordination is a critical component of proper land stewardship at the Project. Public participation has occurred throughout the development of all the related reports and plans described in Sections 1.3 through 1.5 and will be paramount to the success of this document.

Once the EA is completed, a Notice of Availability announcing the availability of the EA and FONSI will be provided to the public and pertinent agencies. All comments will be addressed in the final document. A list of agencies consulted and information on public distribution is provided in Section 5.0. All correspondence can be found in Appendix A.

2.0 ALTERNATIVES

A range of forest management alternatives are possible for Raystown Lake Project that could achieve the project's commitment to long-term forest sustainability and be in accordance with the multi-purpose intent of the water resources project. USACE has developed, evaluated, and compared two reasonable management alternatives that represent this range of choices. Additionally, this EA presents a no-action alternative as required by NEPA.

2.1 No-Action Alternative

Under the no-action alternative, USACE would conduct minimal forest management activities on Project lands. The no-action alternative does not meet USACE guidance and regulations. Specifically, the no-action alternative would fail to provide for timber harvest from project lands, and would provide inadequate means to manage wildfire risk or invasive species threatening forest health. The no action alternative would have USACE revert to minimalist management practices utilized prior to approval of the 2011 EA. (Absent agency and public approval of this EA, USACE would revert to this alternative.) Based on the above considerations, the no action alternative was eliminated from further consideration.

2.2 Continue Forestry Activities on Approximately 250 Acres per Year

USACE could continue with forestry activities as it has since preparation of the 2011 EA. This alternative would partially provide for long-term forest sustainability and meet the multi-purpose intent of the Project. In most years since 2011, less than 250 acres were managed and it's anticipated that, in most future years, less than 250 acres would continue to be managed. However, USACE and its partners now have greater capability to manage project forests. The 250 acre alternative is now recognized to be less capable of meeting forest sustainability and multiple purposes of the project than would increasing the scale of forestry activities. This alternative does not meet the purpose and need, and is, therefore, not being carried forward for further evaluation.

2.3 Increase Forestry Activities to Approximately 500 Acres per Year

Because the character of project lands land and water resources are compatible with increased sustainable forestry activities, and because of increased staffing and management by the PA Game Commission of USACE lands, sustainable forestry activities could be increased to a maximum of approximately 500 acres per year. It's anticipated though that in most future years less than 250 acres would actually be managed, consistent with practices since the 2011 EA. This alternative would allow USACE to optimize for forestry activities on greater acreage when natural resources conditions are suitable while maximize partnering capabilities of PA Game Commission in years when their staffing permits increased involvement in Raystown Lake Project lands management.

2.4 Proposed Action

The proposed action is to conduct a maximum of 500 acres of forest management activities per year on Project lands. Forest management activities will be based on sound silvicultural practices and will only be implemented after appropriate forest stand analysis. The analysis will include access, forest regeneration, soils, erosion and sedimentation, wildlife considerations, threatened and endangered species, and cultural resources.

The primary implementation of the following described forest management practices will be completed through commercial sale of timber products. The sale of forest products will follow Corps and Department of the Army regulations for disposal of real property. Notices of Availability and Invitation for Bid will be prepared and coordinated through the Norfolk District Real Estate Office. Timber will be disposed of through competitive solicitation, resulting in a binding contractual agreement. The exact acreages and locations of forest management will vary depending on site conditions, tree composition, special wildlife or environmental conditions, and results of the forest stand analysis.

Equipment utilized for timber harvesting will vary depending on access, volume, and merchantability. Smaller operations consisting of 2 man crews using hand felling/bucking, cable skidder, and tri-axle may be used. Larger operations consisting of 5-10 man crews utilizing grapple skidders, feller bunchers, chippers, and tractor trailers may be used. Harvesting operations are authorized to occur from August – May, but may be limited due to constraints. A network of previously used log yards, skid trails, and haul roads already exist, however some additional improvements to existing or construction of new may be needed. Forest management areas may also include prescribed fire, herbicide treatment, reforestation, and wildlife management. All management actions work cohesively to provide quality native vegetation for future use.

2.4.1 Even-age Management

Even-age management is the practice of managing one age of timber by harvesting all trees at the same time. Typically, this involves a harvest of all trees from the site to a diameter of 4 inches. Even-age management will be used as the primary management tool to accomplish regeneration of the forest. Even-age management will include the protection of approximately 10-15 sq. ft. of residual basal area, snags, den trees, spring seeps, and uncommon species. These protected features may be reserved in clumps, corridors, or tree islands.

2.4.2 Uneven-age Management

Uneven-age management is the practice of managing trees within a stand at different age classes. This type of stand will contain large sawtimber, small sawtimber, pole stage, and saplings. Harvesting of timber involves the selective removal of an equal amount of each age class. Uneven-age management will be used as the primary management method to improve health and add additional growth to the residual stand or in areas where even-age management presents potential aesthetic or environmental impacts.

Forest management activities shall not occur within environmentally sensitive areas as explicitly established in the Project's 2020 MP, totaling 508 acres. In addition, no commercial forest management shall occur within Bat Conservation Areas, totaling 2,492 acres, without consulting the USFWS per the Project's BO. Forest management activities may occur throughout the remaining 18,343 acre land base, except that minimal to no work would occur within other sensitive areas not explicitly recognized as a land use classification in the MP, including wetlands, seeps, and floodplains. Forest management shall not exceed 500 acres per year, 2.7% of the available land base. The locations and boundaries of forest management activities will be delineated as more information is gathered to insure protection of infrastructure, recreation features, and sensitive resources and to maximize ecological benefits. Maps identifying the

environmentally sensitive areas, bat conservation areas, and lands eligible for forest management activities are included in Appendix B.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

The primary area of interest considered is USACE lands at the Raystown Lake Project. However, for some topics, an additional greater area was considered to assess regional conditions and consequences.

3.1 Climate and Hydrology

Affected Environment

The climate in the Raystown region is considered to be humid continental, with some characteristics of a mountain type climate. The mountain and valley influence on the air movements causes somewhat greater temperature extremes than are experienced in the southeastern part of Pennsylvania. Consequently, the daily range of temperature is greater under these valley influences. Although fog is not an uncommon climatic condition in the Raystown Lake region, local reports show that it has increased since the inundation of project lands. This phenomenon is most likely caused by general local climate changes resulting from the increased water surface area of the lake and subsequent evaporation and condensation.

The mean annual precipitation for the Raystown watershed is about 38 inches (USGS, 2019), with a mean average runoff of 16 inches per year since 1912. Since 2013, the minimum and maximum annual recorded precipitation for stations in the region are 33.75 and 59.65 inches, respectively (NOAA, 2019). The months of March through August experience the greatest monthly average precipitation, with the least precipitation occurring in the late fall and winter. The annual snowfall averages 42.6 inches and the average annual temperature is about 51.7 degrees Fahrenheit (NOAA, 2019). Prevailing winds are from the northwest during the winter, from points between northwest and southwest during the spring and fall, and from the southwest in summer.

Two types of floods generally are experienced in the Juniata watershed. The first type is a typical springtime flood caused by snowmelt and moderate to heavy coincidental rainfall. The second type results from extremely heavy rains connected with tropical storms and hurricanes. The most notable storms of record in the Raystown watershed occurred in 1889, 1894, 1924, 1936, 1937, 1954, 1972, 1993, 1996, and 2004 (Huntingdon County, 2008).

The storm of March 1936, which was caused by prolonged heavy rainfall and snowmelt, produced the greatest recorded flood along the Raystown Branch and the second greatest flood of record on the lower Juniata River. The peak discharges for this event were recorded as 80,500-cfs (normally 200 to 2,200 cfs) at Saxton upstream of the project and 190,000-cfs (normally 1,200 to 10,000cfs) at Newport downstream (USGS, 2019a). The 1889 storm, which produced an average rainfall depth of 6.7 inches in the Juniata basin, resulted in the second largest flood of record on the Raystown Branch with 41,300-cfs flows at Saxton and the largest flood in the lower Juniata basin with flows of 209,000-cfs at Newport.

The June 1972 flood was produced by heavy rainfall associated with the remnants of hurricane Agnes and resulted in the third largest flood of record for the Raystown watershed and the Juniata River basin. During that event the partially completed reservoir project was effective in reducing the flood crests downstream, including reductions of 4.6 feet at Mapleton Depot, 3.3

feet at Newport, and 0.8 feet at Harrisburg. At the dam, the peak inflow was 60,000-cfs while the maximum discharge through the diversion tunnel, located near the dam, was only 17,200-cfs. Without the holding the capacity of the Raystown dam, the Agnes event would have been the largest flood of record on the lower Juniata River. At Newport a maximum flow of 187,000-cfs was recorded; this value would have been 226,000-cfs without the Raystown Lake project construction.

The most severe prolonged period of drought in the Raystown Branch basin occurred from 1930 to 1932. Other significant periods of low flow include droughts in 1914, 1922, 1944, 1953, 1957, 1962-66, 1988, and 1991-92. Generally, low flow periods start during the summer and reach a minimum in August through October. Prolonged drought, such as the 1930-32 period, continue all the way through winter months into the next year with only a brief respite during the spring snowmelt.

The lake does not freeze over often in winter, and when it does ice generally remains thin. Accordingly, it is generally unsafe for recreation.

Environmental Consequences

There will be no impact on the climate of the Project from the proposed action.

3.2 Topography, Physiography, Soils and Geology

Affected Environment

The Project is located in the Ridge and Valley physiographic province of the Appalachian Highlands of south-central Pennsylvania (Figure 3-1). This area is known for parallel narrow ridges and broad valleys which run in a northeast to southwest direction. The surrounding area along Raystown Lake ranges in elevation from 601 feet National Geodetic Vertical Datum (NGVD) at the dam site to 2,940 feet on the Allegheny Front (major topographic feature at the western edge of the Ridge and Valley) to the west of the project. Visible relief reaches 1,800 feet and ranges well over 1,000 feet for many miles along the ridges that surround the lake. Access from one valley to another is generally through notches or gaps that have been eroded through the mountains by cross-cutting streams. Elevations on Raystown Project Lands range from about 1700 feet along several lakeside ridges to about 650 feet near the Raystown Branch confluence with the Juniata River.

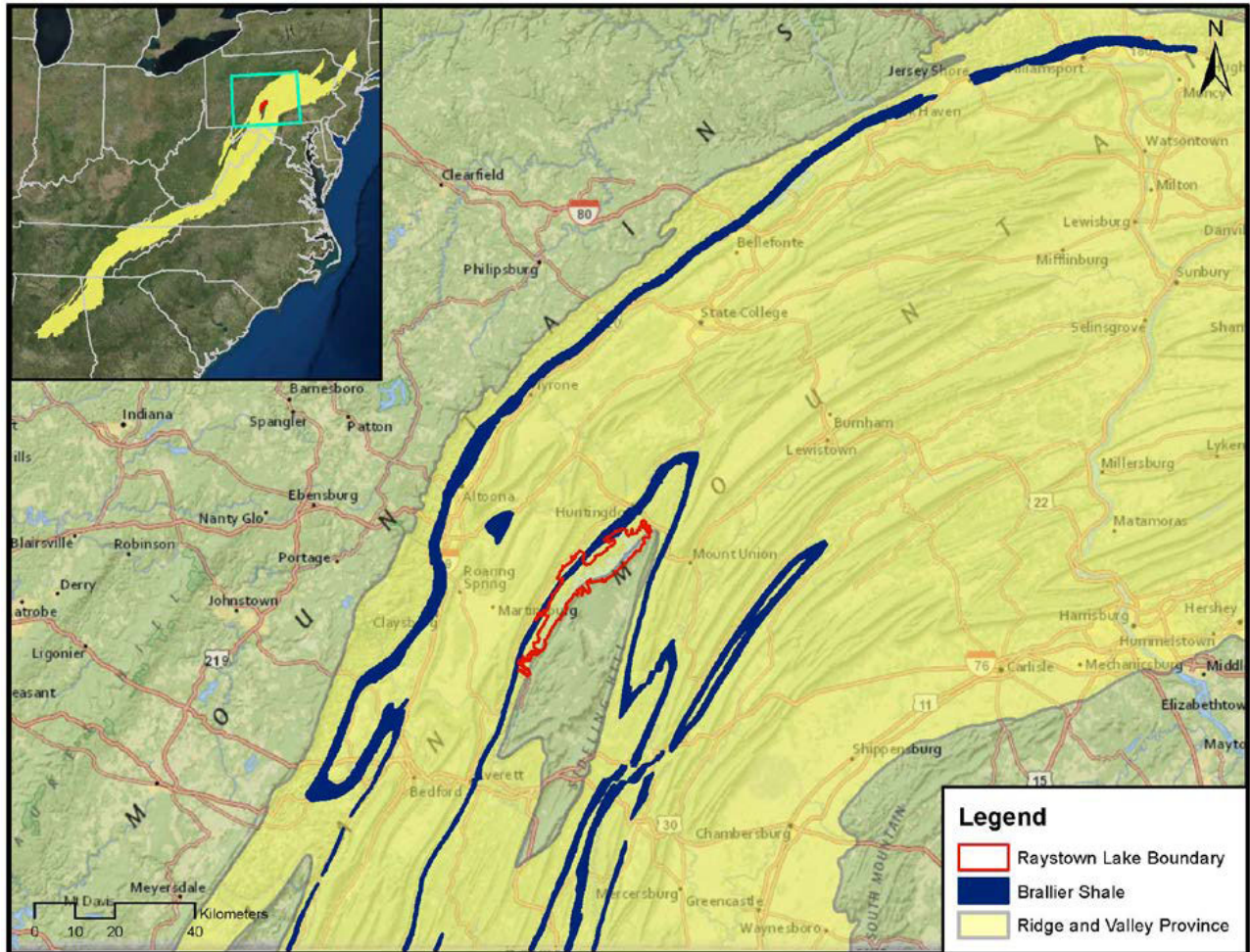


Figure 3-1. Extent of the Ridge and Valley Province (inset map), and the distribution of the Brallier Shale bedrock in PA (Pennsylvania Geological Survey, 2018).

The Project’s watershed drains an area of 960 square miles (Figure 3-2). The watershed is bounded by the Allegheny Front on the west, the Frankstown Branch drainage divide on the north, the Aughwick Creek divide on the east, and the Potomac River divide on the south. Raystown Lake controls about 28% of the entire Juniata River drainage areas whose watershed drains 3,409 square miles. Principal tributaries are Dunning Creek, Cove Creek, Brush Creek, Yellow Creek, and Great Trough Creek. The slope of the Raystown Branch between its mouth at Dunning Creek and the dam site averages five feet per mile. The slope of the channel above this point averages 20 feet per mile.

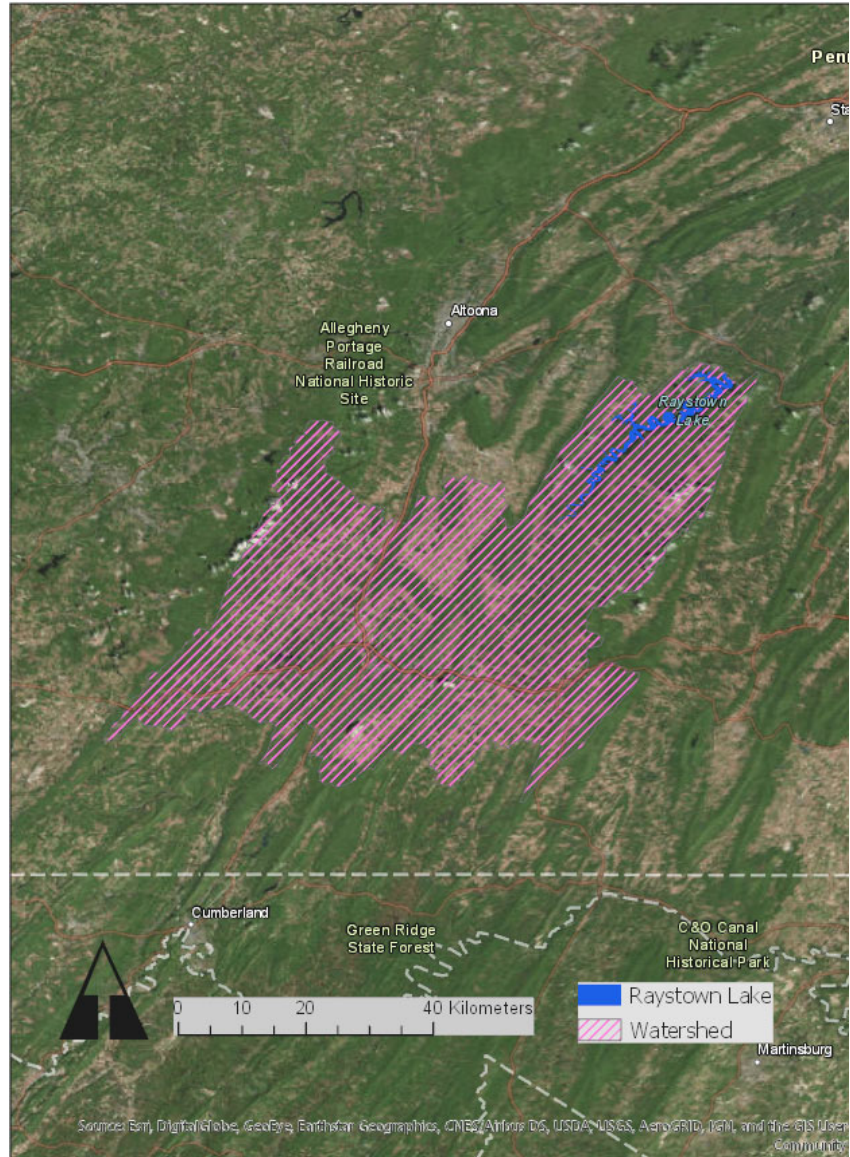


Figure 3-2. Raystown Lake Watershed.

There are numerous dams in the watershed. Most are small; controlling the runoff of their smaller drainage areas. Shawnee Lake dam, with a storage equivalent to about 7% of the Raystown flood control storage, is the one large structure that exists upstream of Raystown Lake. In the event of Shawnee Lake dam failing, the volume of water released would raise Raystown Lake approximately two feet above normal pool. All other upstream dams are small and their combined effect on Raystown Lake is insignificant.

Development of the Juniata Basin is limited because of the generally rugged terrain. It's predominantly mountainous terrain limits farming to small valley areas. Most improvements are located in the valleys along the stream banks; only a few farms are located on the upper slopes. The Project lies in a long, narrow valley with heavily wooded oak-hickory slopes. Most of the watershed consists of wooded areas with only small areas of land under cultivation.

The Project is underlain by layered sedimentary rocks primarily of Pennsylvanian, Mississippian, Devonian, and Silurian age, including the Pocono, Catskill, Devonian Marine Beds, Mauch Chunk, Pottsville, and other formations. These formations were extensively folded as part of a regional syncline. The upturned ends of these rock outcrop as parallel bands with a southwest to northeast orientation. The harder outcropping layers, composed of such material as sandstones and conglomerate, eroded slowly while the layers composed of softer, more erodible shales and mudstones were weathered away. Over time, the steep-sloped high ridge and deep valley terrain characteristic of the region formed with a corresponding southwest to northeast orientation. The combination of parent material, orientation, and climate led to the growth and development of existing flora and fauna including the unique geo-topographic and ecologic systems known as shale barrens. The majority of the Project area is primarily rock substrate with minimal soil presence.

The soils of Huntingdon County range from extremely shallow and rocky in the mountains to moderately deep and well-drained in the valley. About 66% of the county is made up of soils that formed in place from the underlying parent bedrock in the uplands; 22% is soil that formed in loose colluvial deposits along the base of the mountains and valley walls formed by gravity and slope wash; 6.3% is soil that formed on alluvial flood plains and terraces in material transported and deposited by streams; and the rest is urban land, strip mines, iron ore pits, rock outcrop and rubble. The basin soils are dominated by the Berks-Weikert-Ernest and Calvin- Klinesville-Albrights Associations, with the latter making up most of the general area. Generally, these soils are relatively deep and well-drained. Soils may be a limiting factor for forest management because certain soils are better suited for use of heavy equipment due to composition. The majority of soils present at the Project are moderately to well suited for use of heavy equipment.

Average annual sediment yield on the Raystown Branch at Saxton has been measured as 90 tons per square mile. This yield is approximately 20% lower than the average for the Susquehanna River basin. This low yield is due to the watershed being primarily rural forest lands. Large-grained sediments tend to deposit in the upper end of the lake, while smaller-grained materials are transported further into the lake, with the finest portion deposited at the dam. A brief hydrographic survey conducted in 1983 concluded that although sediment is accumulating in the upper end of the lake, the rate appears to be well below the 500 acre-feet per year that was originally projected.

There are no active mines immediately adjacent to the Project. Within the surrounding areas of Pennsylvania there are numerous mines. Fracking has not been done in the area at this time, but some test sites were drilled.

Environmental Consequences

Short-term minor adverse impacts from the proposed action are expected and are most likely to occur due to establishment of features such as log landings, skid trails, and haul roads. Due to the fact that timber across the landscape has been removed several times, the majority of these features will occur along remnants of similar features and not cause undisturbed ground to be disturbed. Planning of all features will be completed to avoid changes in natural drainage and topography. An Erosion and Sedimentation Control Plan for a Timber Harvesting Operation (E&S Plan), as defined by 25 Pa. Code §102.1, will be prepared according to PA Chapter 102

regulations and kept on site during all work. Best management practices (i.e. buffers, water bars, stabilized road entrances, and stabilization of disturbed areas) will be employed. If the total area of earth disturbance consists of 25 acres or more, a Chapter 102 Erosion and Sediment Control Permit (ESCP) will be obtained. Short-term minor adverse impacts from the proposed action are expected.

3.3 Land Use and Recreation

Affected Environment

Land use within a five mile proximity of the Project ranges from urban activities such as railroads, highways, residential, commercial, industrial, and public lands to open, extensive activities like agriculture, woodlands, wetlands, and parkland. The land use sectors with the greatest amount of acres are in woodlands and agricultural uses. These two categories account for about 90% of the land use in the study area. Land use on project lands consists of highways, commercial, agriculture, woodlands, wetlands, and parkland.

The operation of the Project provides for flood risk management, hydroelectric power, recreation, fish and wildlife conservation and mitigation, and downstream low-flow augmentation for water quality improvement. Land use classifications associated with the Project are established to support the overall goal of providing good stewardship of land and water resources while providing safe recreation opportunities and economic uses to the public. In order to implement authorized purposes and support regional management goals for recreation and natural resources, USACE manages project lands in accordance with land use classification as determined in the project's MP. USACE maximizes resources through the use of cooperative agreements and leases with federal, state, local, and private entities. These areas provide recreation opportunities such as camping, hiking, forestry, wildlife viewing, boating, fishing, hunting, and picnicking.

The primary area, having a significant influence on the public use and management of the Project, includes residents of the surrounding counties including Huntingdon, Bedford, Mifflin, Centre, Blair, and Fulton. In addition, significant influence is received from major metropolitan areas such as Philadelphia, Pittsburgh, Baltimore and Washington, D.C. The Project receives a diverse group of visitors including campers, boaters, fishermen, hunters, bicyclists, hikers, and day-users for beach, picnic, and scenic overlook facilities.

Peak visitation to USACE and lease operated facilities occurs during the months of June, July, and August. Table 3-1 depicts the average percentage of visitors to each recreation area. (A map depicting location of these sites is provided in the MP). Recreational use at the Project continues to evolve and subtle changes have been notable such as the increase in bicyclists due the development of the Allegrippis Trail System, and a general increase in non-motorized boating such as canoeing and kayaking. Boating and camping remain the principal activities pursued by most visitors. Dispersed use includes adjacent landowners walking on to USACE lands, hunters and fishermen parking at undesignated or unmonitored access points, and trail user parking at trailheads that are not monitored. Roads are monitored for maintenance as appropriate, and project roadways accommodate current traffic.

Table 3-1. Recreation Area Visited by Percent.

Seven Points	36.10%
Dispersed Use	10.00%
Tatman Run	9.07%
Lake Raystown Resort	8.32%
Aitch	7.30%
Snyder's Run	6.21%
James Creek	5.35%
Shy Beaver	3.10%
Bakers Hollow	2.56%
Weaver's Falls	2.53%
Ridenour Overlook	2.35%
Corbin's Island	1.54%
Raystown Dam	1.20%
Branch Camp	1.15%
Susquehannock Campground	0.69%
Nancy's Camp	0.39%

Designated recreation generally falls within two broad categories of land or water-based recreation. The Project has 15 high density recreation areas, listed in Table 3-2. (A map depicting location of these sites is provided in the MP). Low density recreation focuses on those activities that rely on minimal development or infrastructure such as hunting, trail use, wildlife viewing, etc.

Table 3-2. High Density Recreation Areas.

High Density Recreation Area	Primary Type of Use	Operator
Aitch	Day Use (Boat Launch)	USACE
Branch Camp	Camping	Lessee
Corbin's Island	Day Use (Boat Launch)	USACE
James Creek	Day Use (Boat Launch)	USACE
Lake Raystown Resort	Multi (Day Use/Overnight)	Lessee
Nancy's Camp	Camping	USACE
Putt's Camp	Camping	Lessee
Raystown Dam	Overlook	USACE
Ridenour Overlook	Overlook	USACE
Seven Points	Multi (Day Use/Overnight)	USACE
Shy Beaver	Day Use (Boat Launch)	USACE
Snyder's Run	Day Use (Boat Launch)	USACE
Susquehannock Campground	Camping	USACE
Tatman Run	Multi (Boat Launch, Beach)	USACE
Weaver's Falls	Day Use (Boat Launch)	USACE

Recreational carrying capacity is considered by USACE to ensure that visitors have a high-quality and safe recreational experience and that natural resources are not irreparably damaged. A boating carrying capacity study was conducted at the Project to characterize peak boating use and boaters' perceptions of safety and crowding on the lake. The primary focus of the study was to evaluate existing recreational use and users' perspectives against carrying capacity ranges developed specifically for Raystown Lake.

Environmental Consequences

Outdoor recreation opportunities at the Project contribute significantly to the authorized benefits of the lake and the maintenance of a sustainable forest will assist in enhancing those benefits. Forestry activities would occur outside of the peak recreational seasons. Minor impacts to small localized areas may occur with closings of trails or other areas used by visitors. These closures are short term and protocols are currently in place to insure proper notification to users which allow them to direct their activities to the many other opportunities available. Additionally, forest management practices will contribute to consumptive and non-consumptive wildlife recreation experiences and increase opportunities for hunting, bird watching, and hiking by maintaining habitats and conditions that support these activities. The proposed action will have short-term minor adverse impacts and long-term beneficial impacts.

3.4 Terrestrial Resources

3.4.1 Forest

The Project contains approximately 18,000 acres of forest lands. The primary forest types are northern hardwoods and mixed oak. Although minimal, eastern hemlock and pine species are found interspersed within hardwood stands and within small stands scattered sparsely across the Project. The understory often includes blueberry, huckleberry, mountain-laurel, rubus, smilax, hawthorn, viburnum, and various regenerating tree species. The forest composition varies throughout Project lands and is primarily dependent on elevation, aspect, and prior land use. These forests generally lack diversity and primarily consist of pole to small sawtimber sized trees of marginal to low commercial quality. Forests within the region are generally similar.

A lack of silvicultural management and fire, combined with increasing invasive issues, have led to continued degradation of the forest resource. Historically, abundant deer populations have led to over browsing thus compounding the problem. The current degraded forest condition and increasing threats to forest health and commercial values present many challenges for forest management.

Environmental Consequences

Short-term minor adverse impacts may include residual tree damage from harvesting activities, introduction of invasive species due to disturbance, fuel loading from slash, and localized heavy deer browse. The implementation of a sound forest management program; coupled with invasive treatments, prescribed fire, reforestation (seeding and plantings), and wildlife management, is essential to the continued sustainability of the forest resource at the Project and within the region. Silviculture treatments provide many benefits including, aesthetics, outdoor recreation, wildlife habitat, commercially valuable timber, maintaining natural watershed hydrologic functions, and serve as a filter for storm water runoff entering the lake. The forest resource is managed to ensure the long-term sustainability of these important benefits. After logging, sites are typically

replanted with hardwoods with the expectation that those will be ready for harvest in 60 to 80 years. Past, ongoing and future management of the forest at the Project provides and maintains a diverse forest landscape comprised of several successional habitats including grasslands, shrub thickets, young forests, maturing forests, and late successional forests that meet the needs of a wide variety of indigenous wildlife species. The proposed action will have short-term minor adverse impacts and long-term beneficial impacts.

In accordance with the USFWS BO (2020), trees will be retained within 50' of any stream bed or bank to protect riparian habitat. Additionally, a 70 square-foot basal area (minimum), all snags, and live trees greater than 16 inches DBH that possess ideal roosting characteristics (i.e. cracks, crevices, fissures) will be retained between 50 and 100' of all perennial streams and water bodies. The exception to this measure is during implementation of mechanized mowing activities for regeneration of riparian and upland shrublands.

3.4.2 Prime and Unique Farmland

The Project maintains approximately 200 acres of field habitat that is actively planted and maintained for wildlife use. The fields contain crops such as corn, alfalfa, soybeans, clover, sorghum, buckwheat, etc. These crops are not harvested, but rather left to serve as forage for wildlife. In accordance with CEQ memorandum dated 11 August 1980, with regard to compliance with the Farmland Protection Policy Act, the effects of the proposed actions on prime and unique farmlands will be examined.

Prime farmland is available land that provides the best combination of physical and chemical characteristics for producing crops. A listing of prime farmlands in Huntingdon County, Pennsylvania, was provided by the county office of the Natural Resources Conservation Service (NRCS). This list was cross-referenced with the Huntingdon County soil survey maps to determine the location of any prime farmlands at the Project. Soils in Bedford County were also considered.

The affected prime soils are the Albright, Barbour, and Philo series, specifically Albright silt loam, all Barbour soils, and Philo and Basher silt loams. Albright soils are found mostly on mountain foot slopes and Barbour and Philo soils are primarily associated with floodplains. All three soil types are defined by the NRCS as being limited by frequent flooding and/or a seasonal high water table. Many of the areas of prime soils at Raystown Lake are along tributary streambeds and lake shoreline areas which are presently subjected to temporary flooding due to normal reservoir operations. Some of these soils are managed for wildlife habitat, and most support natural vegetation. There is no active economic farming on the Project.

Environmental Consequences

While these soils exist at the Project, all areas impacted by the proposed action have been in forest cover for over 60 years and no farming activities have recently occurred. No prime and unique farmland soils that are currently being farmed at the Project are proposed for forest management activities. Incidental impacts may occur due to vehicle traffic, but will be minimized through implementation of Erosion and Sedimentation Control Plans. As a result, any possible impacts from the proposed action would be short-term and very minor in nature.

3.4.3 Shale Barrens

Affected Environment

A portion of the Project is comprised of shale barrens which offer a unique subset of plant species. Shale barrens are naturally difficult for plants to establish on due to their lack of stable substrate, potential for high surface temperature, and minimal soil present. These shale barrens areas are defined in the Project's 2020 MP.

The shale barrens at the Project are typically occupied by trees such as *Juniperus virginiana* (eastern red cedar), *Quercus montana* (chestnut oak), *Pinus virginiana* (Virginia pine), *Carya glabra* (pignut hickory), *Q. rubra* (red oak), and *P. pungens* (table-mountain pine). Shrubs are often absent entirely, patchy, or primarily line the perimeter of the barrens where they transition to other forest types. The herbaceous layer tends to be highly variable and can be extremely sparse or have moderate to high cover (USACE 2019).

Environmental Consequences

While shale barrens exist at the Project, no forest management activities shall occur within shale barren areas. Equipment utilized in forest management activities may cross through shale barrens on previously established roads, but will not expand the existing footprint. The proposed action would have no impact on shale barrens.

3.4.4 Wildlife and Migratory Birds

Affected Environment

The PA Game Commission and PA Fish and Boat Commission (PFBC) work with USACE to manage wildlife at the Project. The lake and surrounding forest hosts a variety of species throughout the year including the bald eagle, numerous migratory birds, river otters, mink, muskrat, beaver, bats, and other mammals. Raystown Lake offers many types of different foraging and nesting habitat to sustain wildlife populations at the project as well as the surrounding areas. USACE works with state and federal agencies to ensure that habitat requirements for many of these species are being met. Several no wake areas exist throughout the lake which allow migrating ducks to rest and feed. These no wake areas are not set up specifically for wildlife, but have the added benefit of providing suitable resting areas. The wetland areas surrounding the lake provide habitat for green heron, willow flycatchers, red-winged blackbirds, as well as many waterfowl species in migration (PGC 2019). In addition, there are 43.7 acres of water surface classified as fish and wildlife sanctuary. Hunting is allowed at the Project, with typical species being deer, turkey, squirrel, grouse, bear and geese. Hunting is the primary population control of deer in order to control the spread of Chronic Wasting Disease and reduce detrimental browse impacts to forest regeneration.

Even-age management is used to create early successional habitat for a variety of early-successional specialist species. Examples include the American woodcock, ruffed grouse, and golden winged warbler. Of equal importance is mature late successional forest that is beneficial to wood thrush, eastern box turtle, forest dwelling bats, frogs, and salamanders. A combination of these forests are also desirable to a multitude of other species including white-tail deer, turkey, and bear.

Environmental Consequences

Numerous wildlife species such as birds, mammals, reptiles, and amphibians will benefit from the proposed action, with benefits varying by forestry practice and species. All forest treatments would change forest structure and increase dense understory to provide cover for numerous small mammals and songbirds. Uneven-age management will develop two age stands with a developed understory and overstory that will provide ideal conditions for foraging bats which will cruise below the canopy to feed on a variety of insects. Even-age management will provide important early successional habitat for a variety of wildlife species, including species in decline such as the golden-winged warbler, cerulean warbler, and woodcock.

The development of herbaceous openings on disturbed areas will create brooding habitat by providing conditions that support a variety of insect life. Deer, turkey, and other wildlife species will also benefit from the higher protein vegetation planted in these disturbed areas. Numerous wildlife species will be attracted to these areas, thus providing an increase in recreational opportunities such as bird watching and hunting. Letters previously received from the National Wild Turkey Federation and Ruffed Grouse Society support forest management activities.

The proposed action would have long-term beneficial impacts to wildlife.

3.5 Aquatic and Water Resources

3.5.1 Fisheries

Affected Environment

Raystown Lake is an 8,300 acre reservoir that provides both warm, cool, and cold water fish habitat. The PFBC manages the lake fishery, which includes stocking several game fish species (lake trout, striped bass and walleye). The PFBC began stocking the lake in 1973 in an effort to establish a "two-story" fishery unique to the Northeast. Generally, a stocking management plan is developed every four years based on the PFBC census of fish population.

Overall lack of nutrients in the lake, and consequent low primary production, inhibits many fish species from reaching their maximum potential. During late summer to early fall, eutrophic conditions (warm water temperatures and consequent low oxygen) in a large area of the lake preclude use by many species of cold water fish, including trout, striped bass, and smelt.

The reservoir provides a diverse habitat for a variety of fish and other aquatic animals. However, because of the lake's steep shoreline and low proportion of suitable substrate, aquatic vegetation is not abundant, and non-vegetative cover (e.g., logs, stumps, boulders) in relatively shallow water is scarce. Over the past 10 years, two invasive aquatic plants, hydrilla (*Hydrilla verticillata*) and Eurasian watermilfoil (*Myriophyllum spicatum*) have become dominantly established within suitable portions of the water-body. The lack of snags and debris for structure in near shore shallows limits the area available for fish to spawn, forage, and hide from predators. The lack of physical structures along much of the lakeshore is one of the limiting factors in the quality of the lake fishery.

Benthic invertebrates are small organisms that inhabit the lower levels of the aquatic ecosystem. They can be used to assess general water quality and available habitat. Benthic invertebrate

samples were collected upstream and downstream of Raystown Lake in 2003, 2004, and 2005. Samples were collected in riffle complexes, pools and glides. Fifty-five different Orders, Families, and Genus' were represented in the collected sample. Benthic invertebrates have not been surveyed in Raystown Lake.

Environmental Consequences

Forest management activities shall occur away from aquatic resources and do not involve any direct modifications or impacts to the Project's fishery. The implementation of buffers around streams, wetlands, and the lake, and compliance with erosion and sedimentation control plans will prevent any significant impacts to aquatic habitats. Short-term minor adverse impacts from the proposed action could possibly occur due to temporary increases in turbidity from sediments.

3.5.2 Wetlands, Streams, and Lake Conservation Pool

Affected Environment

Wetlands play an important role in the ecology of the Project by serving as nursery and feeding areas for various aquatic animals, filtering sediment and other pollutants from surface runoff, and helping to deter erosion. Historically, wetlands occurred in the flat river valley along the Raystown Branch prior to dam construction and lake filling with water. Generally, wetlands are located in the relatively flat, low lying areas along the lake at the mouths of tributary streams. The extent of the wetlands are limited by the steep topography of the region.

Despite the periodic drawdown of the lake due to minimum flow releases, the limited amount of wetlands are of fair quality. Soils along the lake exhibit hydric characteristics and are saturated in varying degrees throughout the year. The lake has been operational since 1973; since this time a seed pool of wetland vegetation has developed.

Prior to the early 1980's, irregular periodic drawdowns of the lake (due to the year-round minimum 480-cfs release requirement in effect at the time) hampered the growth of many of the area's wetlands. Submerged aquatic vegetation was never permanently established and the vegetative cover along relatively shallow shorelines was scarce. The lack of a permanent water level was the main limiting factor in the establishment of wetlands around the lake.

There are roughly 26 acres of mapped wetlands on the Project (USFWS, 2017). Wetland classifications include emergent, forested, and scrub shrub (Table 3-3). Additional unmapped wetlands occur on project lands. The wetlands resource base also includes additional wetlands that have been constructed on project lands and are primarily located north of Corbin's Island recreation area and within mitigation lands.

Table 3-3. National Wetlands Inventory Mapped Wetlands by System.

System	Class	Acres
Palustrine	Emergent Wetland	12
Palustrine	Forested Wetland	11
Palustrine	Scrub-shrub Wetland	3

There are a number of small streams that flow within USACE boundaries. Many of them flow into Raystown Lake. These include Tatman Run, Coffee Run, Great Trough Creek, and Shy

Beaver Creek.

The 8,300 acre conservation pool lake water level at the Project constitutes one of the largest lakes in Pennsylvania. It provides habitat to fish and wildlife, aesthetic values, recreation, and flood risk management. The lake follows normal drawdown schedules as well as a conservation elevation. The lake is largely oligotrophic, mainly due to the depth, with shallow seasonally eutrophic areas on the perimeter embayments.

Environmental Consequences

Raystown Lake is located in a narrow valley surrounded by steep, heavily wooded slopes. Wetlands, seeps, and watercourses will be identified and marked in the field. If unmapped wetlands are presumed to be present a wetland delineation shall be coordinated prior to conducting forestry activities. Contractors will be notified of any special wetland habitats to insure avoidance. If needed, all appropriate permits will be obtained and secured from state, federal, and local agencies regarding work in or around wetlands prior to the start of work. Therefore, impacts from the proposed action that may occur are expected to be short-term and minor in nature.

The permit would specify how the affected wetlands are to be protected and any required mitigation. All potential temporary and permanent impacts on wetlands during construction would be conducted under conditions of a permit and therefore, no significant adverse impacts on wetlands would be expected under the Proposed Action. Provided that the proponent meets the permit requirements, either action would be considered to have no net effect on wetlands.

3.5.3 Wild and Scenic Rivers

Affected Environment

Wild River Areas are defined as those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. Scenic river areas are defined as those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads. None of the areas associated with Raystown Lake project are federally designated as wild and scenic rivers pursuant to Public Law 90-542, nor are any of the rivers state-designated as scenic (PA Department of Conservation & Natural Resources, 2020).

Environmental Consequences

Implementation of forest management activities would not directly or indirectly impact any federal or Pennsylvania listed wild or scenic rivers as none are present.

3.5.4 Navigable Waters under Section 10 of the Rivers and Harbors Act

Affected Environment

Under Section 10 of the Rivers and Harbors Act of 1899, navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently being used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR 329.4). Navigable waters include lakes and other on-channel impoundments of navigable rivers. Under Section 10, USACE regulates any work in or affecting navigable

waters of the United States.

Environmental Consequences

The Juniata River is navigable, but the Raystown Branch of the Juniata River is not a navigable waterway. Therefore, Section 10 is not applicable for the Project. The proposed action would have no impact on Section 10 waters.

3.5.5 Waters of the U.S. (Section 404)

Affected Environment

Under the authority of Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and fill material into waters (such as rivers and streams) and wetlands that are under federal authority. Waters and wetlands regulated by the federal government are called “waters of the U.S.” The definition of “waters of the U.S.” changes over time subject to legal reinterpretation of the Clean Water Act. From June 22, 2020, forward, federal Section 404 regulations will apply to waters meeting the “Navigable Waters Protection Rule.” Raystown Branch Juniata River and Raystown Lake, their perennial tributaries, some of their intermittent tributaries, and wetlands that abut, flow into, or receive flow from these waters would remain federally regulated under the new “Navigable Waters Protection Rule.” (The Raystown Branch is part of the core tributary system that provides perennial and intermittent flow into the navigable Susquehanna River). The Raystown Branch Juniata River and Raystown Lake will be classified as “A3 waters.” Prior to June 22, 2020, federally regulated waters were previously described generally as rivers and streams including the smallest of tributaries, any impoundments on those rivers and streams (e.g., ponds and lakes), and any wetlands adjacent to those features. Implementation of the new “Navigable Water Protection Rule” may be delayed if the rule is placed under injunction because of legal challenges. If that occurs, the previous waters of the US Rule may continue to apply in PA past June 22, 2020.

Environmental Consequences

It is not anticipated that the proposed action would involve discharge of dredged and fill material into waters of the U.S. In the unlikely event that impacts to waters of the US prove necessary, proper permits would be obtained and the activity would be conducted in compliance with applicable environmental laws. USACE will follow whichever rule defining waters of the US is in effect in PA at the time of the proposed action. Because work would be conducted in compliance with proper permits, the proposed action would have no substantial impact on Waters of the U.S. (Section 404).

3.5.6 Water Quality

Affected Environment

The greatest sources of pollutants impacting the wadeable waters across the state of Pennsylvania are agriculture and abandoned mine drainage. Wadeable waters are an important part of the overall aquatic ecosystem, providing valuable habitat, drinking water, and downstream commercial and recreational benefits. The largest source of pollution impacting the State’s lakes is commonly generated by agriculture. For the state’s streams and rivers, this means the largest stressors are siltation and metals. For the lakes, the greatest stressors are nutrients, suspended solids, and dissolved oxygen/organic enrichment (PA Department of Environmental Protection [DEP], 2016).

In general, the water quality of Raystown Lake is very good to excellent, being suitable for water-contact recreation and capable of supporting a diverse and healthy aquatic community. Motorized boating could potentially be a source for water quality impacts, but there is currently no available data to show this. The lake develops a strong stratification by June, with a 10 to 20-foot epilimnion (upper layer) and a 23 to 33-foot thermocline (middle layer). The lake is clear, cold, and deep, with a well-oxygenated hypolimnion (cool, lower layer) during the warm months. Lake waters are generally characterized as soft and slightly alkaline with oxygen levels capable of sustaining fish life to the bottom of the lake. Pollutants entering the lake are currently minimal though there has been a long-term trend noted by PA DEP for total ammonia found within Raystown Lake (PA DEP, 2016).

Eutrophic conditions of warm water and low oxygen levels occur during late summer/early fall, and are pronounced in the shallow embayments and along the main stem of the lake upstream of Trough Creek. During those months, these areas (which amount to approximately 58% of the lake) are either uninhabitable or marginally inhabitable for cold water fish, including trout, striped bass, and smelt.

The PA DEP has listed two unnamed stream systems directly connected to Raystown Lake as Category 5. Category 5 streams are waters impaired for one or more uses by a pollutant that require the development of a Total Maximum Daily Load (TMDL). There are multiple other streams within the watershed also listed as impaired. Agricultural related activities or abandoned mine drainage cause impairments to these streams (PA DEP, 2020).

Environmental Consequences

An E&S Plan, as defined by 25 Pa. Code §102.1, will be prepared according to PA Chapter 102 regulations and kept on site during all work. Best management practices (i.e. buffers, water bars, stabilized road entrances, and stabilization of disturbed areas) will be employed in accordance with the approved E&S Plan. In accordance with the USFWS BO, an additional riparian buffer area will be left undisturbed to protect streams and wetland habitats from forestry activities; this will also serve to protect stream water quality. The riparian buffer described above and adherence to E&S Plan would limit impacts to water quality of all streams on project lands, including those identified as impaired. However, it's possible that the proposed action could have short-term minor adverse impacts on water quality.

3.6 Invasive Species

Affected Environment

Invasive species that occur at the Project are typical of those found throughout the region. The Project contains various categories of invasive species to include terrestrial plants, aquatic plants, terrestrial pests, aquatic pests, and disease that pose serious threats to wildlife, vegetation, aquatic resources, and potentially human health. They have and will continue to impose enormous costs for detection, management, and control efforts. The Project embraces the principle concepts of early detection and rapid response; noting that early detection is a key goal in managing invasive species populations.

Terrestrial plants include, but are not limited to, oriental bittersweet (*Celastrus orbiculatus*), tree

of heaven (*Ailanthus altissima*), stringy stonecrop (*Sedum sarmentosum*), German knotweed (*Scleranthus annuus*), crown vetch (*Securigera varia*), spotted knapweed (*Centaurea stoebe*), bush honeysuckle (*Lonicera maackii*), Japanese honeysuckle (*Lonicera japonica*), asiatic tearthumb (*Persicaria perfoliata*), yellow toadflax (*Linaria vulgaris*), Japanese stiltgrass (*Microstegium vimineum*), mile-a-minute (*Persicaria perfoliata*) and princess tree (*Paulownia tomentosa*). These species have become successful because they generally lack pests and are less preferred by native herbivores such as white-tailed deer. As funding permits, the Project annually conducts invasive species treatments to minimize the spread of numerous species.

Aquatic plants include hydrilla (*Hydrilla verticillata*), Eurasian watermilfoil (*Myriophyllum spicatum*), and brittle naiad (*Najas minor*).

Terrestrial pests have had a notable presence and impact on the landscape of the Project requiring intensive management activities and funding support. Specifically, the gypsy moth (*Lymantria dispar*), emerald ash borer (*Agrilus planipennis*), and hemlock woolly adelgid (*Adelges tsugae*) have had significant impacts on the vegetative resources. The Raystown Lake Project has sought and received funding through the U.S. Forest Service totaling over \$1.1 million (1983-2018) to treat both gypsy moth (GM) and hemlock woolly adelgid (HWA) infestations. GM infestations and resulting treatments are cyclic, typically occurring every 5-6 years. GM treatments consist of aerial application of *Bacillus thuringiensis* (Bt). HWA infestations are continual with treatments typically occurring every 3-5 years. HWA treatments consist of soil and/or stem injection of imidacloprid. Treatments utilizing imidacloprid, a neonicotinoid, are concentrated to small isolated hemlock stands thus having a minimal impact on non-target insects. The effects of the emerald ash borer have been devastating to the ash population within the region. Over 99% of ash trees within developed recreation areas have been removed as hazardous trees due to mortality. Although not yet found at Raystown Lake, heightened awareness has been placed on detecting the presence of spotted lanternfly (*Lycorma delicatula*) and Asian longhorned beetle (*Anoplophora glabripennis*) which could have devastating effects on the ecosystem if the current population cannot be contained and eradicated.

The presence of aquatic pests have not been significantly noted within the waterbody of Raystown Lake. Sampling efforts should be conducted routinely for various pests such as zebra and quagga mussels which have been found in other reservoirs and bodies of water within Pennsylvania and nearby states.

Terrestrial diseases include chestnut blight (*Castanea dentata*) and Dutch elm disease (DED). The chestnut blight of the early 1900s dramatically altered the vegetation composition of the northeast. The Project has been heavily involved in a partnership with The American Chestnut Foundation in their efforts to restore the presence of the species across the landscape. DED is caused by pathogens belonging to the genus *Ophiostoma* that are vectored by various species of elm bark beetles. Although not yet found at Raystown Lake, staff are surveying for thousand cankers disease which is caused by the fungus *Geosmithia morbida* and vectored by walnut twig beetles.

Additionally, native species must sometimes be managed as an invasive species as their growth

or population size for the particular ecosystem may be detrimental to the growth and success of other native species. Once such example of this on Raystown Lake is the presence and dominance of hay-scented fern in the forest understory. This fern has increased greatly in abundance because white-tailed deer eat other plants instead, favoring this fern.

Environmental Consequences

Due to disturbances associated with an increase in sunlight, forest management activities have the potential to lead to the spread of terrestrial invasive plant species. However, the benefits of forest management far outweigh the negatives. Revenue generated from the sale of timber is used to supplement appropriated funds for environmental stewardship management activities such as invasive herbicide treatments (typically glyphosate which is considered safe for the environment) and prescribed fire. In addition, timber sales help control disease/forest pest outbreaks by improving stand health and increase species diversity. Aerial or systemic insecticide treatments may be needed to control forest pest infestations. Although these treatments may have negative impacts to non-target species, the cyclic nature of the treatments coupled with the positive benefits of saving individual trees or forested stands far outweigh the negative. Thus the proposed action could possibly have minor short-term adverse impacts, but has long-term beneficial impacts to invasive species.

3.7 Threatened and Endangered Species

Affected Environment

The Project hosts multiple state and federally listed threatened and endangered species. In 2019-2020 a team of scientists from USACE Engineer Research and Development Center performed biological surveys at the Project to look for endemic, threatened, and endangered species. Their findings are summarized in Table 3-4, and the full report can be found in Appendix H of the Project's 2020 MP. Of greatest relevance to this EA are those species strongly associated with forests. The federally-listed bat species of project lands and waters have declined regionally because of white-nose syndrome, an exotic disease.

Environmental Consequences

Forest management activities may have minor short-term adverse impacts to forest dwelling bat species, but more importantly are the long-term benefits it provides. For example, a shelterwood harvest will create optimal bat habitat by retaining large dominant trees that receive abundant sunlight for roosting and creates large canopy gaps for foraging. In addition, the Project will continue to implement and operate per the most recent Biological Opinion issued by the USFWS which has terms and conditions specific to forestry activities. The majority of the species listed are associated with shale barrens, streams, and rivers habitat. No forest management activities shall occur within identified shale barrens, streams, and rivers; therefore there would be no impact to species inhabiting these habitats.

Table 3-4. State and Federally Listed Species at Raystown Lake.

Species	Common Name	Classification	Important Habitat
<i>Myotis septentrionalis</i>	Northern long-eared bat	Federally Threatened	Forest
<i>Myotis sodalis</i>	Indiana bat	Federally Endangered	Forest
<i>Xestia elimata</i>	Southern variable dart moth	State Imperiled	Forest
<i>Cisthene packardii</i>	Packard's lichen moth	State Critically Imperiled	Barrens and forests
<i>Calopteryx dimidiata</i>	Sparkling jewelwing	State Possibly Extinct	Streams and fields
<i>Boyeria grafiana</i>	Ocellated darner	State Vulnerable	Streams
<i>Cordulegaster erronea</i>	Tiger spiketail dragonfly	State Vulnerable	Streams
<i>Antennaria virginica</i>	Shale barren pussytoes	State Threatened	Shale barrens
<i>Oenothera argillicola</i>	Shale barren evening primrose	State Imperiled	Shale barrens
<i>Solidago argute var. harrisii</i>	Harris' golden-rod	State Critically Imperiled	Shale barrens
<i>Trifolium virginicum</i>	Kate's mountain clover	State Imperiled	Shale barrens
<i>Potamogeton illinoensis</i>	Illinois pondweed	State Rare	Shallow water
<i>Sida hermaphrodita</i>	Virginia mallow	State Imperiled	Stream bank
<i>Haliaeetus leucocephalus</i>	Bald eagle	State Rare	Forest and lake
<i>Neotoma magister</i>	Allegheny woodrat	State Rare	Shale barrens
<i>Calopteryx angustipennis</i>	Appalachian jewelwing	State possibly in peril	Rivers and streams
<i>Caripetra aretaria</i>	Southern pine looper moth	State Critically Imperiled	Shale barrens
<i>Semiothisa promiscuata</i>	Promiscuous angle	State Critically Imperiled	Forest
<i>Properigea sp.</i>	Noctuid moth	State Critically Imperiled	Shale barrens
<i>Pyrgus Wyandot</i>	Southern grizzled skipper	State Critically Imperiled	Shale barrens
<i>Thalictrum coriaceum</i>	Thick-leaved meadow rue	State Imperiled	Forest
<i>Solidago curtisii</i>	Curtis's goldenrod	State Critically Imperiled	Forest
<i>Villosa iris</i>	Rainbow mussel	State Species of Greatest Conservation Need	Rivers

Huntingdon County 2004, PNHP 2019, and USACE 2019

3.8 Cultural and Historic Resources

Most project lands have a low potential for containing prehistoric and historic cultural resources due to the terrain being extremely steep in this region. Most prehistoric resources that were discovered were located near the river. Most of the sites were seasonal hunting camps which were not considered significant enough for further investigations. Almost all of the sites identified on the project lands were inundated as a result of the original project. Only a few identified sites (36Hu14; 36Hu15; Quarry Site - 36Hu16; Shy Beaver - 36Hu27; H8795; E8231; E8232; and E8274) were located above the current water level.

The Sheep Rock Shelter (36Hu1) was subject to extensive data recovery investigations. It was discovered that the earliest occupation of the Sheep Rock Shelter dates from about the seventh millennium B.C., within the Early Archaic period, and was continuously occupied until the middle of the sixteenth century A.D. Various types of pottery, projectile points, a French rifle flint from the late 1700's, two rifle balls, and two worn fragments of "Kentucky cloth" were found in the Sheep Rock Shelter. This site location is now inundated. Other significant

prehistoric sites include the Workman Site (36Bd36) which is located outside of the project lands and the Mussel Rock Shelter (36Hu6) which is now inundated. Early Woodland pottery found at the Workman Site is characteristically different than that found at the Sheep Rock Shelter (ca. 30 miles away). The period of occupation for this site extends from the Archaic through the historic era, with a gap in the late nineteenth/early twentieth century chronology. This site provided valuable data on the occupation of the area. Mussel Rock had a habitation period covering the Woodland period. Assorted pottery types were found as well as projectile points from different stages of Woodland period. There were other prehistoric sites intensively investigated that did not yield significant or numerous finds. These include the Quarry Site – 36Hu16; 36Hu19; the Entriken Bridge Site – 36Hu24; and Baker Sites Nos. 1 and 2 – 36Hu25 and 36Hu26, respectively.

During 2010, an Integrated Cultural Resources Management Plan (ICRMP) was completed for the Raystown Lake project. Approximately 200 potential historic period site locations, and the location of previously identified prehistoric period sites, were mapped into a Geographic Information System (GIS) layer. One building, the Brumbaugh House, is currently listed in the National Register. The Brumbaugh House, a stone and frame structure built in 1804, is located on the former Brumbaugh homestead that was once called “Timothy Meadows.” After being placed on the National Register of Historic Places, the house has been the victim of vandals and arson. The remaining walls of the house are currently enclosed by a fence, and is still listed on the National Register by request of the Huntingdon County Historic Society. The Cloyd Rhodes House is another important structure from the historic period. The Rhodes House is also constructed of stone. It is located in the Lake Raystown Resort and serves as a food store and concession at the campground and beach.

A predictive model and site sensitivity map were developed to identify areas of cultural sensitivity. The ICRMP is intended to serve as a how-to manual for Raystown Lake personnel to manage, plan, and prioritize the protection of cultural resources on the project. This ICRMP provides guidance needed to identify and effectively manage cultural resources the Project.

Environmental Consequences

Impacts to historical sites are not expected through proper planning during execution of the proposed action. All identified sites, as indicated in the ICRMP, will be protected via buffers during execution of silvicultural practices.

In 1996 and 2004, the U.S. Army Corps of Engineers, Baltimore District consulted with the Pennsylvania SHPO concerning potential impacts to archaeological resources from forest management activities at Raystown Lake. SHPO determined that silvicultural practices that did not involve stump removal, road construction, working in wet or soft conditions, excavation, or work in areas with a high potential for cultural resources would have no effect on archeological resources.

If it's determined that a silvicultural practice cannot adhere to the aforementioned stipulations then additional consultation with the Baltimore District's Planning Division and SHPO shall be completed as required under NEPA.

3.9 Socioeconomic Resources and Environmental Justice

3.9.1 Social and Economic Setting

Affected Environment

The U.S. Census Bureau reported that Huntingdon County had a population of 45,913 in 2010 (US Census Bureau, 2019). The projections of population indicate a decline in the population growth for both Bedford and Huntingdon Counties. Bedford County is expected to decline in population by nearly two percent in the period from 1990 to 2040. Huntingdon County is projected to grow modestly for a portion of the period and then is expected to decline in population after the year 2020.

While Huntingdon County is projected to experience a population decline early into the twenty-first century, the economic region that includes Huntingdon County is projected to grow about 15 percent for the 1995-2040 period. Even with this small growth rate, it exceeds the growth rate projected for the United States and the Commonwealth of Pennsylvania.

As of December 2018, the unemployment rate in the Commonwealth of Pennsylvania averaged 4.2 percent. In Huntingdon County, unemployment rates averaged around 5.6 percent (US Dept. of Labor, 2019). These rates probably fluctuate frequently by one to three percentage points depending on the economic health of specific, large employers.

Population

The total population for the zone of interest is 94,577, containing both Bedford and Huntingdon counties (Table 3-5). The gender split is relatively equal in both counties, roughly 50%/50%.

Table 3-5. Population Total and Gender Composition.

Geographical Area	Total	Male	Female
Pennsylvania	12,790,505	48.9%	51.1%
Huntingdon County, PA	45,686	52.8%	47.2%
Bedford County, PA	48,891	49.9%	50.1%

Source American Community Survey 2013-2017

The distribution by age group is similar for both counties in the area of interest (Table 3-6). The largest population age ranges from 25 to 64, which is a similar trend to the state of Pennsylvania.

Table 3-6. Age Population Range – Numbers and Percent of Total.

Geographical Area	Age Group									
	<5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 44	45 to 64	65 to 74	75 to 84	>85
Pennsylvania	711,647	736,583	763,267	834,335	858,720	3,151,269	3,553,662	1,195,873	659,750	325,399
Huntingdon County, PA	2,179	2,294	2,624	2,949	3,065	11,037	12,810	5,015	2,640	1,073
Bedford County, PA	2,417	2,670	2,902	2,863	2,544	10,393	14,599	5,656	3,413	1,434
Geographical Area	Age Group									
	<5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 44	45 to 64	65 to 74	75 to 84	>85
Pennsylvania	6%	6%	6%	7%	7%	25%	28%	9%	5%	3%
Huntingdon County, PA	5%	5%	6%	6%	7%	24%	28%	11%	6%	2%
Bedford County, PA	5%	5%	6%	6%	5%	21%	30%	12%	7%	3%

Source American Community Survey 2013-2017

The majority of people in Huntingdon and Bedford Counties are white, with other races comprising a much smaller population count (Table 3-7). Huntingdon County has a much higher population of Black or African Americans than Bedford County.

Table 3-7. Population Race Numbers.

Geographical Area	Race Group						
	White	Black or African American	American Indian and Alaskan	Asian	Native Hawaiian and other Pacific	Other	Two or more races
Pennsylvania	10,378,174	1,417,611	24,995	417,525	3,665	251,215	297,320
Huntingdon County, PA	41,966	2,446	30	235	9	171	829
Bedford County, PA	47,728	217	61	118	0	137	630

Geographical Area	Race Group						
	White	Black or African American	American Indian and Alaskan	Asian	Native Hawaiian and other Pacific	Other	Two or more races
Pennsylvania	81%	11%	0%	3%	0%	2%	2%
Huntingdon County, PA	92%	5%	0%	1%	0%	0%	2%
Bedford County, PA	98%	0%	0%	0%	0%	0%	1%

Source American Community Survey 2013-2017

For most of the population 25 years and older in Huntingdon and Bedford Counties, the highest level of education is high school, or equivalent (Table 3-8).

Table 3-8. Population Education Data.

Geographical Area	Highest Level of Educational Attainment							
	Population: 25 years and older	Less than 9th grade	9th to 12th grade, no diploma	High school graduate (includes equivalency)	Some college, no degree	Associate's degree	Bachelor's degree	Graduate or professional degree
Pennsylvania	8,885,953	296,463	602,519	3,161,786	1,427,444	724,522	1,621,733	1,051,486
Huntingdon County, PA	32,575	954	2,697	16,391	5,090	2,475	3,395	1,573
Bedford County, PA	35,495	1,351	3,273	18,297	4,864	2,814	2,839	2,057

Geographical Area	Highest Level of Educational Attainment							
	Population: 25 years and older	Less than 9th grade	9th to 12th grade, no diploma	High school graduate (includes equivalency)	Some college, no degree	Associate's degree	Bachelor's degree	Graduate or professional degree
Pennsylvania	50%	2%	3%	18%	8%	4%	9%	6%
Huntingdon County, PA	50%	1%	4%	25%	8%	4%	5%	2%
Bedford County, PA	50%	2%	5%	26%	7%	4%	4%	3%

Source American Community Survey 2013-2017

Employment is represented in table 3-9. The largest areas of employment in both counties are educational services, health care, manufacturing, and construction.

Table 3-9. Population Industry Data.

Industry	Geographical Area		
	Pennsylvania	Huntingdon County, PA	Bedford County, PA
Civilian employed population 16 years and over	6,096,977	18,540	22,161
Agriculture, forestry, fishing and hunting, and mining:	85,983	616	968
Agriculture, forestry, fishing and hunting	54,504	490	767
Mining, quarrying, and oil and gas extraction	31,479	126	201
Construction	351,087	1,788	2,079
Manufacturing	726,822	2,475	3,240
Wholesale trade	170,078	324	453
Retail trade	702,198	1,851	2,973
Transportation and warehousing, and utilities:	327,457	977	1,735
Transportation and warehousing	269,844	813	1,525
Utilities	57,613	164	210
Information	103,432	263	235
Finance and insurance, and real estate and rental and leasing:	394,251	604	593
Finance and insurance	305,761	476	480
Real estate and rental and leasing	88,490	128	113
Professional, scientific, and management, and administrative and waste management services:	619,991	957	1,423
Professional, scientific, and technical services	389,187	447	690
Management of companies and enterprises	5,747	16	0
Administrative and support and waste management services	225,057	494	733
Educational services, and health care and social assistance:	1,573,451	5,278	4,210
Educational services	570,354	2,239	1,368
Health care and social assistance	1,003,097	3,039	2,842
Arts, entertainment, and recreation, and accommodation and food services:	514,393	1,286	2,218
Arts, entertainment, and recreation	112,707	173	223
Accommodation and food services	401,686	1,113	1,995
Other services, except public administration	282,945	673	1,113
Public administration	244,889	1,448	921

Table 3-9. Population Industry Data (Continued).

Industry	Geographical Area		
	Pennsylvania	Huntingdon County, PA	Bedford County, PA
Civilian employed population 16 years and over	39%	40%	40%
Agriculture, forestry, fishing and hunting, and mining:	1%	1%	2%
Agriculture, forestry, fishing and hunting	0%	1%	1%
Mining, quarrying, and oil and gas extraction	0%	0%	0%
Construction	2%	4%	4%
Manufacturing	5%	5%	6%
Wholesale trade	1%	1%	1%
Retail trade	4%	4%	5%
Transportation and warehousing, and utilities:	2%	2%	3%
Transportation and warehousing	2%	2%	3%
Utilities	0%	0%	0%
Information	1%	1%	0%
Finance and insurance, and real estate and rental and leasing:	3%	1%	1%
Finance and insurance	2%	1%	1%
Real estate and rental and leasing	1%	0%	0%
Professional, scientific, and management, and administrative and waste management services:	4%	2%	3%
Professional, scientific, and technical services	2%	1%	1%
Management of companies and enterprises	0%	0%	0%
Administrative and support and waste management services	1%	1%	1%
Educational services, and health care and social assistance:	10%	11%	8%
Educational services	4%	5%	2%
Health care and social assistance	6%	6%	5%
Arts, entertainment, and recreation, and accommodation and food services:	3%	3%	4%
Arts, entertainment, and recreation	1%	0%	0%
Accommodation and food services	3%	2%	4%
Other services, except public administration	2%	1%	2%
Public administration	2%	3%	2%

Source American Community Survey 2013-2017

Environmental Consequences

Short-term minor employment opportunities could arise with the hiring of workers for the harvesting, hauling, and processing of timber resources. Long-term impacts on socioeconomic

conditions are expected to be minor and positive for the county and region as a result of the proposed action, which will provide minor opportunities for environmental research, education, and volunteer work. Economics have the potential for minor beneficial impacts with the increase in visitors through hunting and wildlife viewing. No impacts to the residential population are expected from this action.

3.9.2 Environmental Justice

Affected Environment

In February, 1994 President Clinton signed Executive Order 12898, entitled “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” This EO directs Federal agencies “to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low income populations in the United States.” The purpose of this order is to avoid the disproportionate placement of adverse environmental economic, social, or health impacts from Federal actions and policies on minority and low-income populations. In order to prevent the potential for discrimination and disproportionately high and adverse effects on specific populations, a process must identify minority and low-income populations that might be affected by the implementation of a proposed action or alternatives.

As defined by the “Environmental Justice Guidance Under NEPA” (CEQ, 1997), “minority populations” includes persons who identify themselves as Asian or Pacific Islander, Native American or Alaskan Native, black (not of Hispanic origin), or Hispanic. Race refers to Census respondents’ self-identification of racial background. Hispanic origin refers to ethnicity and language, not race, and may include persons whose heritage is Puerto Rican, Cuban, Mexican, Central or South American.

A minority population exists where the percentage of minorities in an affected area either exceeds 50% or is meaningfully greater than in the general population. Low-income populations are identified using the Census Bureau’s statistical poverty threshold, which is based on income and family size. The Census Bureau defines a “poverty area” as a census tract with 20% or more of its residents below the poverty threshold and an “extreme poverty area” as one with 40% or more below the poverty level.

As of the census of 2010 there were 45,913 people residing in the Huntingdon County. The racial makeup of the county was 92.5% White, 5.2% African American, 0.4% Asian, 0.1% Native American, 1.6% Hispanic or Latino, and 0.9% from two or more races (U.S. Census Bureau, 2010). The median household income reported in 2017 in Huntingdon County \$46,765. The per capita income was \$22,908. About 14.9% of the population were below the poverty level (U.S. Census Bureau, 2019).

The area is not considered to be one of poverty or of a minority population.

Environmental Consequences

The Project is not considered to be an area of concentrated poverty. The proposed action would not result in an impact to these populations of concern.

3.10 Air Quality

Affected Environment

According to the U.S. Environmental Protection Agency, Huntingdon and Bedford Counties are in attainment for all of the National Ambient Air Quality Standards: sulfur dioxide, carbon monoxide, lead, nitrogen dioxide, 8-hour ozone, 2.5 micrometer particulate matter, and 10 micrometer particulate matter (USEPA, 2019). The project area is primarily rural and exhibits good air quality. Presently there are no factors that adversely affect the air quality in the project area.

Environmental Consequences

Since air quality at the Project is in attainment with air quality standards for the region, the proposed action would be expected to have a short-term, minor, localized effect on air quality due to emissions from timber harvesting equipment. Dust levels would rise slightly during these activities. No long-term impacts are expected. Emissions of ozone precursors (volatile organic compounds, nitrogen oxides) are expected to be minimal, well below the threshold requiring a federal conformity determination (40 CFR 93.153). Emissions are expected to be in conformance with the Federal Clean Air Act as they are covered by Pennsylvania's State Implementation Plan (SIP) for projects such as this.

3.11 Climate Change

Affected Environment

Analyses prepared for the Chesapeake Bay Program in 2019 show that annual precipitation for Centre County (50 mile northeast of Raystown project) increased by almost 3% from the late 1920s through 2014 (the time period analyzed). Rainfall intensity is generally increasing throughout the Chesapeake Bay watershed. According to the PA Department of Environmental Protection, temperatures have increased by almost 2°F in the state across the last century.

The report titled "Pennsylvania Climate Impacts Assessment Update" indicates that annual mean temperatures in Pennsylvania may increase between 2.5°F and 6.5°F by mid-century (2041-2070), depending on the climate scenario and model employed (Shortle et. al. 2015). These increases are not projected to vary significantly by season. The climate models also project increases in average annual precipitation in Pennsylvania on the order of 10% by mid-century. Increases in precipitation are projected to occur throughout the year, with somewhat larger increases in the winter (around 15%) than the summer (around 5%). Thus, by the middle of the century, the climate of Pennsylvania is projected to be significantly different and agricultural production systems will have to adapt to a changing climate.

The primary sources of energy-related greenhouse gas emissions in Pennsylvania continue to be associated with the electric power, transportation, and industrial sectors. The burning of fossil fuels for space conditioning in homes or commercial buildings also contributes, but these effects are small by comparison, particularly since the majority of homes in Pennsylvania use natural gas for heating.

The increased use of natural gas for power generation in Pennsylvania, relative to coal and petroleum, has led to a decline in the greenhouse-gas footprint of Pennsylvania's electric

generation sector. It has likely also led to an increase in the greenhouse-gas footprint of Pennsylvania's natural gas production sector, due to methane leakage across various portions of the production and delivery chain. While these leakages are difficult to quantify with precision, the Pennsylvania DEP has estimated 10 tons per year for the average drilling site in the Commonwealth in 2013 (PA DEP, 2015). Transportation-related emissions have also exhibited a decline since the 2011 PCIA update, in large part due to lower consumption figures for gasoline and diesel fuel reported by the U.S. Energy Information Administration.

Environmental Consequences

Forest management activities require use of heavy equipment which would result in the burning of fossil fuels. These emissions are small in comparison to the primary sources of emissions associated with the green-house gas footprint. In addition, improvements to fuels and emissions requirements have continually decreased these impacts. In accordance with President Trump's Executive Order on Energy Independence (EO 13783), USACE did not quantify emissions of various greenhouse gases nor give detailed consideration to their impacts on climate in preparation of this EA. Short-term minor adverse impacts to climate change may result from the proposed action.

At this time, implications of changing climate have not been considered explicitly in forest management on Raystown Lake Project. However, over time what species are included in plantings could be adjusted to optimize for long-term sustainability of project forests, such as in accordance with assisted migration research and activities being conducted by the US Forest Service and others.

3.12 Health and Safety

Affected Environment

In accordance with the "Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects", dated 26 June 1992, a preliminary HTRW assessment was conducted for project lands at Raystown Lake. The U.S. Environmental Protection Agency's (EPA) Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) was consulted to determine the presence of current HTRW sites within Bedford County and Huntingdon County, Pennsylvania. A total of 26 sites were identified in the two counties. None of these sites are on the Project.

There are seven utility corridors established at the Project: five pipelines which cross project lands, and two electric transmission lines. These corridors transport natural gas, petroleum products, and electricity.

There are numerous aboveground and underground storage tanks at the Project. These tanks store various substances, from potable water to diesel fuel, propane, and heating oil. All underground storage tanks are registered with the Federal and State governments and are periodically checked for leaks.

The use of pesticides and fertilizers at the Project are primarily limited to specific contractual actions which require certified applicators. Only over the counter pre-mixed pesticides and granular fertilizer are stored at the Project. All applications of pesticides and fertilizers follow

Commonwealth of Pennsylvania regulations for applications and disposals. (Note that herbicides and pesticides utilized in forestry activities are discussed in Section 3.6).

Environmental Consequences

Impacts to the environment will be minor with no adverse effects public. The proposed action will not physically create adverse environmental effects that will unduly impact populations. Forest management activities may involve crossing of utility corridors. Coordination with the respective company and implementation of requirements would be implemented prior to crossing the corridor. Contractors associated with timber harvesting may use above ground storage tanks or transport tanks/containers which would primarily store diesel fuel, gasoline, or oil. These tanks are subject to compliance with state and federally regulations. Adherence to applicable safety procedures should minimize the potential risk of negatively impacting health and safety. The proposed action would have possible short-term minor adverse impacts.

3.13 Cumulative Impacts

Affected Environment

A cumulative effect is defined as the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a long period of time (40 CFR Part 1508.7). The following analysis abides by the National Environmental Policy Act (NEPA), Council on Environmental Quality's (CEQ) Considering Cumulative Effects under NEPA (CEQ, 1997), and Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ, 2005) (Table 3-11).

Environmental Consequences

According to CEQ regulations, the cumulative impact is defined as the impact on the natural and human environment, which results from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions. The proposed action must be evaluated with the additive effects of other actions in the project area to determine whether all the actions will result in a significant cumulative impact on the natural and human environment of the area. USACE has coordinated with USFWS, PA Game Commission, and PA Department of Conservation and Natural Resources to consider effects in adjacent lands in order to minimize adverse impacts.

The cumulative and incremental impacts as a result of the proposed action and future actions are expected to be beneficial. The proposed action must be considered along with the effects of other activities in the area to ensure that those actions are compatible and do not result in a significant adverse effect to the natural and human environment.

Future known activities at the Project include:

- Construction Activities
- General Operations and Maintenance Activities (utility repair and replacement, hazardous tree removal, tree trimming, trail maintenance, shoreline management, and fisheries management)
- Forest and Wildlife Management (timber sales, invasive species control, fruit/evergreen

tree plantings, nesting box installation/maintenance, field management, prescribed fire of grass communities, regeneration of riparian and upland shrublands via mechanized mowing, and population surveys)

- Prescribed Fire
- Pesticide Application (herbicide and insecticide treatments)

From 2016-2020 the Project averaged 2 acres of construction, 2 acres of general operations and maintenance, 183 acres of forest and wildlife management, 128 acres of prescribed fire, and 201 acres of pesticide application annually. The annual average cumulative impact from these activities is 516 acres. Over that 5 year period an estimated 2,578 acres have been cumulatively effected. The cumulative effects of these activities include minor disturbances within and/or adjacent to forest management activities.

Future forestry activities could as much as double the acreage affected annually from that of the 2016-2020 timeframe, although in most future years acreage affected is anticipated to be substantially less (Section 2). Accordingly, over the next 10 years, forestry activities could impact a maximum of up to 5,000 acres but the actual acreage of impact is likely to be thousands of acres less. No other Raystown Lake Project activities are expected to cumulatively affect the forest management activities. The cumulative effects of the forest management activities on other activities will be minor as well.

Project forestry activities are anticipated to act cumulatively with forestry and wildlife initiatives and activities of other agencies and organizations to maintain forests and forest health in the central PA region. Maintenance of Raystown Lake Project lands in a forested condition serves to maintain the watershed as a source of clean water for the lake and for Raystown Branch of the Juniata River, providing benefits extending downstream into the Susquehanna River Basin.

4.0 CONCLUSION

The proposed action will have short-term minor adverse impacts to topography, physiography, soils, and geology; air quality; climate change; and health and safety. In addition, the proposed action may possibly have short-term minor adverse impacts to prime and unique farmland; fisheries; wetlands, streams, and the lake conservation pool; water quality; invasive species; and threatened and endangered species. These impacts can be expected as a result of tree removal and establishment of log yards, skid trails, and haul roads. The use of proper silviculture management techniques and best management practices minimize these adverse impacts.

Short-term minor beneficial impacts associated with social and economic setting is anticipated due to employment opportunities with the hiring of workers for the harvesting, hauling, and processing of timber resources. The proposed action will have long-term beneficial impacts to land use and recreation; wildlife and migratory birds; invasive species; and threatened and endangered species. Beneficial impacts include increased forest stand growth and vigor, enhanced available food and cover for wildlife species, increased recreational opportunities, improved aesthetic values, and multiple-use management as directed by the Forest Cover Act of 1960. These benefits also include a decrease in the possibility and the severity of insect outbreaks, wildfire occurrences, and natural mortality. Based upon these considerations, it is evident that the beneficial impacts outweigh the adverse impacts of the proposed action.

Based on the evaluation of environmental effects summarized in Table 3-10, there are no significant adverse impacts from the proposed action, and a Finding of No Significant Impact (FONSI) has been prepared. The proposed action is in compliance with pertinent federal laws and statutes (Table 3-11).

Table 3-10. Summary of Effects of the Proposed Action.

Natural Resource	Proposed Action
Climate and Hydrology	No Impact
Topography, Physiography, Soils and Geology	Short-term Minor Adverse Impacts
Land Use and Recreation	Short-term Minor Adverse Impacts, Long-term Beneficial Impacts
Terrestrial Resources	Short-term Minor Adverse Impacts, Long-term Beneficial Impacts
Forests	Short-term Minor Adverse Impacts, Long-term Beneficial Impacts
Prime and Unique Farmland	Possible Short-term Minor Adverse Impacts
Shale Barrens	No Impact
Wildlife and Migratory Birds	Long-term Beneficial Impacts
Fisheries	Possible Short-term Minor Adverse Impacts
Wetlands, Streams, and Conservation Pool	Possible Short-term Minor Adverse Impacts
Wild and Scenic Rivers	No Impact
Navigable Waters under Section 10 of the Rivers and Harbors Act	No Impact
Waters of the U.S. (Section 404)	No Impact
Water Quality	Possible Short-term Minor Adverse Impacts
Invasive Species	Possible Short-term Minor Adverse Impacts, Long-term Beneficial Impacts
Threatened and Endangered Species	No Impact, Possible Short-term Minor Adverse Impacts, Long-term Beneficial Impacts
Cultural and Historic Resources	No Impact
Social and Economic Setting	No-Impact, Short-term Minor Beneficial Impacts
Environmental Justice	No Impact
Air Quality	Short-term Minor Adverse Impacts
Climate Change	Short-term Minor Adverse Impacts
Health and Safety	Short-term Minor Adverse Impacts

Table 3-11. Compliance with Federal Environmental Statutes and Executive Orders.	
Federal Environmental Statutes	Compliance
Anadromous Fish Conservation Act	N/A
Clean Air Act, as amended (Public Law 88-206)	FULL
Clean Water Act, as amended (Public Law 95-217)	FULL
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986	N/A
Endangered Species Act of 1973, as amended (Public Law 93-205)	FULL
Federal Water Project Recreation Act	FULL
Fish and Wildlife Coordination Act, as amended (16 United States Code [U.S.C.] 661, et seq.)	FULL
Forest Cover Act (Public Law 86-717)	FULL
Land and Water Conservation Fund Act	N/A
Magnuson-Stevens Fishery Conservation and Management Act	N/A
Migratory Bird Treaty Act of 1918 (Public Law 703-712)	FULL
National Environmental Policy Act of 1969 (Public Law 91-190)	FULL
National Historic Preservation Act of 1966, as amended (Public Law 89-665)	FULL
Noise Control Act of 1972, as amended	FULL
Resource Conservation and Recovery Act (Public Law 94-580)	N/A
Rivers and Harbors Act	FULL
Safe Drinking Water Act, as amended (Public Law 93-523)	N/A
Solid Waste Disposal Act of 1965, as amended	N/A
Toxic Substances Control Act of 1976 (Public Law 94-469)	N/A
Watershed Protection and Flood Prevention Act of 1954 (16 U.S.C. 1101, et seq.)	FULL
Wetlands Conservation Act (Public Law 101-233)	FULL
Wild and Scenic Rivers Act	N/A
Protection of Children from Health and Safety Risks (EO 13045)	FULL
Flood Plain Management (Executive Order 11988)	FULL
Protection of Wetlands (Executive Order 11990)	FULL
Federal Compliance with Pollution Standards (Executive Order 12088)	FULL
Environmental Justice in Minority and Low-Income Populations (Executive Order 12898)	FULL
National Historic Preservation Act of 1969 (Executive Order 11593)	FULL

5.0 AGENCY AND PUBLIC COORDINATION

The EA was coordinated with the following agencies having legislative and administrative responsibilities for environmental protection: U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Department of Transportation Federal Highway Administration, U.S. Department of Agriculture Natural Resources Conservation Service, Federal Emergency Management Agency, National Park Service, Pennsylvania Department of Environmental Protection, Pennsylvania Natural Heritage Program, Pennsylvania Department of Conservation and Natural Resources, Pennsylvania Game Commission, Pennsylvania Fish and Boat Commission, Huntingdon County Commissioners, and Bedford County Commissioners. A copy of the correspondence from the agencies that provided comments and planning assistance for preparation of the EA are in Appendix A.

A notice announcing availability of the draft EA for public review was sent to a mailing list that had been developed during preparation of the MP. Additionally, the public notice announcing draft EA availability was posted on the USACE Baltimore District website. The notice contained a web address (Uniform Resource Locator [URL]) from which a copy could be downloaded.

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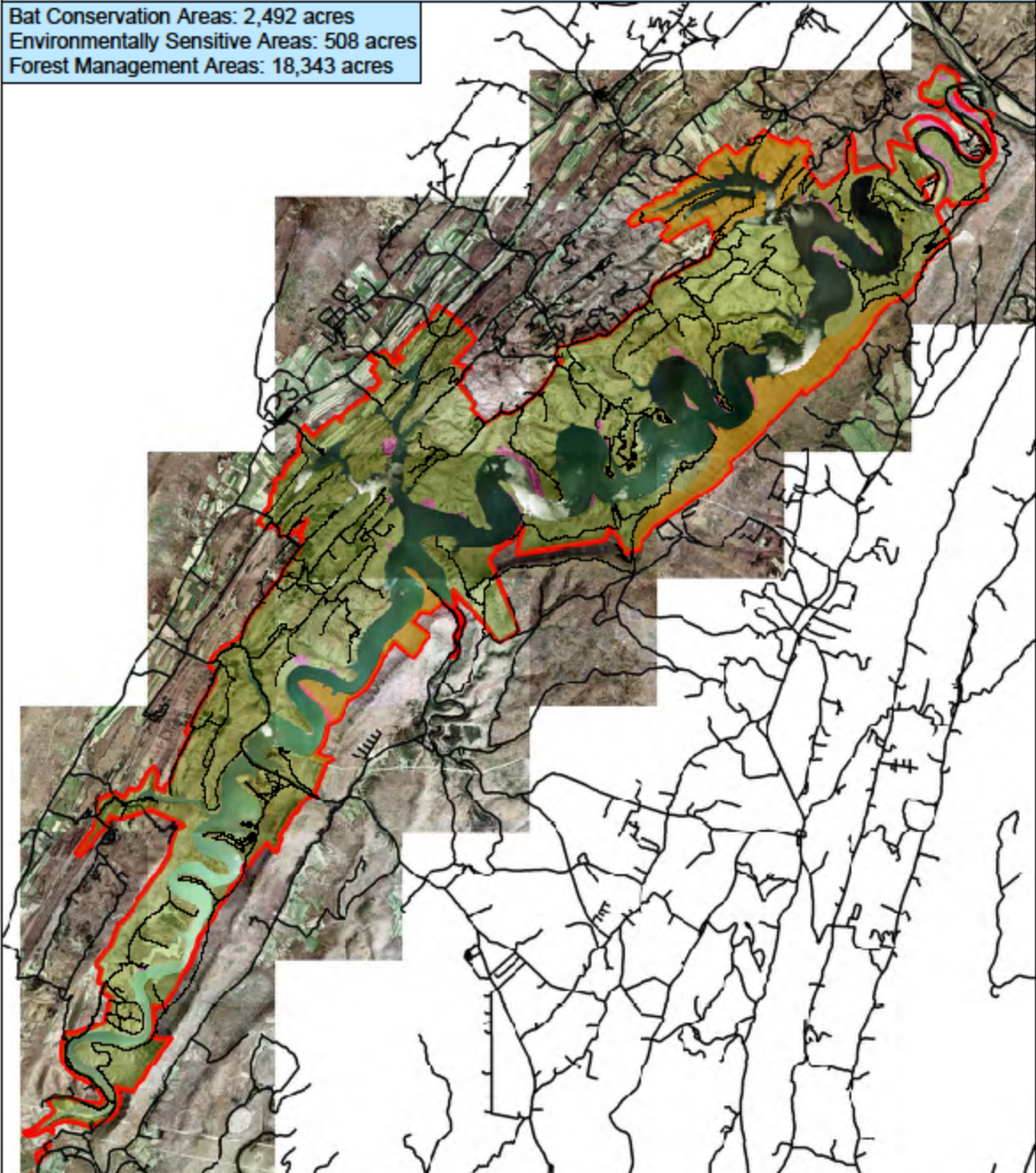
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Appendix A
Public Involvement and Correspondence

Appendix B
Maps of Forest Management Activities

Environmental Assessment for Forest Management Activities

Bat Conservation Areas: 2,492 acres
Environmentally Sensitive Areas: 508 acres
Forest Management Areas: 18,343 acres



Legend

- Roads
- Project Roads
- ▭ Bat Conservation Area
- ▭ Env. Sensitive Areas
- ▭ Forest Management Areas
- ▭ Project Boundary

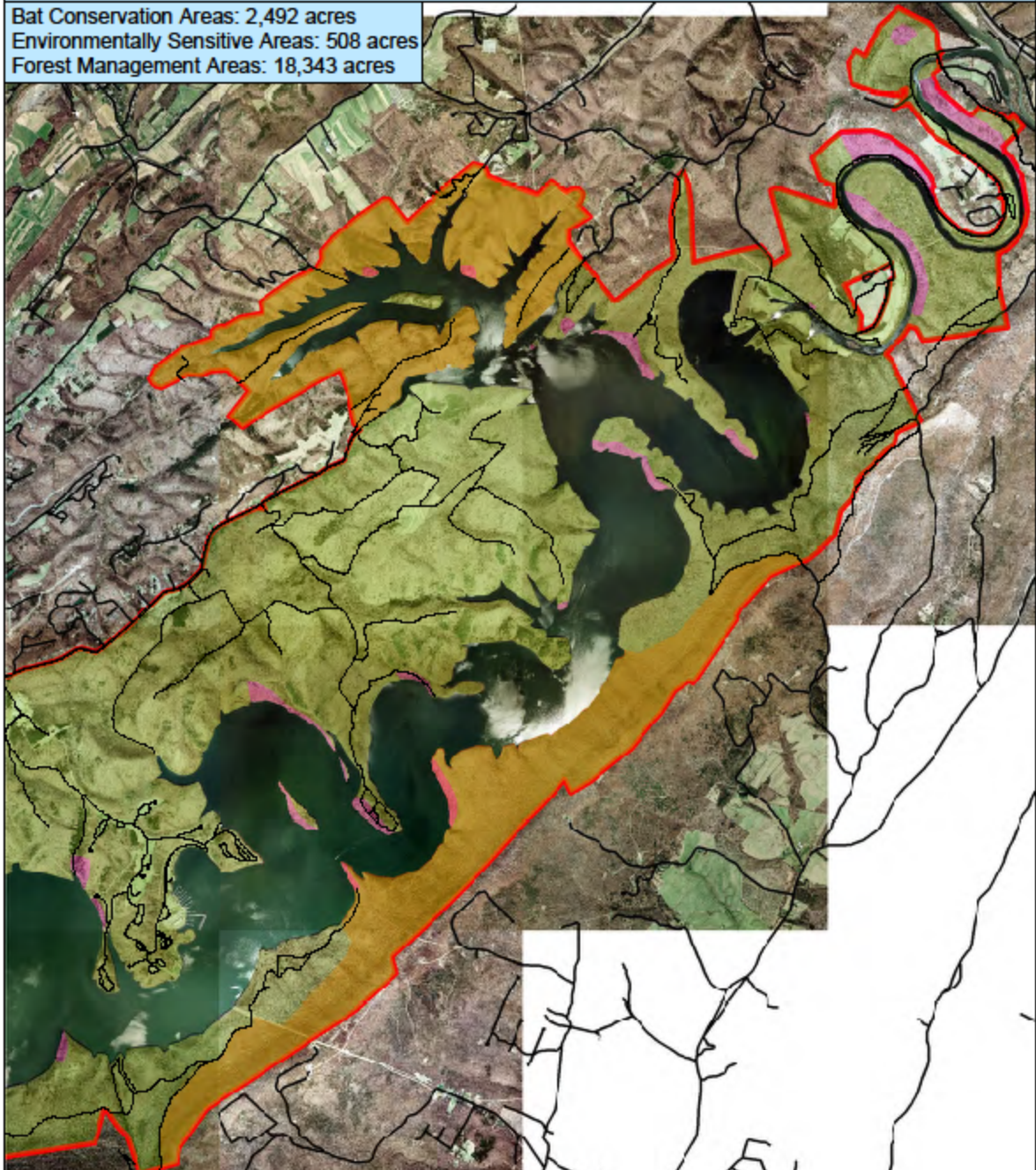
U.S. Army Corps of Engineers
Raystown Lake Project

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Environmental Assessment for Forest Management Activities - North

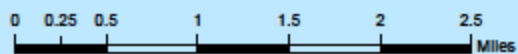
Bat Conservation Areas: 2,492 acres
Environmentally Sensitive Areas: 508 acres
Forest Management Areas: 18,343 acres



Legend

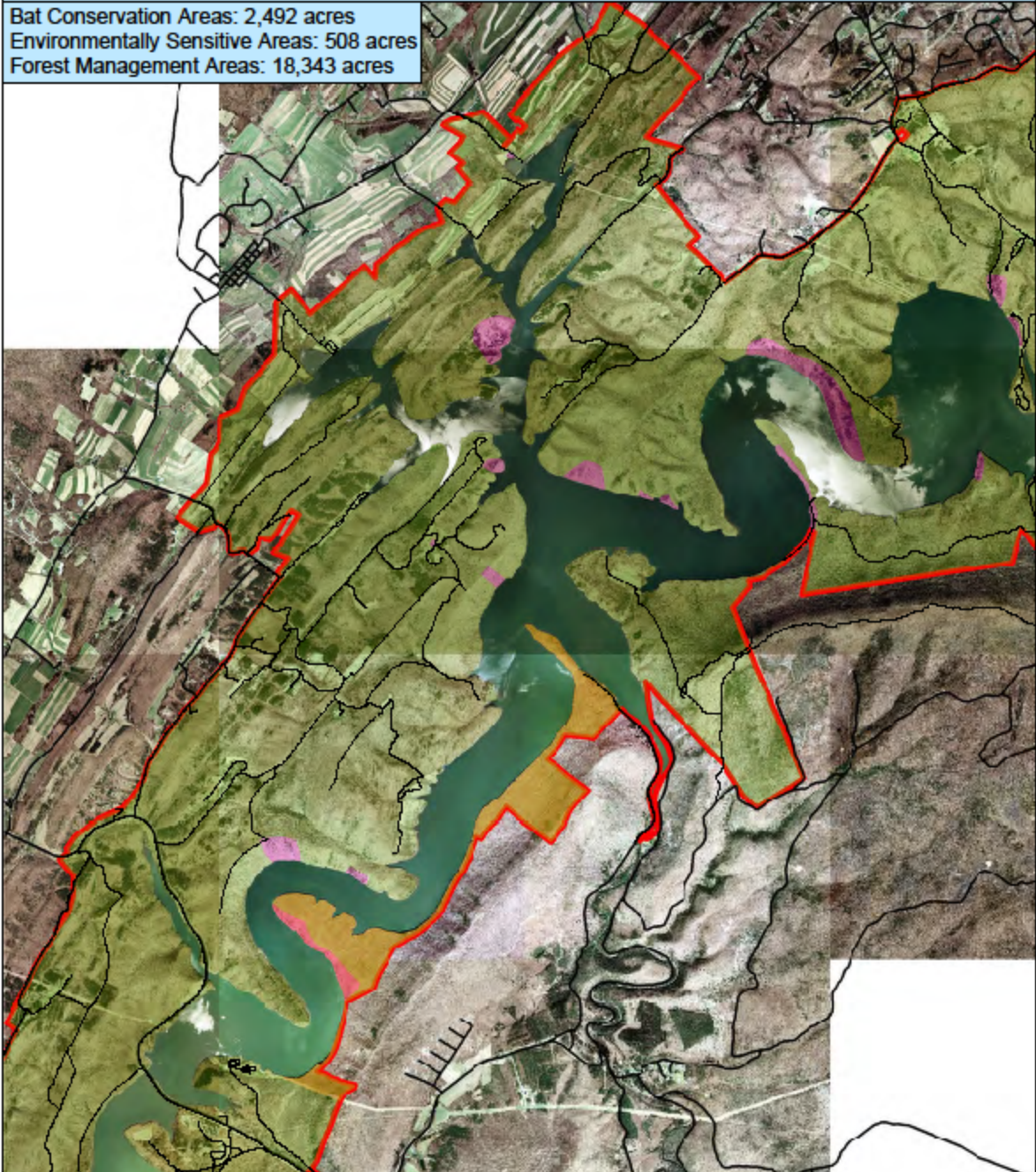
- Roads
- Project Roads
- ▭ Bat Conservation Area
- ▭ Env. Sensitive Areas
- ▭ Forest Management Areas
- ▭ Project Boundary

U.S. Army Corps of Engineers
Raystown Lake Project



Environmental Assessment for Forest Management Activities - Central

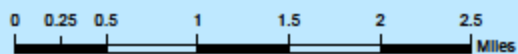
Bat Conservation Areas: 2,492 acres
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Legend

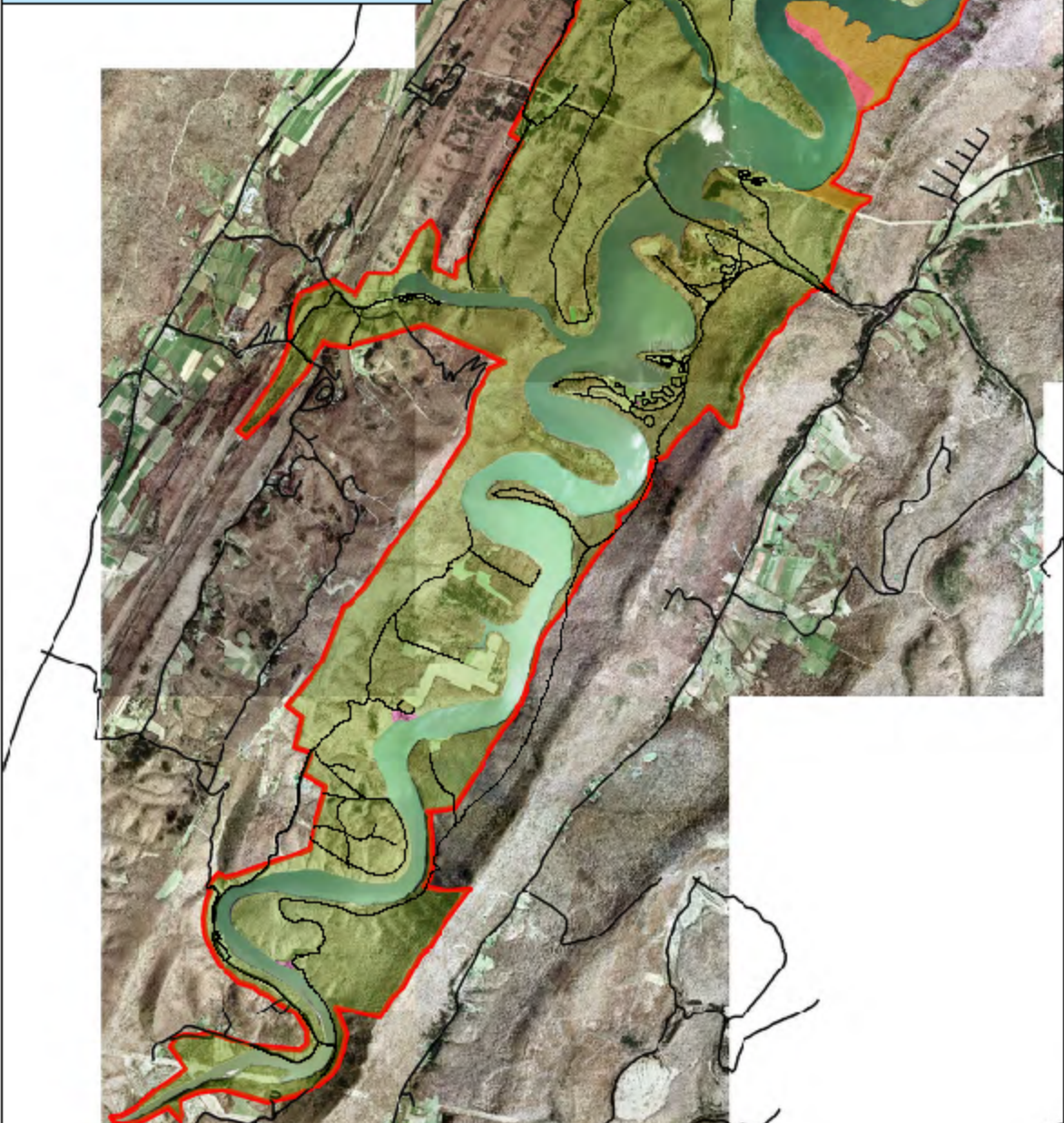
- Roads
- Project Roads
- ▭ Project Boundary
- ▭ Bat Conservation Area
- ▭ Env. Sensitive Areas
- ▭ Forest Management Areas

U.S. Army Corps of Engineers Raystown Lake Project



Environmental Assessment for Forest Management Activities - South

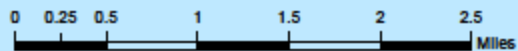
Bat Conservation Areas: 2,492 acres
Environmentally Sensitive Areas: 508 acres
Forest Management Areas: 18,343 acres



Legend

- Roads
- Project Roads
- ▭ Project Boundary
- ▭ Bat Conservation Area
- ▭ Env. Sensitive Areas
- ▭ Forest Management Areas

U.S. Army Corps of Engineers
Raystown Lake Project



Appendix C
Environmental Assessment, Raystown Lake Forest
Management Activities (2011)



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

FINDING OF NO SIGNIFICANT IMPACT

Forest Management Activities
Raystown Lake
Huntingdon County, Pennsylvania

In compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, the U.S. Army Corps of Engineers, Baltimore District (the Corps) has prepared an Environmental Assessment (EA) which evaluates and documents the potential environmental effects associated with the forest management activities on approximately 2,549 acres at Raystown Lake over a ten-year management period. The work involves approximately one percent of land base each year and will be completed after appropriate forest stand analysis and stand prescription for harvest. The analysis will include consideration of forest regeneration, soil conditions, potential for erosion, special wildlife considerations, endangered species searches, and review of the project cultural resources management plan. Objectives for the overall forest program are to conduct approximately 250 acres of forest management each year.

Four alternatives were identified ranging from regeneration of all forest lands to the no-action alternative. Due to known site restrictions and to meet sustainable forest goals the only alternatives which were evaluated in detail for this project are the Proposed Action (forest management at Raystown Lake) and No Action (no forest management). All natural and social environmental factors that may be relevant to the Proposed Action, including the cumulative effects thereof, were considered.

The proposed forest management actions will have minor short-term negative impacts including dust, air emissions, altered aesthetics, and noise from timber cutting activities. Other short-term minor adverse impacts include disturbance of soil, topography, and recreational resources. These impacts can be expected as a result of tree removal and establishment of loading decks, skid trails, and log roads within the timber stand. Short-term minor adverse impacts to prime and unique farmlands, surface waters, fisheries, and wetlands are also possible. However, the use of proper management techniques, such as best management practices for erosion control during silvicultural treatments, will minimize these negative impacts.

Short-term employment benefits associated with hiring workers to conduct timber harvesting activities are expected. The action will increase stand growth and vigor, enhance available food and cover for a variety of wildlife species, benefit recreational opportunities, improve aesthetics, and provide for multiple-use management as directed by the Forest Cover Act of 1960. These benefits also include a decrease in the possibility and the severity of insect outbreaks, wildfire occurrences, and natural mortality. Based upon these considerations, it is evident that the beneficial aspects outweigh the adverse impacts of the proposed action.

Upon reviewing the Environmental Assessment, I find that there would be no significant impacts to resources considered and that an Environmental Impact Statement is not required for the proposed project. A Notice of Availability for this Finding of No Significant Impact will be provided to all individuals who received a copy of the Public Notice.

A handwritten signature in black ink, appearing to read "D. Anderson", is written over a horizontal line.

David E. Anderson
Colonel, Corps of Engineers
District Engineer

Date: 10 March 2011



**US Army Corps
of Engineers**
Baltimore District

**FOREST MANAGEMENT ACTIVITIES
RAYSTOWN LAKE
HUNTINGDON COUNTY, PENNSYLVANIA**

ENVIRONMENTAL ASSESSMENT

MARCH 2011

**U.S. Army Corps of Engineers, Baltimore District
P.O. Box 1715
Baltimore, Maryland 21203-1715**

EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers, Baltimore District, prepared an Environmental Assessment for forest management activities on approximately 2,549 acres at Raystown Lake in Huntingdon County, Pennsylvania over a ten-year management period. The work involves approximately one percent of land base each year and will be completed after appropriate forest stand analysis and stand prescription for harvest. The analysis will include consideration of forest regeneration, soil conditions, potential for erosion, special wildlife considerations, endangered species searches, and review of the project cultural resources management plan. Objectives for the overall forest program are to conduct approximately 250 acres of forest management each year.

The Environmental Assessment was prepared in compliance with the National Environmental Policy Act and supporting regulations promulgated by the Council on Environmental Quality and the U.S. Army Corps of Engineers. Several alternatives were initially considered. Two alternatives, full forest regeneration and limited harvest, were eliminated from further study as they were not environmentally feasible or would not provide a long-term sustainable forest. The only alternatives identified for further Corps review are the Proposed Action (forest management at Raystown Lake) and No Action (no forest management). All natural and social environmental factors that may be relevant to the Proposed Action, including the cumulative effects thereof, were considered.

The proposed forest management actions will have minor short-term negative impacts including dust, air emissions, altered aesthetics, and noise from timber cutting activities. Other short-term minor adverse impacts include disturbance of soil, topography, and recreational resources. These impacts can be expected as a result of tree removal and establishment of loading decks, skid trails, and log roads within the timber stand. Short-term minor adverse impacts to prime and unique farmlands, surface waters, fisheries, wetlands, and unique habitats are also possible. However, the use of proper management techniques such as best management practices for erosion control during silvicultural treatments will minimize these negative impacts.

Short-term employment benefits associated with hiring workers to conduct timber harvesting activities are expected. The action will increase stand growth and vigor, enhance available food and cover for a variety of wildlife species, benefit recreational opportunities, improved aesthetics, and provide for multiple-use management as directed by the Forest Cover Act of 1960. These benefits also include a decrease in the possibility and the severity of insect outbreaks, wildfire occurrences, and natural mortality. Based upon these considerations, it is evident that the beneficial aspects outweigh the adverse impacts of the proposed action.

Based on the evaluation of environmental effects summarized in Table ES-1, there are no significant adverse impacts from the Proposed Action, and a Finding of No Significant Impact has been prepared.

Table ES-1 Summary of Effects of Proposed Action and No Action Alternative

Natural Resources	Proposed Action	No Action
Land Use	No Impact	Long-Term Minor Adverse Impacts
Topography And Drainage	Short-Term Minor Adverse Impacts	No Impact
Geology	No Impact	No Impact
Soils	Short-Term Minor Adverse Impacts	No Impact
Air Quality	Short-Term Minor Adverse Impacts	No Impact
Prime And Unique Farmland	Possible Short-Term Minor Adverse Impacts	Long-Term Minor Adverse Impacts
Surface Water Resources	Possible Short-Term Minor Adverse Impacts	No Impact
Fisheries	Possible Short-Term Minor Adverse Impacts	No Impact
Wetlands	Possible Short-Term Minor Adverse Impacts	No Impact
Terrestrial Vegetation	Long Term Beneficial Impacts	Long-Term Minor Adverse Impacts
Terrestrial Wildlife Resources	Long Term Beneficial Impacts	Long-Term Significant Adverse Impacts
Unique Habitat	Possible Short-Term Minor Adverse Impacts	Long-Term Minor Adverse Impacts
Rare, Threatened And Endangered Species	No Impact	Long-Term Minor Adverse Impacts
Aesthetics	Short-Term Minor Adverse Impacts And Long-Term Benefits	Long-Term Minor Adverse Impacts
Wild And Scenic Rivers	No Impact	No Impact
Hazardous, Toxic, And Radioactive Substances	No Impact	No Impact
Cultural Resources	No Impact	No Impact
Socio-Economic Conditions	Short-Term and Long-Term Minor Beneficial Impacts	Long-Term Minor Adverse Impacts
Recreation	Short-Term Minor Adverse Impacts And Long-Term Beneficial Impacts	Long-Term Minor Adverse Impacts
Noise	Short-Term Minor Adverse Impacts	No Impact
Children's Safety	No Impact	No Impact
Environmental Justice	No Impact	No Impact

TABLE OF CONTENTS

1.0	PURPOSE AND NEED OF THE PROPOSED ACTION	1-1
1.1	Introduction.....	1-1
1.2	Purpose	1-1
1.3	Authorities	1-3
1.3.1	Guidance:.....	1-3
1.4	History of Forest Management at Raystown	1-4
1.5	Prior Reports and Related Studies	1-4
1.6	Public Involvement Program	1-6
2.0	DESCRIPTION OF PROPOSED ACTIONS	2-1
2.1	Regeneration Harvest.....	2-1
2.2	Uneven Age Management	2-2
2.3	Wildlife Specific Harvest.....	2-2
2.4	Timber Stand Improvement (TSI)	2-2
3.0	CURRENT ENVIRONMENTAL CONDITIONS.....	3-1
3.1	Land Use.....	3-1
3.2	Topography and Drainage	3-1
3.3	Geology.....	3-1
3.4	Soils	3-2
3.5	Air Quality	3-2
3.6	Prime and Unique Farmland	3-2
3.7	Aquatic Resources	3-3
3.7.1	Surface Water	3-3
3.7.2	Fisheries	3-3
3.7.3	Wetlands	3-5
3.8	Terrestrial Resources	3-5
3.8.1	Vegetation.....	3-5
3.8.2	Terrestrial Wildlife	3-5
3.9	Unique Habitats	3-6
3.9.1	Wetlands	3-6
3.9.2	Shale Barren Habitats	3-6
3.9.3	Floodplains	3-6
3.10	Rare, Threatened, and Endangered Species.....	3-6
3.11	Aesthetic Resources.....	3-7
3.12	Wild and Scenic Rivers.....	3-8
3.13	Hazardous, Toxic, and Radioactive Waste (HTRW).....	3-8
3.14	Cultural Resources.....	3-9
3.14.1	Prehistoric Background.....	3-9
3.14.2	Historic Background.....	3-10
3.15	Social and Economic Setting	3-11
3.16	Recreational Resources.....	3-11
3.17	Noise.....	3-12
3.18	Child Health and Safety.....	3-13
3.19	Environmental Justice.....	3-13
4.0	ALTERNATIVES CONSIDERED	4-1
4.1	No Action Plan	4-1
4.2	Proposed Action.....	4-1
4.3	Alternatives Eliminated from Detailed Study.....	4-1
5.0	EFFECTS OF THE PROPOSED ACTION AND ALTERNATIVES	5-1
5.1	Land Use.....	5-1

5.2	Topography and Drainage	5-1
5.3	Geology.....	5-1
5.4	Soils	5-1
5.5	Air Quality	5-2
5.6	Prime and Unique Farmland	5-2
5.7	Aquatic Resources	5-2
5.7.1	Surface Water	5-2
5.7.2	Fisheries.....	5-3
5.7.3	Wetlands	5-3
5.8	Terrestrial Resources	5-3
5.8.1	Vegetation.....	5-3
5.8.2	Wildlife Resources.....	5-3
5.9	Unique habitats	5-4
5.10	Rare, Threatened, and Endangered Species.....	5-5
5.11	Aesthetic Resources.....	5-5
5.12	Wild and Scenic Rivers.....	5-6
5.13	Hazardous, Toxic, and Radioactive Substances.....	5-6
5.14	Cultural Resources.....	5-6
5.15	Social and Economic Setting	5-7
5.16	Recreation	5-7
5.17	Noise.....	5-7
5.18	Children’s Safety	5-8
5.19	Environmental Justice.....	5-8
5.20	Cumulative Impacts	5-8
5.21	Irreversible and Irrecoverable Commitment of Resources.....	5-9
5.22	Summary	5-9
6.0	CONCLUSION.....	6-1
7.0	AGENCIES AND INDIVIDUALS CONSULTED	7-1
8.0	REFERENCES	9-1

APPENDICES:

- Appendix A Public Involvement
- Appendix B Maps of Forest Management Activities

List of Tables

Table ES-1	Summary of Effects of Proposed Action and No Action Alternative.....	ii
Table 2-1	Forest Management for 2011-2020	2-4
Table 3-1	Common Noise Levels	3-12
Table 5-1	Typical Noise Levels Of Construction Equipment.....	5-8
Table 5-2	Summary of Effects of Proposed Action and No Action Alternative	5-10
Table 5-3	Compliance with Federal Environmental Statutes and Executive Orders.....	5-11

List of Figures

Figure 1-1	Location of Raystown Lake	1-2
Figure 2-1	Raystown Lake Forest Compartments	2-3
Figure 3-1	Location of Raystown Lake Surface Water Features and County Lines	3-4

ENVIRONMENTAL ASSESSMENT
RAYSTOWN LAKE FOREST MANAGEMENT ACTIVITIES
HUNTINGDON COUNTY, PENNSYLVANIA

1.0 PURPOSE AND NEED OF THE PROPOSED ACTION

1.1 Introduction

The U.S. Army Corps of Engineers, Raystown Lake, located in central Pennsylvania (Figure 1-1), is comprised of over 29,000 acres of land and water, of which 18,000 acres are primarily forested. Other land types include grassland communities, agricultural lease, and recreational areas. The original forest consisting predominantly of the mixed oak-chestnut forest type and eastern white pine-hemlock forest type has been changed by many factors to the now predominantly mixed oak type. Historically, the forests surrounding the Project were heavily harvested and allowed to naturally regenerate. The result has been a forest comprised of mostly oak species and a loss of much of the white pine, hemlock, and spruce forests.

Many conditions exist that make active management a valuable tool for long-term sustainability of healthy forest. Invasive species have become well established within Pennsylvania's forest and require active treatments. Deer impacts on forest ecosystems have required active hunter management at Raystown to reduce deer numbers. Additionally, much of the Virginia pine at Raystown is reaching maximum age and is naturally dying out, hemlock stands are dying from hemlock woolly adelgid, and oak stands have suffered decades of bouts with gypsy moth. All of these challenges present a strong need to promote sustainable forestry through active timber management activities to insure a healthy forest for future generations.

This Environmental Assessment (EA) will evaluate the project lands and present forest management activities that include the goals of land conservation, forest management, wildlife management, and protection of critical resources which will enhance and sustain a viable ecological landscape on a regional scale. The U.S. Army Corps of Engineers, Baltimore District (Corps), has prepared this EA in accordance with the provisions of the National Environmental Policy Act (NEPA), the Council on Environmental Quality's (CEQ) regulations (40 CFR 1500-1508), and the Corps' Engineering Regulation (ER) 200-2-2, Procedures for Implementing NEPA, 4 March 1988.

1.2 Purpose

As land stewards of nearly 30,000 acres of land and water spanning a linear distance of over 30 miles, Raystown Lake recognizes its regional role to maintain an ecologically viable land base with large areas of forest ecosystems and smaller unique habitats. Within this role it is important that silvicultural, agricultural, and wildlife management measures provide a healthy ecosystem for the long-term, while providing a diversity of habitats across the landscape and supporting public needs.

The primary goal of the forest management activities is to insure the long term sustainability of healthy forest for public recreation, aesthetic value, and to support ecosystem and regional biodiversity. The continuation of active forest management will provide a diverse landscape of

different age forest that provides both young forest to support rapidly declining early successional wildlife and mature late successional forest for forest interior wildlife.



Figure 1-1 Location of Raystown Lake

1.3 Authorities

Forest management has been established under several Federal Regulations, Corps regulations, and Corps guidance.

Federal legislation and U.S. Army Corps of Engineers regulations, particularly the Forest Cover Act of 1969 (Public Law 86-717) and ER 1130-2-540, require the preparation of a forest/land management plan for each reservoir facility. Federal policy in 16 USC 580m states:

“It is declared to be the policy of the United States to provide that reservoir areas of projects for flood control, navigation, hydroelectric power development, and other related purposes owned in fee and under the jurisdiction of the Secretary of the Army and the Chief of Engineers shall be developed and maintained so as to encourage, promote, and assure fully adequate and dependable future resources of readily available timber, through sustained yield programs, reforestation, and accepted conservation practices, and to increase the value of such areas for conservation, recreation, and other beneficial uses: Provided, that such development and management shall be accomplished to the extent practicable and compatible with other uses of the project.”

1.3.1 Guidance

ER405-1-12. Section XII Timber Disposal: The sale of wood products from a civil works facility is a real property action and must follow real estate regulations under ER 405-1-12.

*The District Engineer(DE) is authorized, however, to dispose of standing timber or other forest products required to be removed incident to construction and operational requirements of the project; that which is generated incident to recreational development or the management of public park and recreational areas or wildlife management areas; or that **which is generated is accordance with approved forest management supplements** to the approved Master Plan.*

ER 1130-2-540. Project Operations, Environmental Stewardship Operations and Maintenance Guidance and Procedures: This guidance provides all civil works projects with details concerning the stewardship of Corps lands and waters. The following is the policy and mission statement of the ER.

1-2. Policy. It is Corps policy to apply principles of good environmental stewardship to the natural and cultural resources occurring on Corps administered and/or managed lands and waters. For the Corps the term “steward” shall mean manager of those public resources. Environmental stewardship shall include both passive and proactive management to sustain healthy ecosystems and biodiversity, and conserve natural resources, such that Corps lands and waters are left in a condition equal to or better than their condition when acquired, and such that those natural and cultural resources are available to serve the needs of present and future generations. Management plans will be prepared for all Corps administered lands and waters.

2.2-1 Mission Statement “The Army Corps of Engineers is the steward of the lands and waters at Corps water resources projects. Its Natural Resources Management Mission is to manage and

conserve those natural resources, consistent with ecosystem management principles, while providing quality public outdoor recreation experiences to serve the needs of present and future generations. In all aspects of natural and cultural resources management, the Corps promotes awareness of environmental values and adheres to sound environmental stewardship, protection, compliance, and restoration practices. The Corps manages for long-term public access to, and use of, the natural resources in cooperation with other Federal, State, and local agencies as well as the private sector. The Corps integrates the management of diverse natural resource components such as fish, wildlife, forests, wetlands, grasslands, soil, air, and water with the provision of public recreation opportunities. The Corps conserves natural resources and provides public recreation opportunities that contribute to the quality of American life."

1.4 History of Forest Management at Raystown

Fish and wildlife management is an original authorized project purpose for Raystown Lake. As construction of the lake was completed, the Baltimore District office coordinated with the Pennsylvania Game Commission to establish a 3,000 acre mitigation area to off-set impacts associated with the impoundment of Raystown Lake. In 1979, a real estate license and Memorandum of Understanding (MOU) were completed to establish the PA Game Commission as an operator of the 3,000 acres specifically for forest and wildlife activities. The established relationship with the PA Game Commission was provided only for mitigation and did not preclude the proper land stewardship and fish and wildlife project purpose for the remaining 26,000 acres.

In 1986, the Baltimore District completed a Forest, Fish, and Wildlife Plan which provided baseline conditions and project-wide recommendations. Recommendations in the plan included the establishment of several positions to implement forest, fish, and wildlife activities at Raystown Lake. Due to budget constraints, one temporary forester was hired during the early 1990's that completed numerous forest inventories, site prescriptions, pest suppression, and reforestation projects. These prescriptions led to the first timber harvest at Raystown Lake in 1995 proceeded by the completion of the associated 1994 Forest Management Activities Environmental Assessment.

Forest management grew to include more active timber management in 1999. The increase in activity resulted in the completion of several land management appendices to the Raystown Lake Operational Management Plan (OMP) in 2003. Chapter 13, Forest and Wildlife Management, and Chapter 14, Threatened and Endangered Species Management Plan, provide details on the philosophy and recommendations of project-wide natural resources activities and was used as reference document for this EA.

1.5 Prior Reports and Related Studies

1973 Final Environmental Impact Statement

During the construction of Raystown Lake, the Final Environmental Statement (EIS) was completed to document impacts of the construction of the dam and associated features.

The Final EIS stated that future project uses included natural resources recreation and fish and wildlife management.

1986 Forest, Fish, and Wildlife Management Plan

The 1986 Forest, Fish and Wildlife Plan was signed by the North Atlantic Division on 3 April 1986 approving the recommendations of the plan as part of the Master Plan. This plan outlined general principles for forest and wildlife management in each compartment and was reviewed by all District elements. Between 1986 and 1994, few actions were implemented, but the document provided a sound assessment of project resources and recommendations for forest and wildlife management. Many measures in this plan were originally recommended in the 1986 document.

1994 Forest Management Activities Environmental Assessment

Tree mortality prompted by heavy gypsy moth infestations throughout the late 1980's prompted the decision to salvage some of the dying oaks from several stands across the project. The 1994 environmental assessment was intended to cover all forest management activities at Raystown Lake with specific prescriptions and recommendations for compartments 10, 12 and 13. A Finding of No significant Impact (FONSI) was signed on April 15, 1994 and stated that there would be no significant impacts to the human environment associated with the implementation of proposed forest management activities in compartments 10, 12, and 13. Due to the limited recommendations on only a portion of the project and new emphasis on a total landscape approach through the updated Operational Management Plan, the 1994 EA will be replaced by this document.

1994 Raystown Lake Master Plan Update

The 1994 Raystown Lake Master Plan Update was a comprehensive plan that addressed future development of the project lands. The plan provides a guide for the use and development of natural and constructed resources at Raystown Lake. The Master Plan was developed over several years and included coordination with the public through several public workshops and correspondence with many Federal, State, and Local agencies. The plan, which provided general objectives for Forest, Fish, and Wildlife management programs, also included an Environmental Assessment and a Finding of No Significant Impact was signed on 15 February 1995. At the time of the development of the Master Plan, many more details were known about the potential development of recreational elements as compared to the natural resources features. The details for forest and wildlife management were too general to meet the intent of NEPA to make informed decisions about the proper management of natural resources.

1998-2001 Environmental Assessment for Gypsy Moth Suppression

Since the late 1980's, Raystown Lake coordinated with the U.S. Forest Service to protect the projects lands from gypsy moth destruction. From 1998 to 2001, the project staff

moved the program from a recreation lands spraying program to a project wide program to protect valuable forest and wildlife resources. Due to the larger extent of potential impacts, site-specific environmental assessments were conducted each year to insure proper decisions were made concerning potential impacts of pesticide applications. Intensive coordination with agencies, especially the U.S. Fish and Wildlife Service, prompted changes in application rates and pattern to insure protection of butterfly (*lepidotera*) communities around shale barrens and as a food source for the Federally endangered Indiana Bat. This coordination also provided insights for the development of protective measures for these species under other actions, such as forest management, and is incorporated into this report.

Operational Management Plan Updates

The operational management plans for civil works projects represent the working document for implementation of annual work plans. These documents, revised annually, include chapters and appendices providing details on the land management of the project's approximately 22,000 acres of land. Specifically, Appendix 13, Forest and Wildlife Management Plan, and Appendix 14, Threatened and Endangered Species Management Plan, outlined specific practices and locations for management of all 18 management compartments and critical resources across the project.

1.6 Public Involvement Program

Public involvement including agency coordination is a critical component of proper land stewardship at Raystown Lake. Public participation has occurred throughout the development of all the related reports and plans described in Sections 1.3 through 1.5 and will be paramount to the success of this document.

A Public Notice of the Corps' intent to prepare this EA was forwarded to various Federal and state agencies in August 2010. The Corps also sent separate coordination letters to the U.S. Fish and Wildlife Service (USFWS) and the Pennsylvania Historical and Museum Commission (PHMC) in August 2010. Copies of the Public Notice and all correspondence are located in Appendix A.

Once the EA is completed, a Notice of Availability announcing the availability of the EA and Finding of No Significant Impact (FONSI) will be provided to the same individuals who received a copy of the Public Notice.

All comments will be addressed in the final document. A list of agencies and organizations consulted is included in Section 7.0 of this EA. All correspondence can be found in Appendix A.

2.0 DESCRIPTION OF PROPOSED ACTIONS

The proposed actions include forest management activities on approximately 2,549 acres over the ten-year management period. The work involves approximately one percent of land base each year and will be completed after appropriate forest stand analysis and stand prescription for harvest. The analysis will include consideration of forest regeneration, soil conditions, potential for erosion, special wildlife considerations, endangered species searches, and review of the project cultural resources management plan. The management of the forest resources at Raystown is completed within forest management compartments as shown in Figure 2-1 and referenced in this document.

Objectives of the overall forest program are to conduct approximately 250 acres of forest management per year as broken down into the following management activities:

- 60 acres of regeneration cuts through even age, shelterwood, and seed tree harvest.
- 40 acres of uneven age management
- 50 acres of wildlife specific forest management including grouse cuts or forest openings.
- 100 acres of commercial and non-commercial thinnings, sanitation or salvage cuts.

The primary implementation of the following described forest management practices will be completed through commercial sale of timber products. The sale of forest products will follow Corps and Department of the Army regulations for disposal of real property. Notices of Availability will be prepared and coordinated through the Norfolk District Real Estate Office. Timber will be disposed through competitive solicitation and result in binding contractual agreements. The exact amounts and locations of harvest type each year will vary depending on site conditions, tree composition, special wildlife or environmental conditions, and results of the forest stand analysis discussed above.

2.1 Regeneration Harvest

Even age management is the practice of managing one age of timber by harvesting all trees at the same time. Typically, this involves a harvest of all trees from the site to a diameter of 4 inches. Even age management will be used as the primary management measure to accomplish regeneration of the forest stands across the project. Sizes of even age blocks will vary with objectives and range from 3 acres to 60 acres. Prescriptions will include the protection of approximately 10-15 sq. ft of residual basal area of different species and size classes. Special features such as snags, den trees, important seed sources, spring seeps, and uncommon species components will be protected on the sites. These protected areas may be reserved in clumps, corridors, or tree islands throughout the block.

Shelterwood cuts will be used on the project as a type of improvement and to achieve advanced seedling densities. The idea behind the shelterwood cut is to remove 40-50% of the forest canopy (approximately 40 sq. ft. basal area remaining) to allow more sunlight to the remaining trees which increases growth and also to allow sunlight to reach the forest floor to promote seedling germination and growth. This measure will also be made marketable by selling the pulpwood and the lower quality saw logs. Using the shelterwood method, generally one-third to

one-half of the mature trees are removed. This lightens the understory, but leaves a reserve of tall trees to serve as a source of seed and to partially shade the ground. As the desirable regeneration becomes established, a second cutting will leave approximately 20 percent of the stand for seed and wildlife use.

2.2 Uneven Age Management

Uneven age management is the practice of managing trees within a stand at different age classes. This type of stand will contain large saw timber, small saw timber, pole stage, and saplings all in the same stand. Harvesting of timber involves the selective removal of an equal amount of each age class to maintain the uneven age characteristics. Uneven management techniques will be utilized to promote a healthy sustainable forest structure in areas where even-age management presents potential aesthetic or environmental impacts. Uneven age management requires the harvest of a target percent of each age class within the stand. Uneven age management will be incorporated along permanent roadways, important watersheds, and scenic lake views.

2.3 Wildlife Specific Harvest

This measure is designed to provide relatively small (3-10 acre) forest openings to promote early successional growth. The development of a matrix or grid pattern of smaller cuts permits a rotation that provides different age stands directly adjacent to each other.

This technique provides maximum stem density for cover, adjacent mature trees for mast production, and intermediate stages to allow the rotation to continue. Seeding of temporary skid trails and landing areas provide temporary herbaceous areas for brooding. Further enhancement of these small openings can be accomplished through plantings of food crops such as soft mast species and the creation of winter thermal cover by planting clumps of spruce and other conifer species.

2.4 Timber Stand Improvement (TSI)

Timber stand improvement (TSI) is an activity that will be implemented to improve the overall quality of the forest stand for both timber quality and wildlife. This type of management prescription will be identified on a site by site basis. In most cases a thinning either light, medium or heavy, depending upon site conditions, basal area, size class, and form, will be prescribed.

The most important form of tending or intermediate cutting is thinning. Thinning is performed to regulate the distribution of growing space for the benefit of the remaining crop but not to vacate enough space to start a new one. As a guide, stand basal areas should not fall below 60 units. A series of thinnings, over a long period of time, (determined by crop rotation length) is usually required. This treatment technique will help ensure only the most vigorous and desirable species remain in the stand as the final crop. This treatment also provides for increased in the shrub layer through increase in seedlings and saplings as a result of increased seedling growth and stump sprouting. These treatments that are performed later in the rotation will form a two-age stand with a well developed shrub layer. Weeding and cleaning are included in thinning

activities. Weeding is concerned with competition from herbaceous growth such as grasses and ferns, while cleaning concentrates on crown competition from grapevine and other undesirable growth. Herbicides, prescribed burning, and mechanical removal are used quite effectively to accomplish these two treatments.

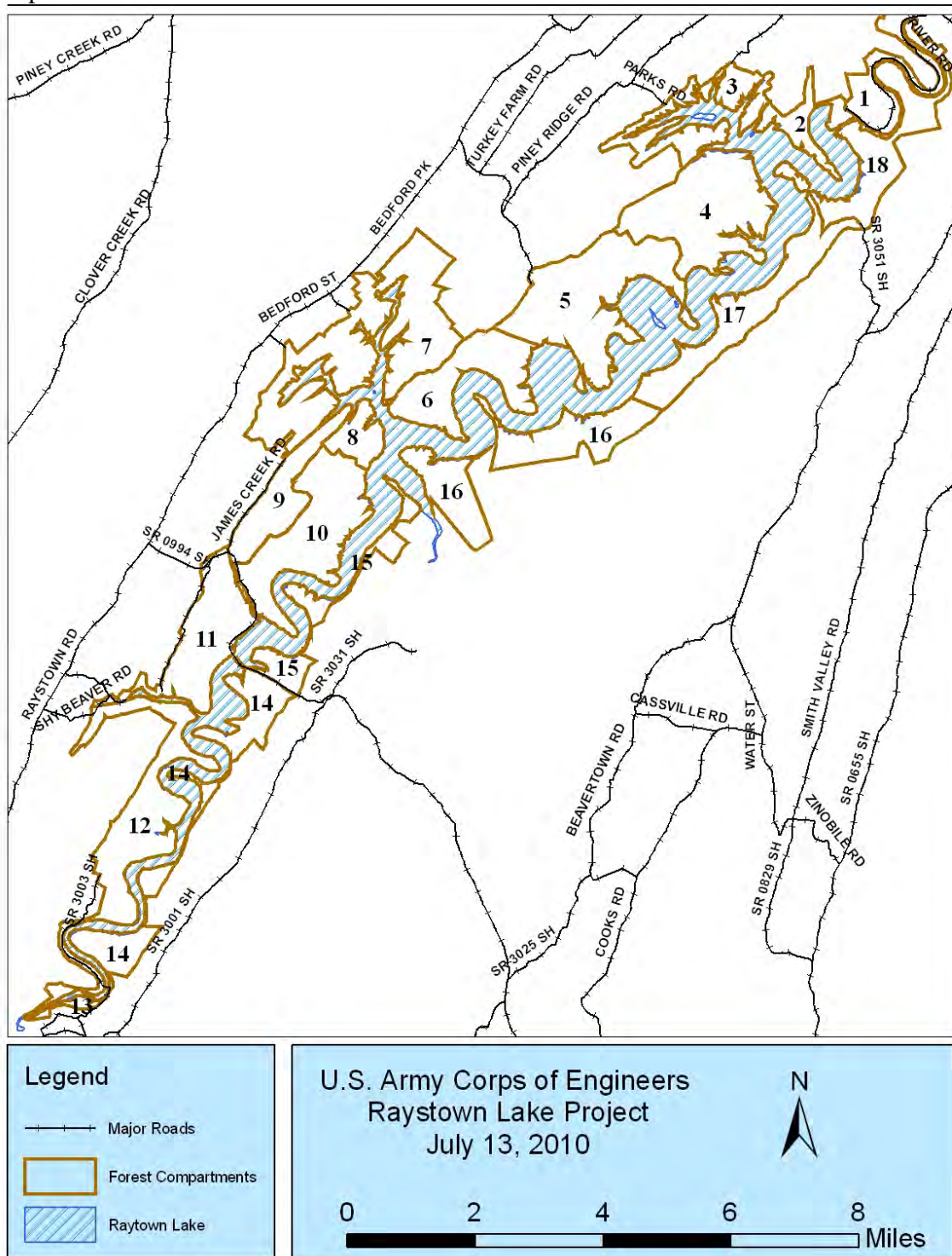


Figure 2-1 Raystown Lake Forest Compartments

The location of the expected forest management has been tentatively set and presented in maps found in Appendix B. These locations have already taken into account early environmental work and site conditions to avoid issues with erosion, impacts to sensitive environmental areas (shale barren habitat or bald eagle nests), and to minimize impacts from obtaining access to the roads. The locations and boundaries of these tentative sales may change or shift as more information is gathered to insure protection of sensitive resources and to maximize ecological benefits. Table 1 shows the tentative timber harvesting activities proposed for the 2011-2020 period. The potential locations of these timber harvesting activities are shown in Appendix B.

Table 2-1 Forest Management for 2011-2020			
Forest Compartment	Total Acres	Acres of Management	Forest Type
1	650	95	Northern Hardwoods, Oak
2	420	18	Oak, Pine
3	927	33	
4	1,840	71	Northern Hardwoods, Oak
5	2,150	147	Northern Hardwoods, Oak, Pine
6	1,151	202	Northern Hardwoods, Oak
7	2,757	0	
8	363	0	
9	783	132	Northern Hardwoods, Oak, Pine
10	1,615	312	Northern Hardwoods, Oak, Pine
11	1,256	136	Oak, Pine
12	1,759	211	Northern Hardwoods, Oak
13	82	0	
14	1,220	240	Northern Hardwoods
15	632	51	Northern Hardwoods, Oak
16	1,582	530	Northern Hardwoods, Oak, Pine
17	1,367	63	Northern Hardwoods, Oak
18	1,130	308	Northern Hardwoods, Oak
Total:	21,684	2,549	

3.0 CURRENT ENVIRONMENTAL CONDITIONS

3.1 Land Use

Land use in the immediate study area ranges from urban activities such as railroad, highways, residential, commercial, industrial, and public lands, to open, extensive types such as agriculture, woodlands, wetlands, and parkland. The land use sectors with greatest amount of acres are in woodlands and agricultural uses. These two categories account for about 90 percent of the land use in the study area.

3.2 Topography and Drainage

The Project is located in the ridge and valley region of Pennsylvania that is known for the narrow ridges and broad valleys which run northeast-southwest through the state. The Raystown Branch headwaters begin on the west side of the Allegheny Front near Roxbury, Pennsylvania. The river flows easterly for about 48 miles to a point near Breezewood, Pa then meanders north for about 76 additional miles to its confluence with the Juniata River about three miles south of Huntingdon, Pennsylvania.

The area along the Allegheny Front and in the Raystown Valley ranges in elevation from 601 feet National Geodetic Vertical Datum (NGVD) at the dam site to 2,940 feet NGVD on the Allegheny Front. Visible relief reaches 1,800 feet and ranges well over 1,000 feet for many miles along the ridges that surround the lake. Access from one valley to another is generally through deep notches or gaps cut through the mountains by streams. The slope of the Raystown Branch between its mouth at Dunning Creek and the dam site averages five feet per mile. The slope of the channel above this point averages 20 feet per mile.

3.3 Geology

The severely folded layers of sedimentary rocks in this region have produced structural features that are primarily a series of anticlines and synclines. These features extend from approximately N. 25 degrees E. in southwestern Pennsylvania to approximately N. 75 degrees E. along the Susquehanna River.

A line extending from the southeast to the northwest between Marklesburg and Trough Creek State Park passes through outcrops of rocks of increasing age and marks the change in strike and dip. The younger rocks, those of the Pocono formation, occur on the southeast border of the area.

The majority of the Raystown Lake area is underlain by three geologic formations. They are the Pocono of Mississippian age, the Catskill of upper Devonian age, and the Chemung formation of upper Devonian age.

The Pocono formation is a gray to green, coarsely grained, thick bedded sandstone, which occurs locally as a conglomerate and has thin beds of shale. The uppermost sandstone member of the

Pocono (the Burgoon sandstone) acts as a cap rock for Terrace Mountain with thicknesses ranging from 50 to 240 feet. Approximately 800 feet of green shale and gray sandstones with some conglomerate, red shale, and small amounts of coal underlie the Burgoon member. This accounts for a total Pocono thickness of 450 to 1,175 feet.

The Catskill formation consists mainly of red to brown shale, but also contains red, brown, green and gray sandstone and gray and greenish shale. Much of the shale found in this formation is a lumpy mud rock. Some of the sandstones are cross-bedded and the formation ranges in thickness from 1,200 to 5,500 feet. The Chemung formation is mainly drab green, brown, and chocolate colored shaley sandstone, but contains some thin silt stones, sandstones, and conglomerates and ranges in thickness from 0 to 3,500 feet.

Raystown Lake lies in a valley composed of level flood-plain areas and surrounded by hills of Catskill rocks. The project is characterized by the Raystown Branch of the Juniata River having cut its channel almost entirely in the rocks of the Catskill formation. The main reasons for this are the softness of the shale in this unit, as compared to that of adjacent units in the area; and the fact that it makes up some two thirds of the formation.

3.4 Soils

Soils in the Raystown Lake area are predominantly those related to the Klinsville-Calvin-Albrights association. This soil association is found in hilly areas where the bedrock is siltstone and red shale. The soils are generally shallow to moderately deep and well drained.

Klinsville soils are found on steep slopes and ridge tops in areas of red shale; they are very shallow to shallow. Calvin soils are derived from the same materials but are shallow to moderately deep; they occur on gently to moderately steep slopes. Albright soils are found in slight depressions and on lower slopes in association with the Klinsville and Calvin soils.

3.5 Air Quality

According to the U.S. Environmental Protection Agency, Huntingdon County is in attainment for all of the National Ambient Air Quality Standards: sulfur dioxide, carbon monoxide, lead, nitrogen dioxide, 8-hour ozone, 2.5 micrometer particulate matter, and 10 micrometer particulate matter (USEPA 2010a). The project area is primarily rural and exhibits good air quality. Presently there are no factors that adversely affect the air quality in the project area.

3.6 Prime and Unique Farmland

In accordance with CEQ memorandum dated 11 August 1980, with regard to compliance with the Farmland Protection Policy Act, the effects of the proposed actions on prime and unique farmlands will be examined.

Prime farmland is available land that provides the best combination of physical and chemical characteristics for producing crops. A listing of prime farmlands in Huntingdon County, Pennsylvania, was provided by the county office of the U.S. Soil Conservation Service (SCS).

This list was cross-referenced with the Huntingdon County soil survey maps to determine the location of any prime farmlands at Raystown Lake.

The affected prime soils are the Albright, Barbour, and Philo series, specifically Albright silt loam, all Barbour soils, and Philo and Basher silt loams. Albright soils are found mostly on mountain foot slopes, and Barbour and Philo soils are primarily associated with floodplains. All three-soil types are defined by the SCS as being limited by frequent flooding and/or a seasonal high water table. All of the prime farmland soils within the affected area have been forested for over 70 years and have not been recently cultivated.

3.7 Aquatic Resources

3.7.1 Surface Water

Raystown Lake is the largest Corps of Engineers reservoir wholly within Pennsylvania and provides both excellent warm water and cold water fisheries. Raystown Lake provides 8,300 surface acres of aquatic habitat. The Pennsylvania Fish and Boat Commission (PFBC) provides management of the lake fishery, including the stocking of several game fish species. In fact, Raystown Lake is unique among reservoirs, in that it is the only highland reservoir in Pennsylvania. The creation and development of the lake environment, as well as stocking efforts by the PFBC, provide important contributions to the fish and wildlife, and recreation purposes of the project.

In general, the water quality of the lake is very good to excellent, being suitable for water-contact recreation and capable of supporting a diverse and healthy aquatic community. The lake develops a strong stratification by June, with a 10 to 20-foot epilimnion and a 23 to 33-foot metalimnion. The lake is clear, cold, and deep, with a well-oxygenated hypolimnion during the warm months. Lake waters are generally characterized as soft and slightly alkaline, with oxygen levels capable of sustaining fish life to the bottom of the lake. Pollutants entering the lake are currently minimal.

3.7.2 Fisheries and Aquatic Life

The PFBC assumes responsibility for the fisheries management of Raystown Lake. The PFBC began stocking the lake in 1973 in an effort to establish a "two-story" fishery unique to the Northeast. Generally, a stocking management plan is developed every four years based on the PFBC census of fish population. The existing reservoir supports a recreational cold and warm water fishery. The species sought by anglers include tiger muskellunge, chain pickerel, largemouth bass, black crappie, bluegill, striped bass, yellow perch, channel catfish, and brown bullhead. Pumpkinseed, carp, white sucker, rockbass, and several species of minnows (golden shiner, spotted shiner, common shiner, rosyface shiner, and fallfish) are also present. The lake and small streams entering the lake also support benthic invertebrates typical of warm water watercourses throughout Pennsylvania. No significant or rare aquatic communities are present within or adjacent to the areas proposed for management.

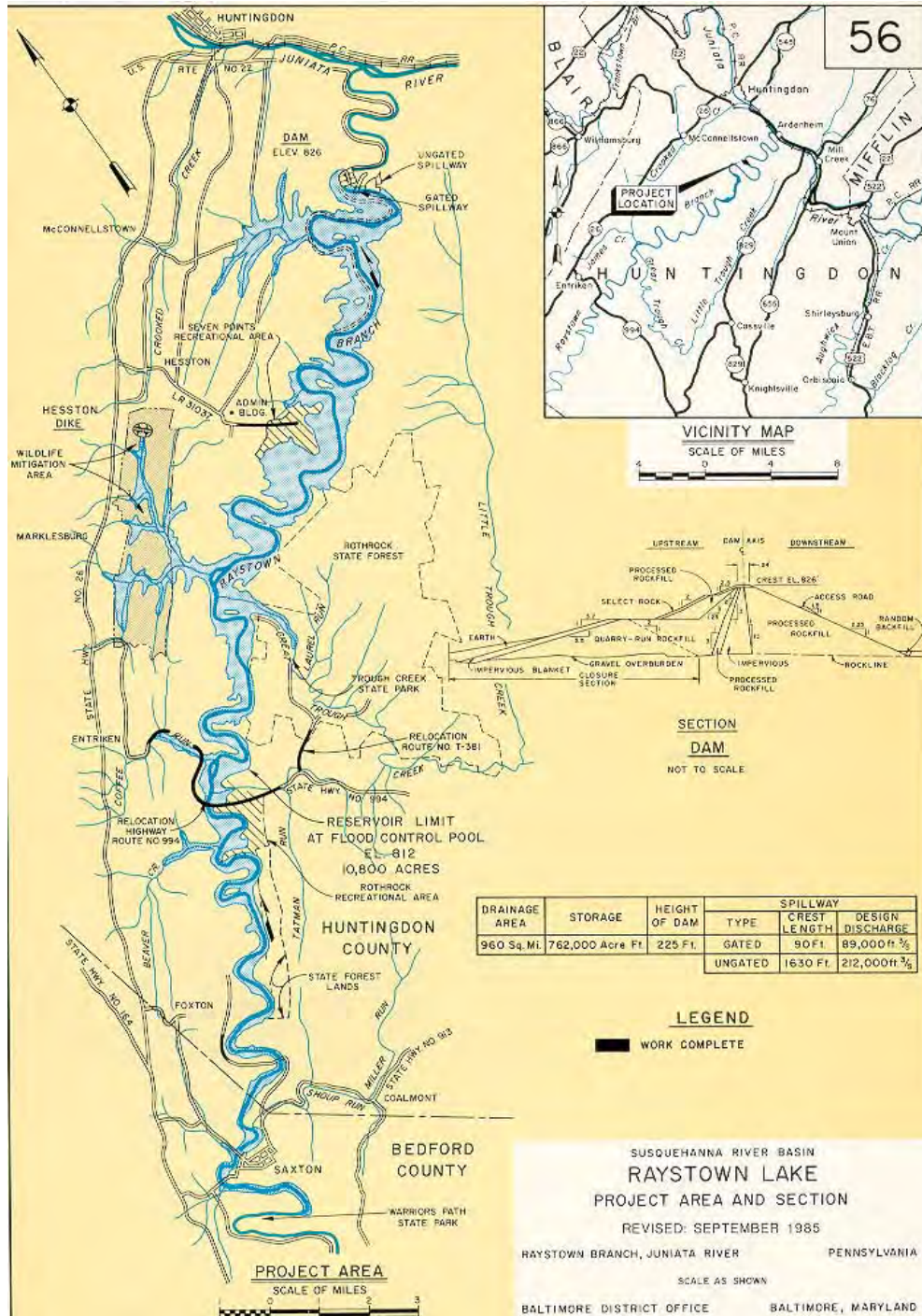


Figure 3-1 Location of Raystown Lake Surface Water Features and County Lines

3.7.3 Wetlands

Wetlands play an important role in the ecology of Raystown Lake by serving as nursery and feeding areas for various aquatic animals, filtering sediment and other pollutants from surface runoff, and helping to deter erosion. Wetlands comprise 166 acres, approximately 0.83% of the project lands at Raystown Lake. Generally, wetlands located on project lands are limited by the steep topography and are located in relatively flat, low-lying areas along the lake at the mouths of tributary streams. The four types of wetlands that exist on project lands are pocket wetlands, emergent wetlands, shrub/scrub wetlands, and submerged aquatic vegetation.

Despite the periodic drawdown of the lake due to minimum flow releases, the limited amounts of wetlands are of fair quality. Soils along the lake exhibit hydric characteristics and are saturated in varying degrees throughout the year. The lake has been operational since 1973; since this time a seed pool of wetland vegetation has developed and additional vegetation including invasive Eurasian milfoil.

3.8 Terrestrial Resources

3.8.1 Vegetation

The valley formed by Tussey and Terrace Mountains is predominantly forest covered. A narrow agricultural zone occupies Woodcock Valley, and some scattered agricultural activities occurred on flat land adjacent to the Raystown Branch. The forests are predominantly an oak-hickory association with scattered stands of Virginia and Jack pine. The vegetation types surrounding the lake are highly divergent, being influenced by soil, exposure, and topography. Some of the lakeshore is steep cliffs that support little plant life. The majority of the shoreline was cleared when the lake was constructed and has grown back with some small trees and scrub vegetation over the past 20 years. Understory for food and cover in most of the forested areas is sparse.

Hardwood forests cover the majority of the land surface of the project area. The association consists of various oaks, including white, scarlet, red, and black; hickories, including mockernut, pignut, and shagbark; flowering dogwood; tulip poplar; wild red and black cherry; and such shrubs and vines as shadbush, bittersweet, witch hazel, mountain laurel, mountain pink, huckleberry and northern fox grape. These hardwood forests have been heavily logged in the past and are now in second or third growth.

3.8.2 Terrestrial Wildlife

A great variety of wildlife habitats exist in the region. The most abundant of these are deciduous, woodland related habitats. Accordingly, the important wildlife in the area consists of game species such as white-tailed deer, wild turkey, ruffed grouse, and gray squirrel. An occasional bear may be seen, generally during the early summer when they roam widely in search of food.

3.9 Unique Habitats

Several unique habitats were identified within the project area, including wetlands, shale barren habitats, and flood plains.

3.9.1 Wetlands

Three wetlands found on project lands during earlier studies support populations of fringed gentian, an uncommon plant to western and central Pennsylvania. Least bittern, a State-designated threatened species, was confirmed during breeding bird surveys to be nesting in two lakeshore wetlands. Marsh wrens, a species of concern in Pennsylvania, were also observed nesting in cattail wetlands around the lake. Black terns, a State-designated endangered species, use these same wetlands during migration.

3.9.2 Shale Barren Habitats

The shale barren communities of Bedford, Fulton, and Huntingdon counties are one of the most unusual, and most endangered, vegetational ecosystems in Pennsylvania. These areas are few in number and small in size, but contain plant species known only in these limited habitats. Thus, the small total acreage and harboring of rare endemic species makes the barrens an important object for natural area preservation.

Shale Barrens contain unique communities of plants adapted to extreme soil and climatic conditions. Found on Devonian age outcrops of Chemung shale common to south central Pennsylvania, these cliff areas, and the associated endemic flora, occur when the proper southern exposure, low soil moisture, shallow or nearly nonexistent soil, and steep slope gradient combine to create a "barrens" situation.

There are at least 11 Appalachian shale barrens, considered extremely rare in Pennsylvania, located around the shoreline of Raystown Lake. These barrens support two rare plants -- Kate's mountain clover, a State-designated endangered species currently being considered for Federal listing, and the shale barrens evening primrose, a State-designated threatened species. Other uncommon plants to the area may also be found there. A population of eastern woodrats, a State-designated threatened species, were discovered along the Raystown Branch below the dam. Suitable habitat occurs elsewhere around the lake and other populations may be found in the future.

3.9.3 Floodplains

River bank areas near the upper end of the reservoir and downstream of the dam support populations of Virginia mallow, a State-designated endangered plant, American Beakgrass, a state-designated threatened plant and wild oats, a plant of special concern to the State.

3.10 Rare, Threatened, and Endangered Species

In their letter dated December 21, 2010, the USFWS indicated that Raystown Lake is in the

range of the federally-listed Indiana bat with the state's largest hibernaculum located approximately 11 miles away (Appendix A). Their letter provided forest management guidance for conserving Indiana bats which has been in use by the Raystown staff for the last 10 years

Although telemetry studies have shown Indiana bats traverse across Raystown Lake, no maternal roosting has been document on the project lands. The Corps has conducted over 200 survey nights of mist nest surveys since 2001. Most recent work included 50 net sites in 2009 that provide coverage for the Corps forest management program. All sampling was completed by certified bat surveyors and conducted in accordance with the USFWS guidelines. To date no Indiana bats have been captured.

The Northeastern bulrush is a Federally endangered plant that occupies specific wetland habitat in Huntingdon County. The high altitude bog type wetlands commonly associated with Northeastern bulrush are not found on Raystown property. Past monitoring efforts to determine the presence of Northeastern bulrush have found no plants present.

Bald eagles, a Pennsylvania state listed threatened species, nest, feed and rest along the shores of Raystown Lake. In the spring of 1998, a nesting pair of bald eagles was observed near Ridenour overlook on Corps property. The Corps works with the PA Game Commission to restrict access to the nesting area, monitor nesting success and provide public notification. In 1999, the first documented eagle hatched in a nest near the dam. Since that time, five additional nests have been established across the lake and have fledged 52 birds. Nest locations are near the dam, mile marker 10, Shy Beaver, Trough Creek State Park and Aitch. Monitoring and nest protections occur at each site. In addition, the lake may be an important wintering area for bald eagles; Mid-winter surveys are conducted and have counted as many as 19 individual eagles. The bald eagle also utilizes the entire project riparian area for wintering and feeding activities. This species is not a federally listed species, but as noted by the USFWS in their December 21, 2010 letter, is protected under the Bald and Golden Eagle Protection Act.

Other species having a state designation of state listed threatened or species of concern and currently exist or were once known to exist on project lands include the small footed bat, river otter, osprey, eastern hognose snake, Tennessee golden-rod, three-flowered melic grass, cattail sedge, pencilflower, torrey's mountain mint, great blue heron, barn owl, brook floater mussel, yellow lampmussel, Appalachian jewelwing, Illinois pondweed, grassy pondweed, and the slender pondweed.

Except for the occasional transient species and those listed in this section, no other Federally or state listed or proposed threatened or endangered species are known to exist in the project area.

3.11 Aesthetic Resources

The general landscape character of the study area is one of steep mountains and valleys intersected with numerous ravines, creeks, and runs. The lake is located between Terrace Mountain and Allegrippis Ridge, which account for many of the steep shorelines. The long, narrow lake follows the valley of the old riverbed and encompasses 8,300 acres. Elevations in the area of Raystown Lake range from 600 to 2000 feet NGVD. Most of the area is covered

with a deciduous hardwood (oak-hickory) forest, with associated understory. Interspersed into this natural system are man-induced or created landscape elements, including large and small towns, rural farmsteads, commercial development, roads, abandoned railroads, an operating railroad along the Little Juniata River, agricultural fields, the flood control dam, parks, and cemeteries.

The landscape character of the Raystown Lake area is consistent with the primarily natural, but mixed character of the surrounding area. The land surrounding the project continues to remain rural although the lake acts as a catalyst for development. Much of the land remains in agriculture; however, many small businesses have appeared in association with the lake.

Raystown Lake is a scenic attraction in the region with high visual quality. The large body of water, the striking topographic changes, and the mixed deciduous and evergreen forests are a testimony to this statement. Visitors often cite the natural beauty of the project as an important part of their recreation experience.

3.12 Wild and Scenic Rivers

According to the Pennsylvania Scenic Rivers Inventory, 1990, the Juniata River from Mount Union to Lewistown carries the highest priority classification (1A: Significant value in urgent need of protection and additional need for study) for consideration as part of the Pennsylvania Scenic Rivers Program. Two reaches of the Juniata River, Warrior Ridge to Mount Union and Lewistown to the Susquehanna River, carry priority classification (1B: less than immediate concern, but still have a need for protection). The proposed actions occur over 10 miles away from these river sections. The Raystown branch located near the proposed project would not be considered for designation due to the impoundment of the lake. No reach of the Juniata River is designated, under Congressional investigation, or being considered for Federal designation in the National Wild and Scenic River System (established by the Wild and Scenic Rivers Act, Public Law 90-542, as amended) (NPS, 2010).

3.13 Hazardous, Toxic, and Radioactive Waste (HTRW)

In accordance with the "Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects", dated 26 June 1992, a preliminary HTRW assessment was conducted for project lands at Raystown Lake. The U.S. Environmental Protection Agency's (EPA) Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) was consulted to determine the presence of current HTRW sites within Bedford County and Huntingdon County, Pennsylvania. A total of 26 sites were identified in the two counties. None of these sites are on project lands.

There are six pipelines which cross project lands. A total of approximately 23.25 miles of pipeline are located on project lands. These lines transport natural gas and petroleum products. All lines crossing the project are buried in at least three feet of soil or, where buried in rock, are at least one foot deep. At water crossings, all lines are under at least 60 feet of water, are also buried under the lake bottom, and some are encased in concrete. Pipeline companies have ongoing monitoring systems for these lines, and there have been no incidences of spills or leaks

since reservoir operations began in 1974.

There are numerous aboveground and underground storage tanks on project lands. These tanks store various substances, from potable water to diesel fuel, propane, and heating oil. All underground storage tanks are registered with the Federal and State governments and are periodically checked for leaks. The pipelines and storage tanks located on Corps property are not within the perimeter of proposed actions.

The use of pesticides, herbicides and fertilizers on Corps projects are limited to specific contractual actions separate from the proposed activities. No pesticides or fertilizers, other than over the counter pre-mixed sprays are stored on the project lands. All applications of pesticides and fertilizers follow Commonwealth of Pennsylvania regulations for applications and disposals and must include certified applicators.

3.14 Cultural Resources

3.14.1 Prehistoric Background

Raystown Lake lies within the Allegheny Mountain region in the Susquehanna River valley. As with other areas in the Mid-Atlantic region, the prehistory of this region can be divided into the PaleoIndian (13,000-7,000 B.C.), Archaic (7,000-1,000 B.C.), and Woodland (1,000 B.C.-1,500 A.D.) chronological periods.

The PaleoIndian occupation of the Susquehanna River valley is primarily marked by the occurrence of isolated finds of fluted points. Both PaleoIndian and Early Archaic (8,000-6,000 B.C.) sites are known primarily through surface finds or uncertain contexts.

Middle Archaic sites are defined by projectile points, especially the bifurcate point style, on Holocene terraces and upland surfaces in the Susquehanna River valley. The Late Archaic period in this region of the Susquehanna falls within a timeframe from about 3,500-1,000 B.C. and can be divided into various traditions which are almost as numerous as the number of point styles recognized for this time period. The Fishtail Phase marks the end of the Archaic period and the beginning of the Early Woodland period around 1,000 B.C. The Orient Fishtail point is the most common diagnostic artifact for this period. The Early Woodland period (1,000-300 B.C.) in this area of the Susquehanna is marked by the introduction of ceramics and an intensification of burial ceremonialism. The majority of evidence from this period is chiefly limited to surface finds of trade items along the major streams. For the Middle Woodland period (500 B.C.-A.D. 900) in the Susquehanna region, a Bushkill Complex, Fox Creek, and Kipp Island Phase are represented. Clemson Island occupations (A.D. 700-1200) in the Middle and Upper Susquehanna had maize as a firmly established crop and many fortified villages. Changes from previous periods show the settlement focus to have been on highly productive agricultural soils in bottomland areas. Shenks Ferry settlement types are typically small sites although some may be nucleated villages. Evidence of subsistence pursuits on Shenks Ferry sites includes corn, beans, and squash from the Lower Susquehanna valley. In the Middle and Upper Susquehanna region, maize agriculture was also present. The Susquehannock occupation of the Middle and Upper Susquehanna regions is marked by a very rapid occupation soon followed by desertion of the area.

3.14.2 Historic Background

Settlers came to Huntingdon County in the late eighteenth century, which brought about the end of the Native American occupation in this region. Between 1750 and 1800, settlers from Maryland and eastern Pennsylvania came to establish the region between the Raystown Branch and Juniata River valleys. Robert Ray, a trader, settled in the Raystown area in 1750. In the following year, the British built Fort Bedford on the southern shore of the Raystown Branch. This fort was used as a supply post for the British campaign against Fort Duquesne in 1758 during the French and Indian War.

Forests were cleared for farming in the Woodcock valley and in the fertile bottomlands along the Raystown Branch. Sawmills were built on many of the streams and large quantities of oak bark were shipped for use in tanning hides in the making of leather. The first gristmill, known as "Tub Mill," was built in Penn Township near "Station Farm." Another gristmill was built in 1844 on Shy Beaver Creek at its confluence with the river. Iron ore was dug between Mulberry and Warrior's Ridge and at the base of Tussey Mountain in Hopewell and Penn Townships for shipment to Johnstown and Danville. There were several iron furnaces in the area.

In 1854, the Huntingdon and Broad Top Mountain Railroad were built at the base of Terrace Mountain along the Indian trail known as Warrior's Path. The trains hauled coal from the Broad Top coalfields to Huntingdon. They also carried iron ore, lumber, and other local products. The railroad was removed in 1954. By 1820, post offices were established in Coffee Run, McConnellstown, Aitch, Cove Station, Shy Beaver, Grafton, and Markelsburg.

Local communities were established as the need for trade arose in the area. Most of the settlements were either along State Route 26, at the base of Tussey Mountain west of the Raystown Branch, or were built to the east of Terrace Mountain, adjacent to the Huntingdon and Broad Top Mountain Railroad after its construction in 1854. One of the earliest communities was Markelsburg, founded in 1844. Jacob Putt founded Puttstown in 1840; Coffee Run was first settled by James Entriiken, Sr. at the mouth of Coffee Run between 1790 and 1800.

Each township had several widely scattered schools, usually with one in each village. However, most were built after the Civil War. Churches were numerous throughout the valley. During the eighteenth and nineteenth centuries, timber was being cleared as part of the major lumber industry in the northeast of the United States. The region was largely based on a subsistence farm economy, with most farms producing for themselves, selling their surplus, and buying those few items which could not be made at home.

3.14.3 Existing Cultural Resources

During 2010, an Integrated Cultural Resources Management Plan was completed for the Raystown Lake project. Approximately 200 potential historic period site locations, and the location of previously identified prehistoric period sites, were mapped into a Geographic Information System (GIS) layer. One building, the Brumbaugh House, is currently listed in the National Register. There are three additional standing structures at Raystown Lake which are potentially eligible for National Register listing. There are about 40 known prehistoric

archeological sites within the project, but most of them have been destroyed by inundation. Two sites remain above the flood pool and are potentially eligible for National Register status, but have not been formally evaluated.

A predictive model and site sensitivity map were developed to identify areas of cultural sensitivity. The ICRMP is intended to serve as a how-to manual for Raystown Lake personnel to manage, plan, and prioritize the protection of cultural resources on the project. This ICRMP provides guidance needed to identify and effectively manage cultural resources at Raystown Lake.

3.15 Social and Economic Setting

The U.S. Census Bureau estimated that Huntingdon County had a population of 45,543 in 2008 (US Census Bureau 2010a). The projections of population, however, indicate a decline in the population growth of these two counties. Bedford County is expected to decline in population by nearly two percent in the period from 1990 to 2040. Huntingdon County is projected to grow modestly for a portion of the period and then is expected to decline in population after the year 2020.

While Huntingdon County is projected to experience a population decline early into the twenty-first century, the economic region that includes Huntingdon County is projected to grow about 15 percent for the 1995-2040 period. Even with this small growth rate, it exceeds the growth rate projected for the United States and the Commonwealth of Pennsylvania.

As of December 2009, the unemployment rate in the Commonwealth of Pennsylvania averaged 8.9 percent (US Census Bureau 2010a). In the project area, unemployment rates averaged around 9.5 percent. The unemployment rate in the project area is approximately equal to the 10 percent unemployment rate in the United States. These rates probably fluctuate frequently by one to three percentage points depending on the economic health of specific, large employers.

3.16 Recreational Resources

Recreation facilities in the region are mostly nature-based: picnicking, boating, camping, hiking, and natural areas. Nature-based recreation has become an important and growing segment of the regional economy because of Raystown Lake and other public lands. Public lands in Huntingdon County and neighboring Bedford County include Raystown Lake, Rothrock State Forest, Trough Creek State Park, Warriors Path State Park, and various State game lands. Raystown Lake is one of the few unlimited horsepower lakes in the region, and it has well-developed resorts, marinas, camping areas, and day-use facilities.

The Raystown Lake boundary encompasses a total of 29,314 land and water acres acquired in fee. Recreation resources are available throughout the project land, and consist of opportunities for active and passive recreation. Raystown Lake is a locally important economic and recreation resource. Well-developed facilities, unlimited horsepower boating, good fishing, a variety of nature-based resources and good scenic quality contribute to the importance of the resource. The lake attracts visitors from within Pennsylvania and from the surrounding states.

Water-related recreation facilities at the project include eleven boat launches, three beaches, and two marinas. The locations of the recreation areas are shown in the Master Plan. Nine boat launches are available for public use and they are located in the following recreation areas: Pennsylvania Fish and Boat Commission's site and Corbin's Island which are located downstream of the dam; Snyder's Run, Seven Points, Aitch, James Creek, Tatman Run, Shy Beaver, and Weaver Falls which are located along the reservoir. Seven Points Marina and Lake Raystown Resort are supported by a total of three boat launches. Beaches located at Seven Points and Tatman Run are open to the public, and the beach at Lake Raystown Resort is for users of the resort. The two concessioned marinas on the lake are located at Seven Points and Lake Raystown Resort.

3.17 Noise

Noise is traditionally defined as unwanted sound that interferes with normal activities in a way that reduces the quality of the environment. Magnitudes of sound, whether wanted or unwanted, are usually described by sound pressure. The two primary types of sources of sound that generate noise are: stationary and transient. Sounds produced by these sources can be intermittent or continuous. A stationary source is usually associated with specific land use or site, such as construction activities or the operation of generators. Transient sound sources, such as vehicles and aircraft, move through the area. The human auditory system is sensitive to fluctuations in air pressure above and below the barometric static pressure. The loudness of sound as heard by the human ear is measured on the A-weighted decibel (dBA) scale. The average person can be exposed to a sound source producing 90 dBA for a maximum of 8 hours without experiencing long-term hearing impairments. If the sound level is 100 dBA, then the maximum exposure is 2 hours. An unprotected ear can be exposed to 115 dBA for a maximum of only 15 minutes a day. For every 5 dBA increase above 90 dBA, the permissible exposure time is reduced by half. Examples of common noise level can be found in Table 3-1. Specific noise level data are not available for the area.

TABLE 3-1 COMMON NOISE LEVELS

Source	Decibel Level	Exposure Concern
Soft Whisper	30	Normal safe levels.
Quiet Office	40	
Average Home	50	
Conversational Speech	65	
Highway Traffic	75	May affect hearing in some individuals
Noisy Restaurant	80	
Pneumatic Drill	100	
Automobile Horn	120	
Jet Plane	140	Noises at or over 140 dB may cause pain.
Gunshot Blast	140	

Source: US EPA 2010b

3.18 Child Health and Safety

No children live within the Raystown Lake site. However, this recreational area is frequently visited by families with children.

3.19 Environmental Justice

In February, 1994 President Clinton signed Executive Order 12898, entitled “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” This EO directs Federal agencies “to make achieving environmental justice part of its mission by identifying and addressing, as appropriate disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low income populations in the United States....” The purpose of this order is to avoid the disproportionate placement of adverse environmental economic, social, or health impacts from Federal actions and policies on minority and low-income populations. In order to prevent the potential for discrimination and disproportionately high and adverse effects on specific populations, a process must identify minority and low-income populations that might be affected by the implementation of a proposed action or alternatives.

As defined by the “Environmental Justice Guidance Under NEPA” (CEQ, 1997), “minority populations” includes persons who identify themselves as Asian or Pacific Islander, Native American or Alaskan Native, black (not of Hispanic origin), or Hispanic. Race refers to Census respondents’ self-identification of racial background. Hispanic origin refers to ethnicity and language, not race, and may include persons whose heritage is Puerto Rican, Cuban, Mexican, Central or South American.

A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. Low-income populations are identified using the Census Bureau’s statistical poverty threshold, which is based on income and family size. The Census Bureau defines a “poverty area” as a census tract with 20 percent or more of its residents below the poverty threshold and an “extreme poverty area” as one with 40 percent or more below the poverty level.

As of the census of 2000 (US Census Bureau 2010b), there were 45,586 people, with 16,759 households residing in the Huntingdon County. The racial makeup of the county was 93.3 percent White, 5.1 percent African American, 0.2 percent Asian, 0.1 percent Native American, 1.1 percent Hispanic or Latino, and 0.8 percent from two or more races. The median income for a household in the county was \$33,313 and the median income for a family was \$40,388. The per capita income was \$15,379. About 8.2 percent of families and 11.3 percent of the population were below the poverty level.

The area is not considered to be one of poverty or of a minority population.

4.0 ALTERNATIVES CONSIDERED

The analysis of the alternatives is an evaluation of the alternatives for significant impacts against the baseline environmental, social and economic conditions described in Section 3.0. Section 5 will describe the expected affected environment or consequence of the alternatives and provide a comparison of extent and magnitude of impacts for the preferred alternative and the no action alternative. Various alternatives were considered but eliminated from the detailed study. Section 4.3 describes the alternatives considered and discarded during the identification of alternatives phase.

The preferred alternative was based on the determination of the overall degree of impacts and the ability to meet project forest management goals.

4.1 No Action Plan

This alternative would allow for no active forest management on the Raystown Lake Project lands and serves as the baseline for environmental analysis.

4.2 Proposed Action

This preferred alternative consists of timber harvesting and other silvicultural treatments necessary to improve long-term forest health and productivity. Multiple-use natural resource management techniques will be applied to project forestland with timber, wildlife management, aesthetics, recreation, erosion control, and watershed protection considered in the development of stand prescriptions. All harvesting treatments planned for FY 2011-2020 will be improvement thinnings or harvest cuts as described in Section 2.0 with final locations and quantities to be determined through continuous planning, adherence to environmental regulations, best management practices, protection of sensitive resources and changing environmental conditions. A total of approximately 2,549 acres of harvesting is planned for the ten year period. Appendix B represents tentatively identified areas which meet current goals, however, final harvest blocks may occur within anywhere in the identified forest compartments where the site meets environmental protections identified in this document. This action is the Preferred Alternative.

4.3 Alternatives Eliminated from Detailed Study

In developing the plan for the proposed project, several alternatives were considered but eliminated from further study. The following describes the eliminated alternatives and basis for elimination.

4.3.1 Full Regeneration Alternative

A standard industry and agency acceptable harvest rotation schedule is 100 years for oak-hickory and northern hardwood forest. Regeneration rotation of 100 years would require even age management of approximately 1 percent of forest lands or approximately 220 acres annually as

compared to 60 acres of regeneration stated in the preferred alternative.

Regeneration of all forest lands at Raystown would not be environmentally feasible due to site limitations and access, which would require additional road building and harvesting on steep slopes. Several areas are identified for even age management and long term maintenance of mature forest that will not be cut under the preferred alternative. Harvesting these areas would prevent specific vegetation and wildlife goals from being met. Also, with limited resources, including the capability of the staff, the full regeneration alternative would not be feasible. Due to the many site limitations, resource capability, and environmental concerns, the Full Regeneration Alternative was eliminated from further evaluation.

4.3.2 Limited Harvest Alternative

The limited harvest alternative would include only commercial timber harvest for salvage of damaged trees due to physical damage such as wind or damage caused by disease or pest. This alternative would also include non-commercial timber management that would fell trees rather than harvest them for profit. The acreage of management under this alternative would total approximately 50 acres per year.

The locations of activity, duration and magnitude would be difficult to determine as this alternative is largely based on unspecified future outbreaks of pest or disease and/or unknown funding to accomplish non-commercial timber management. Unlike the preferred alternative, the limited harvest alternative would not provide a long-term sustainable forest and most likely result in species composition changes to undesirable and invasive species. Due to the negative impacts of a reactionary program rather than a proactive program, the limited harvest alternative was eliminated from further evaluation.

4.4 Alternative Analysis

Table 4-1 outlines the alternatives evaluated and highlights impacts and reasons for inclusion or elimination for further evaluation.

Table 4-1 Comparison of Alternatives

Alt No.	Alternative Description	Summary of Impacts/Reason for Inclusion or Elimination
1	No Action	<ul style="list-style-type: none"> • Evaluated as baseline against the proposed action. • Eliminates the ability to meet sustainable forest goals. • Eliminates economic benefits of commercial harvest. • Eliminates creation of beneficial wildlife habitat.
2	Proposed Action	<ul style="list-style-type: none"> • Meets short and long term goals of sustainable and healthy forest. • Provides maximum benefits for wildlife habitat. • Provides economic benefit through commercial harvest. • Impacts are temporary and short term. • This is the preferred alternative.

3	Full Regeneration Alternative	<ul style="list-style-type: none"> • Provides for regeneration of all forest lands. • Environmental and site restrictions prevent full implementation of this alternative. • Limitations on staff capability may prevent implementation of this alternative. • Not considered for detailed evaluation.
4	Limited Harvest Alternative	<ul style="list-style-type: none"> • Only address diseased and damaged forest land objectives. • Does not provide for long-term sustainability of desired forest conditions. • Does not meet forest wildlife objectives. • Eliminates economic benefits of commercial harvest. • Not considered for detailed evaluation.

5.0 EFFECTS OF THE PROPOSED ACTION AND ALTERNATIVES

This section provides a brief description of potential impacts of the forest management activities on the natural and human environment. The no action which would include not implementing the recommended plan is included in the evaluation.

5.1 Land Use

No impacts to land use are expected from this proposed action.

The No Action alternative would have long-term minor adverse impacts on the area due to the reduction in recreational hunting and outdoor opportunities altering the land use of the Raystown Lake Project.

5.2 Topography and Drainage

Short-term minor impacts to topography and drainage from the Raystown Lake forest management practices are expected. Planning of all skid trails and timber sales will be completed to avoid changes in natural drainage and topography. Temporary water bars, straw bales, and other best management practices will be implemented to control temporary run-off to avoid channelization and other velocity impacts. No significant long-term impacts to topography or drainage are expected.

The No Action alternative would have no impact on the topography and drainage, as no new changes would occur.

5.3 Geology

Forest management activities associated with the proposed project will not involve intrusive activities associated with excavation that would penetrate water-bearing formations at any of the proposed sites. Therefore, impacts to geology are not expected.

No impacts to geology would occur with the No Action alternative.

5.4 Soils

Short-term minor adverse impacts to soils may occur along skid trails, landing areas, and haul roads where soil compaction and disturbance may occur. Due to the fact that timber across the landscape has been removed several times, the majority of skid trails and landing areas will occur along remnants of similar features and not cause undisturbed ground to be disturbed. Any skid trails or landing areas will be scarified and re-seeded to reduce compaction and promote vegetative growth. Areas that will not be utilized for future access for fires, maintenance, or other activities will be planted with native seedlings. An erosion control plan following specific guidelines of Pennsylvania sedimentation control laws will be prepared according to PA Chapter 102 regulations and kept on site during all work. Best management practices including stabilization of disturbed area will be employed. When acreage thresholds are met, appropriate

approvals, such as approval of erosion control plan by the Huntingdon County Conservation District, will be obtained.

The No Action alternative would result in no impacts to soils, as no new earthmoving, construction, or other activities would occur.

5.5 Air Quality

The Proposed Action would be expected to have a short-term, minor, localized effect on air quality due to emissions from timber harvesting equipment. Dust levels would rise slightly during these activities. No long-term impacts are expected. Emissions of ozone precursors (volatile organic compounds, nitrogen oxides) are expected to be *de minimis*, well below the threshold requiring a federal conformity determination (40 CFR 93.153). Emissions are expected to be in conformance with the Federal Clean Air Act as they are covered by Pennsylvania's State Implementation Plan (SIP) for projects such as this.

The No Action alternative would not change the existing air quality conditions, thus, it would have no impact on air quality.

5.6 Prime and Unique Farmland

The forest management activities will not have a significant effect on prime and unique farmlands described in section 3.0 Current Environmental Conditions. While these soils exist with the project area, all proposed areas have been in forest cover for over 60 years and no farming activities have occurred recently. As a result any possible impacts would be short-term and very minor in nature. No prime and unique farmland soils that are currently being farmed at Raystown Lake are proposed for forest management activities.

The No Action alternative would have some minor negative impacts by permitting the establishment of woody growth of primarily nuisance species in areas where prime farmlands are present.

5.7 Aquatic Resources

5.7.1 Surface Water

Impacts to surface water are expected to be minor from the implementation of timber harvest. All standard storm water control measures will be followed during harvesting and development of habitat areas to protect surface water quality. These measures could include preparation of construction entrances, water bars, and re-vegetation. An erosion control plan would be prepared and approved by the county conservation district for each timber sale. The plan will be reviewed with the on-site loggers and inspections will occur to insure compliance. Any deficiencies in meeting the plan will be addressed immediately or timber operations will cease.

The No Action alternative would not change the existing surface water conditions and no impacts to surface water would occur.

5.7.2 Fisheries

Because the forest management activities occur away from the aquatic environment they will not involve any direct modifications or impacts to the project fisheries. The implementation of stream and lake buffers and compliance with erosion control plans will prevent any significant fisheries impacts. Short-term minor impacts could be felt by the fisheries due to temporary increases in turbidity from sediments. These impacts would be minimized by implementing erosion control plans.

The No Action alternative would have no impact on fishery resources in the immediate or surrounding areas.

5.7.3 Wetlands

Raystown Lake is located in a narrow valley surrounded by steep, heavily wooded slopes. Therefore, impacts to wetlands associated with timber sales are expected to be minor and measures will be taken to avoid and minimize impacts to wetlands. During final selection of all timber sales, wetlands, seeps and watercourses will be identified and marked in the field. Contractors will be notified of any special wetland habitats to insure avoidance. If needed, all appropriate permits will be obtained and secured from state, federal and local agencies regarding work in or around wetlands prior to the start of any work in these areas.

The No Action alternative would have no impact on wetland resources in the immediate or surrounding areas.

5.8 Terrestrial Resources

5.8.1 Vegetation

The implementation of the forest management activities will provide improvements to the quality and distribution of species composition and diversity across the landscape. Low diversity forest will be managed to produce a higher diversity of disease resistant species. Forest stand improvements will be the largest practice implemented on the project and improve species composition and create better forest stand structure with an increase in understory density, diversity and long term sustainability of the project forest.

The No Action alternative would have long-term significant negative impacts on the vegetative community. The continued non-management of over 22,000 acres of land would continue the establishment of nuisance species and low diversity forests susceptible to pest and disease infestation. The current vegetation conditions of the forest of the Raystown Project will not be sustainable without active management.

5.8.2 Wildlife Resources

Numerous wildlife species such as birds, mammals, reptiles, and amphibians will benefit from the implementation of this plan. The changes in forest structure will increase available cover in the form of denser understory to provide cover for numerous small mammals and songbirds.

The development of two age stands with a well-developed understory and canopy will provide ideal conditions for foraging bats which will cruise below the canopy of a variety of insects. Even age management will provide important early successional habitat for a variety of wildlife including woodcock, grouse, and songbirds such as the golden-winged warbler.

The development of herbaceous openings in log landing location will create optimal brooding habitat by providing conditions that support a variety of insect life. Deer, turkey, and other wildlife will also benefit from the higher protein vegetation planted where haul roads, skid trails, and log landings are located. Game species will be attracted to several of the practices providing an increase in recreational opportunities and provide for increase in harvests. Letters from the National Wild Turkey Federation and their Pennsylvania Chapter (appendix A) indicate that the proposed forest management activities would provide for a wider range of forest age classes which would improve habitat for numerous species including wild turkey.

The Ruffed Grouse Society also indicated in their letter (Appendix A) that the proposed forest management activity would improve forest health, forest stands, forest regeneration, and wildlife habitat. Their letter also provided a bibliography of studies finding that management of large forest tracts for age class and structural diversity benefit a large number of forest wildlife species.

The No Action alternative would have a negative impact on a variety of wildlife. The lack of proper forest management, the loss of grasslands reverting to nuisance species, loss of hemlock stands due to aphid damage, loss of conifer cover due to age, and the overall lack of vegetation management provided in this plan would continue the degradation of valuable wildlife habitat across the project. This could ultimately lead to adverse impacts to sensitive and unique habitats and species.

5.9 Unique habitats

Several unique habitats were identified within the project area, which include wetlands and shale barren habitats. The Proposed Action could have a possible short-term minor impact on these habitats. However, each forest management practice that will be implemented was either chosen specifically for or located to avoid any impacts to sensitive resources. Buffers will be provided around unique habitats.

A 500-foot buffer will be provided to all shale barren habitats, which includes the dry forest habitat transition area around shale barrens. As a result, no impacts are anticipated to this resource from this Proposed Action.

As indicated in Section 5.7.3 above, possible impacts to wetlands associated with timber sales are expected to be short-term and minor. Measures will be taken to avoid and/or minimize impacts to wetlands. During final selection of all timber sales, wetlands, seeps and watercourses will be identified and marked in the field. Contractors will be notified of any special wetland habitats to insure avoidance. All appropriate permits will be obtained and secured from state, federal and local agencies regarding work in or around wetlands prior to the start of any work in these areas.

The No Action alternative would have no direct impact on sensitive or unique habitats, but this alternative would allow the forest habitat to degrade leading to possible long-term adverse impacts to these areas.

5.10 Rare, Threatened, and Endangered Species

No impacts to rare, threatened, and endangered species are expected from the Proposed Action. Each forest management practice that will be implemented under this plan was either chosen specifically for or located to avoid any impacts to sensitive resources. Buffers will be provided around sensitive habitats to include bald eagle nest, shale barren habitat, streams, and wetlands.

To avoid potential impacts to Indiana bats, mist net surveys will be conducted in accordance with guidelines provided by the Fish and Wildlife Service, in their December 21, 2010 letter. Where past mist nets coincide with proposed forest management adverse effects are not expected. In areas without negative mist-net survey results, the Corps will either conduct surveys or follow Fish and Wildlife Service guidelines under *Forest Management Practices for Conserving Indiana Bats and Summer Habitat*. These conservation measures will protect potential roosting habitat and include protection of snags, dens and trees with defoliating bark, buffers of riparian areas, canopy retention and harvesting time restrictions. The protection of these features along with canopy openings to provide increased tree bole warming and forage openings should increase habitat for all bats including the federally protected Indiana bat.

The Corps has recently completed 50 mist net surveys on areas to be harvested in the next five years and will complete additional surveys as needed for future timber harvest to minimize potential impacts on Indiana bat roosting. Timber management in areas where mist net surveys have not been conducted will follow guidelines provided by FWS.

Other species of concern, such as bald eagles, osprey, and state listed species associated with shale barren habitat, will be protected with buffers from forest management. A 500 foot buffer will be provided to all shale barren habitats, which includes the dry forest habitat transition area around shale barrens. No activity will occur within 1000 feet of an active bald eagle nest. The Threatened and Endangered Species Management Plan will be evaluated prior to each timber sale and the boundary or type of activity will insure protection of species of concern and their habitat including state listed species.

The No Action alternative would have no impact on rare, threatened, or endangered species in the immediate or surrounding areas. However, it should be noted, that the No Action alternative would allow the forest habitat to degrade which could lead to long-term adverse impacts to Indiana bat habitat and to sensitive habitats.

5.11 Aesthetic Resources

Short-term adverse impacts to aesthetics are anticipated due to the timber harvesting activities. Even age management, which would have minor temporary aesthetic impacts, will be located in areas where recreational use and scenic views from the lake are limited. The forest management proposed will be designed to enhance the scenic views at Raystown Lake. Timber stand

improvements will be performed to promote healthy diverse forests that will result in forest landscapes that are more aesthetically pleasing. Crop tree forest management that has primary objectives of aesthetics is incorporated into this plan to promote more diverse and colorful landscapes. Removal of nuisance vegetation will allow native vegetation to dominate providing more natural landscapes. These actions would result in long-term benefits to the aesthetic resources of the area.

The No Action alternative will have negative impacts on visual or aesthetic values of the forest landscape because the lack of forest management will increase disease, reduce forest diversity, and promote pest populations that cause defoliation and mortality in forest stands.

5.12 Wild and Scenic Rivers

Implementation of the Forest Management Plan would not directly or indirectly impact any Pennsylvania listed wild or scenic rivers. Consultation with the National Park Service throughout various past NEPA documents at the project have shown that there are no Federal designated or nominated wild and scenic river resources protected in the project area.

The No Action alternative would have no impact on state or Federal wild and scenic river resources.

5.13 Hazardous, Toxic, and Radioactive Substances

No impacts relating to hazardous, toxic, or radioactive substances are expected as a result of the implementation of the Forest Management Plan.

The No Action alternative would have no impact on hazardous materials or substances as no changes in current operations would occur.

5.14 Cultural Resources

Impacts to cultural and historical resources are not expected through proper planning and execution of proposed actions. Most forest management actions, such as timber removal and site retirement, in this plan do not require excavations or other sub-surface impacts. Timber products will be removed along existing roadways or trails that have been disturbed in the past. Activities will not be permitted during wet conditions when the potential for rutting or compaction is increased. In letters dated 14 March 1994 and 19 March 2004, the Pennsylvania SHPO concurred with the Baltimore District's determination that silvicultural activities at Raystown Lake will have no effect on historic properties, provided that such activities are conducted according to certain protocols. These protocols include the use of existing forest and service roads, no stump removal, use of best management practices, no excavation, and that silviculture activities are not conducted in areas with a high probability of cultural resources.

In 2010, the Corps began a comprehensive Integrated Cultural Resources Management Plan (ICRMP) to include an extensive site history and model of potential pre-historic and historic sites. The model will identify areas of high, medium and low sensitivity and the ICRMP will

recommend when additional sampling is needed. Any actions that involve deep sub-surface work or may occur on or adjacent to areas of high sensitivity or known historic or prehistoric sites will be required to undergo a Phase I cultural resources inventory through the District Planning Office and coordinated with the State Historic Preservation Office (SHPO). The Pennsylvania Historic Museum Commission will be provided a copy of this plan and comments will be incorporated into the final document.

The No Action Alternative would have no impact on cultural resources.

5.15 Social and Economic Setting

Short-term minor employment opportunities could arise with the hiring of workers for the harvesting of timber in the project area. These opportunities would cease at the end of the implementation of the forest management plan. Long-term impacts on socioeconomic conditions are expected to be minor and positive for the county and region as a result of the proposed action, which will provide minor opportunities for environmental research, education, and volunteer work. Economics have the potential for minor beneficial impacts with the increase in visitors through hunting and wildlife viewing. No impacts to the residential population are expected from this action.

The No Action alternative has potential for long-term minor adverse impacts on in the area due to the reduction in recreational hunting and outdoor opportunities.

5.16 Recreation

Outdoor recreation opportunities at Raystown Lake contribute significantly to the authorized benefits of the lake and the implementation of a sustainable forest will assist in enhancing those benefits. Minor impacts to small localized areas may occur with closings of trails or other areas used by visitors. These closures are short term and protocols are currently in place to insure proper notification to users, which will allow them to direct their activities to the many other opportunities available. Additionally, many of the management practices will contribute to consumptive wildlife recreation experiences and increase opportunities for non-consumptive activities such as bird watching and hiking.

The No Action alternative would have long-term adverse impacts because of lost opportunities for sustaining the natural environment, which contributes significantly to the aesthetic and recreational experience at Raystown Lake.

5.17 Noise

Minor, short-term, adverse noise impacts would be expected. The various activities that would take place include the use of trucks, chain saws, and heavy equipment needed for timber management. Table 5-1 provides representative noise levels associated with some typical equipment. These decibel levels are representative numbers that should be used to assess the possible impacts to the local population. It is expected that activities would be confined to normal working hours, mitigating noise impacts.

The No Action alternative would have no impact on noise.

Table 5-1 Typical Noise Levels Of Construction Equipment

(noise Level in dBA at 50 Feet)	
Construction Vehicle Type	dBA
Bulldozers	80
Backhoe	72-93
Bobcat	72-93
Jack Hammer	81-98
Crane	75-77
Pick-Up Truck	83-94
Dump Truck	83-94

USEPA, 2010b.

5.18 Children’s Safety

Impacts overall to the environment will be minor with no adverse effects to the community, including children. The proposed plan will not physically create adverse environmental effects that will unduly impact child populations. Adherence to applicable safety procedures should minimize the potential security risk to the children and general public.

The No Action alternative would have no impact on children’s safety.

5.19 Environmental Justice

As discussed in Section 3.19, the project area is not considered to be an area of concentrated poverty as less than 12 percent of the county’s population is below the poverty level. The Proposed Action would not result in an impact to these populations of concern.

The No Action alternative would have no impact on environmental justice.

5.20 Cumulative Impacts

According to CEQ regulations, the cumulative impact is defined as the impact on the natural and human environment, which results from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions. The proposed action must be evaluated with the additive effects of other actions in the project area to determine whether all the actions will result in a significant cumulative impact on the natural and human environment of the area.

The cumulative and incremental impacts as a result of these proposed actions and future projects are expected to be beneficial effects. The proposed action must be considered along with the effects of other activities in the area to ensure that those actions are compatible and do not result in a significant adverse effect to the natural and human environment.

Future known plans at Raystown Lake and adjacent land include:

- Pest management to protect forest resources and native plant communities.
- Continued operation and management of the Corps' and other leased recreation areas and forestlands at the lake.
- Continued management of wildlife food plots, maintenance of "old field" habitat,
- Ongoing deciduous and conifer plantings and wildlife management.
- Continued operation of the Allegrippis Mountain bike trail in compartments 4 and 5.

Current and future Corps activities within the proposed project area include management of the area for wildlife, timber, and hunting. The cumulative effects of these activities on the action area include minor disturbance adjacent to forest management activities.

No other activities are expected to cumulatively affect the forest management activities.

The cumulative effects of the forest management on other activities within the area will be minor as well. The project will result in a small loss of wildlife forage area along a few grassed corridors. This is not expected to significantly affect the Corps wildlife management programs or result in loss of habitat, but will provide improved habitat. Likewise, the forest management will not adversely affect the Corps recreation or operational management or affect hunting within the area.

5.21 Irreversible and Irretrievable Commitment of Resources

This EA identifies any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action if implemented. An irreversible effect results from the use or destruction of resources (e.g., energy resources such as oil and gasoline) that cannot be replaced within a reasonable time. An irretrievable effect results from loss of resources (e.g., endangered species) that cannot be restored as a result of the Proposed Action.

The short-term irreversible commitments of resources that would occur would include planning costs, materials and supplies and their cost, use of energy resources during timber management activities, labor, generation of fugitive dust emissions, and creation of temporary construction noise. No irretrievable commitments of resources would result from the Proposed Action.

5.22 Summary

Table 5- 2 summarizes the degree of impact, if any, expected from the Proposed Action and the No-Action alternative for all resource categories. Table 5-3 summarizes the level of compliance of the Proposed Action with environmental protection statutes and other environmental requirements.

Table 5-2 Summary of Effects of Proposed Action and No Action Alternative		
Natural Resources	Proposed Action	No Action
Land Use	No Impact	Long-Term Minor Adverse Impacts
Topography And Drainage	Short-Term Minor Adverse Impacts	No Impact
Geology	No Impact	No Impact
Soils	Short-Term Minor Adverse Impacts	No Impact
Air Quality	Short-Term Minor Adverse Impacts	No Impact
Prime And Unique Farmland	Possible Short-Term Minor Adverse Impacts	Long-Term Minor Adverse Impacts
Surface Water Resources	Possible Short-Term Minor Adverse Impacts	No Impact
Fisheries	Possible Short-Term Minor Adverse Impacts	No Impact
Wetlands	Possible Short-Term Minor Adverse Impacts	No Impact
Terrestrial Vegetation	Long Term Beneficial Impacts	Long-Term Minor Adverse Impacts
Terrestrial Wildlife Resources	Long Term Beneficial Impacts	Long-Term Significant Adverse Impacts
Unique Habitat	Possible Short-Term Minor Adverse Impacts	Long-Term Minor Adverse Impacts
Rare, Threatened And Endangered Species	No Impact	Long-Term Minor Adverse Impacts
Aesthetics	Short-Term Minor Adverse Impacts And Long-Term Benefits	Long-Term Minor Adverse Impacts
Wild And Scenic Rivers	No Impact	No Impact
Hazardous, Toxic, And Radioactive Substances	No Impact	No Impact
Cultural Resources	No Impact	No Impact
Socio-Economic Conditions	Short-Term and Long-Term Minor Beneficial Impacts	Long-Term Minor Adverse Impacts
Recreation	Short-Term Minor Adverse Impacts And Long-Term Beneficial Impacts	Long-Term Minor Adverse Impacts
Noise	Short-Term Minor Adverse Impacts	No Impact
Children's Safety	No Impact	No Impact
Environmental Justice	No Impact	No Impact

Table 5-3 Compliance with Federal Environmental Statutes and Executive Orders

Federal Environmental Statutes	Compliance
Anadromous Fish Conservation Act	N/A
Clean Air Act, as amended (Public Law 88-206)	FULL
Clean Water Act, as amended (Public Law 95-217)	FULL
Coastal Barrier Resources Act	N/A
Coastal Zone Management Act	N/A
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986	N/A
Endangered Species Act of 1973, as amended (Public Law 93-205)	FULL
Estuary Protection Act	N/A
Federal Water Project Recreation Act	FULL
Fish and Wildlife Coordination Act, as amended (16 United States Code [U.S.C.] 661, et seq.)	FULL
Land and Water Conservation Fund Act	N/A
Magnuson-Stevens Act	N/A
Marine Mammal Protection Act	N/A
National Environmental Policy Act of 1969 (Public Law 91-190)	FULL
National Historic Preservation Act of 1966, as amended (Public Law 89-665)	FULL
Noise Control Act of 1972, as amended	FULL
Resource Conservation and Recovery Act (Public Law 94-580)	N/A
Rivers and Harbors Act	FULL
Safe Drinking Water Act, as amended (Public Law 93-523)	N/A
Solid Waste Disposal Act of 1965, as amended	N/A
Toxic Substances Control Act of 1976 (Public Law 94-469)	N/A
Watershed Protection and Flood Prevention Act of 1954 (16 U.S.C. 1101, et seq.)	FULL
Wetlands Conservation Act (Public Law 101-233)	FULL
Wild and Scenic Rivers Act	N/A

Table 3 (cont.). Compliance with Federal Environmental Statutes and Executive Orders.	
Executive Orders	
Protection of Children from Health and Safety Risks (EO 13045)	FULL
Flood Plain Management (Executive Order 11988)	FULL
Protection of Wetlands (Executive Order 11990)	FULL
Federal Compliance with Pollution Standards (Executive Order 12088)	FULL
Environmental Justice in Minority and Low-Income Populations (Executive Order 12898)	FULL
National Historic Preservation Act of 1969 (Executive Order 11593)	FULL

6.0 CONCLUSION

The proposed forest management actions will have minor short-term negative impacts including dust, air emissions, altered aesthetics, and noise from timber cutting activities. Other short-term minor adverse impacts include disturbance of soil, topography, and recreational resources. These impacts can be expected as a result of tree removal and establishment of loading decks, skid trails, and log roads within the timber stand. Short-term minor adverse impacts to prime and unique farmlands, surface waters, fisheries, and wetlands are also possible. However, the use of proper management techniques such as best management practices for erosion control during silvicultural treatments will minimize these negative impacts. Site specific prescriptions by the project forester along with additional approval of erosion control plans, evaluation of proposed sales against the cultural resources management plan and ongoing evaluation of sensitive natural resources will insure adequate protections are incorporated during implementation.

Short-term employment benefits associated with hiring workers to conduct timber harvesting activities are expected. The action will increase stand growth and vigor, enhance available food and cover for a variety of wildlife species, benefit recreational opportunities, improve aesthetic values, and provide for multiple-use management as directed by the Forest Cover Act of 1960. These benefits also include a decrease in the possibility and the severity of insect outbreaks, wildfire occurrences, and natural mortality. Based upon these considerations, it is evident that the beneficial aspects outweigh the adverse impacts of the proposed action.

The short-term irreversible commitments of resources that would occur would include planning, materials and supplies and their cost, use of energy resources during timber management activities, labor, generation of fugitive dust emissions, and creation of temporary construction noise. No irretrievable commitments of resources would result from the Proposed Action.

Based on the evaluation of environmental effects described in Chapter 5 and summarized in Table 5-2, there are no significant adverse impacts from the Proposed Action, and a Finding of No Significant Impact has been prepared.

7.0 AGENCIES AND INDIVIDUALS CONSULTED

The following local, state and Federal agencies were consulted during the course of the EA preparation:

1. United States Army Corps of Engineers Raystown Lake Staff
2. United States Department of Agriculture, Natural Resources Conservation Service
3. U.S. Fish and Wildlife Service
4. Pennsylvania Historical and Museum Commission, Bureau of Historic Preservation
5. Pennsylvania Natural Diversity Inventory
6. Pennsylvania Department of Conservation of Natural Resources, Bureau of State Parks
7. Pennsylvania Department of Conservation of Natural Resources, Bureau of Forestry
8. Pennsylvania Department of Transportation
9. Western Pennsylvania Conservancy
10. Pennsylvania Game Commission
11. Pennsylvania Fish and Boat Commission
12. Township Supervisors
13. Chesapeake Bay Foundation
14. Continental Cooperative Services
15. Pennsylvania Natural Heritage Program
16. Huntingdon County Planning Commission
17. Huntingdon County Conservation District
18. The Ruffed Grouse Society
19. The National Wild Turkey Federation
20. The American Chestnut Foundation
21. Ducks Unlimited
22. Pheasants Forever
23. Friends of Raystown Lake
24. Federal Emergency Management Agency

8.0 LIST OF PREPARERS

The key project participants in charge of preparing this EA are listed below.

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9.0 REFERENCES

- U.S. Army Corps of Engineers. 2000. ER 405-1-15, Real Estate Handbook, revised 15 May 2000
- U.S. Army Corps of Engineers. 1973. Final Environmental Impact Statement, Raystown Lake Project. Baltimore District, Baltimore, MD.
- U.S. Army Corps of Engineers. 1986. Forest, Fish, and Wildlife Management Plan, Raystown Lake Project. Baltimore District, Baltimore, MD.
- U.S. Army Corps of Engineers. 1994a. Forest Management Activities Environmental Assessment, Raystown Lake. Baltimore District, Baltimore, MD.
- U.S. Army Corps of Engineers. 1994b Raystown Lake Master Plan. Baltimore District, Baltimore, MD.
- U.S. Army Corps of Engineers. 1996. Project Operations- Environmental Stewardship Operations and Maintenance Policies. ER 1130-2-540, revised 11 August 2008. Baltimore District, Baltimore, MD.
- U.S. Army Corps of Engineers. 2003. Operation Management Plan, Baltimore District, Raystown Lake Section. Baltimore District, Baltimore, MD.
- National Park Service. 2010. Wild & Scenic Rivers by State. Web site:
<http://www.nps.gov/nero/rivers>
- U.S. Census Bureau. 2010. American factfinder. website:
http://factfinder.census.gov/home/saff/main.html?_lang=en
- U.S. Environmental Protection Agency. 2010a. Green Book. Web Site:
http://www.epa.gov/air/oaqps/greenbk/anay_pa.html
- U.S. Environmental Protection Agency. 2010b. Hear Here. Web Site:
<http://www.epa.gov/nscep/> (Search for Hear Here)

Appendix A

Public Involvement and Correspondence



US Army Corps
of Engineers
Baltimore District

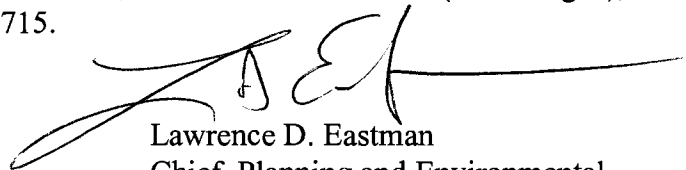
Public Notice

Environmental Assessment Raystown Lake Forest Project Huntingdon County, Pennsylvania

All Interested Parties: The U.S. Army Corps of Engineers, Baltimore District (the Corps) is preparing an Environmental Assessment (EA) for the Raystown Lake Forest Project at Raystown Lake in Huntingdon County, Pennsylvania. The Proposed Action will determine the impacts of forest management activities at Raystown Lake in Huntingdon County, Pennsylvania. The proposed Action to be evaluated in the EA is the forest management activities on approximately 2,549 acres over the 10 year management period to promote long term forest sustainability, biodiversity, watershed protection, wildlife benefits, recreation and aesthetics. (Map 1, 2 and 3). The proposed total acres & management for the 18 forest compact are shown on Table 1. The work involves approximately 1 percent of land base each year and will be completed after appropriate forest stand analysis and completion of stand prescription for harvest. The analysis will include consideration of forest regeneration, soil conditions, potential for erosion, special wildlife considerations, endangered species protection and review of the project cultural resources management plan.

The EA will be prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, and will document potential impacts to the natural and human environment from the proposed development on Federal land at Raystown Lake. It includes an assessment of existing conditions at the proposed project site, and an evaluation of the potential impacts to existing lake resources and the surrounding area for the Proposed Action and a no action alternative. It is anticipated that this EA will result in a Finding of No Significant Impact (FONSI). Upon completion of this EA and FONSI, the Corps will prepare a Notice of Availability which will be distributed to the same individuals as this Public Notice.

Interested parties are invited to submit written comments for consideration within 15 days of this notice. Any comments received will be considered in the preparation of the EA. This Public Notice is being sent to organizations and individuals known to have an interest in this project (Enclosure 3). Please bring this matter to the attention of any other organizations or individuals with a similar interest. Comments must be submitted within 15 days of the date of this notice to: U.S. Army Corps of Engineers, Baltimore District, ATTN: CENAB-PL-E (TJ Flanagan), P.O. Box 1715, Baltimore, Maryland 21203-1715.



Lawrence D. Eastman
Chief, Planning and Environmental
Services Branch

Date: 6 Aug 2010

Enclosures

Timber Management Areas (South)



Legend

- +— Project Roads
- Project Streams
- ▭ Project Boundary
- ▭ Forest Compartments
- ▭ Timber Management Areas

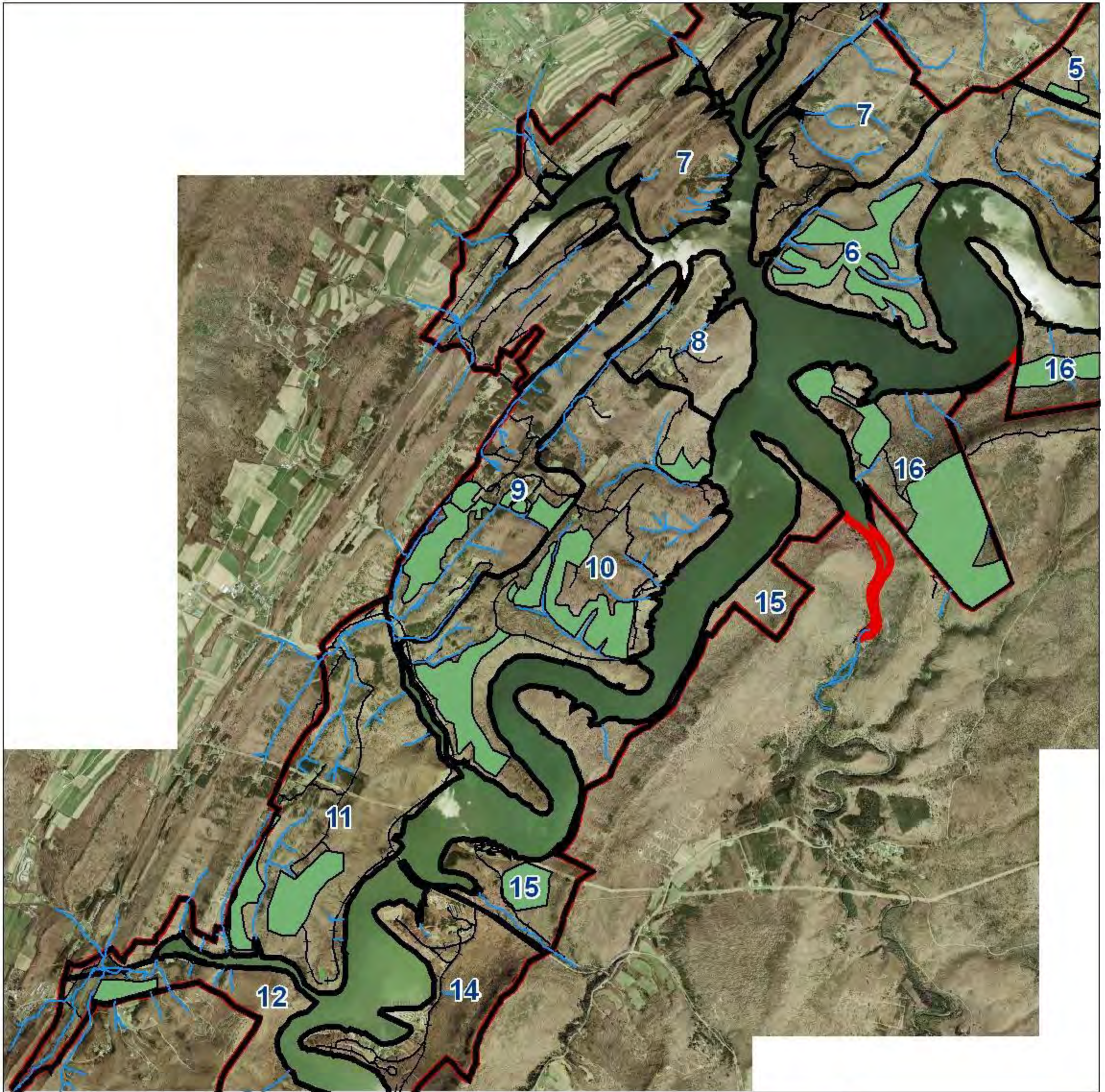
U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010

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Timber Management Areas (Central)



Legend

- +— Project Roads
- Project Streams
- ▭ Project Boundary
- ▭ Forest Compartments
- ▭ Timber Management Areas

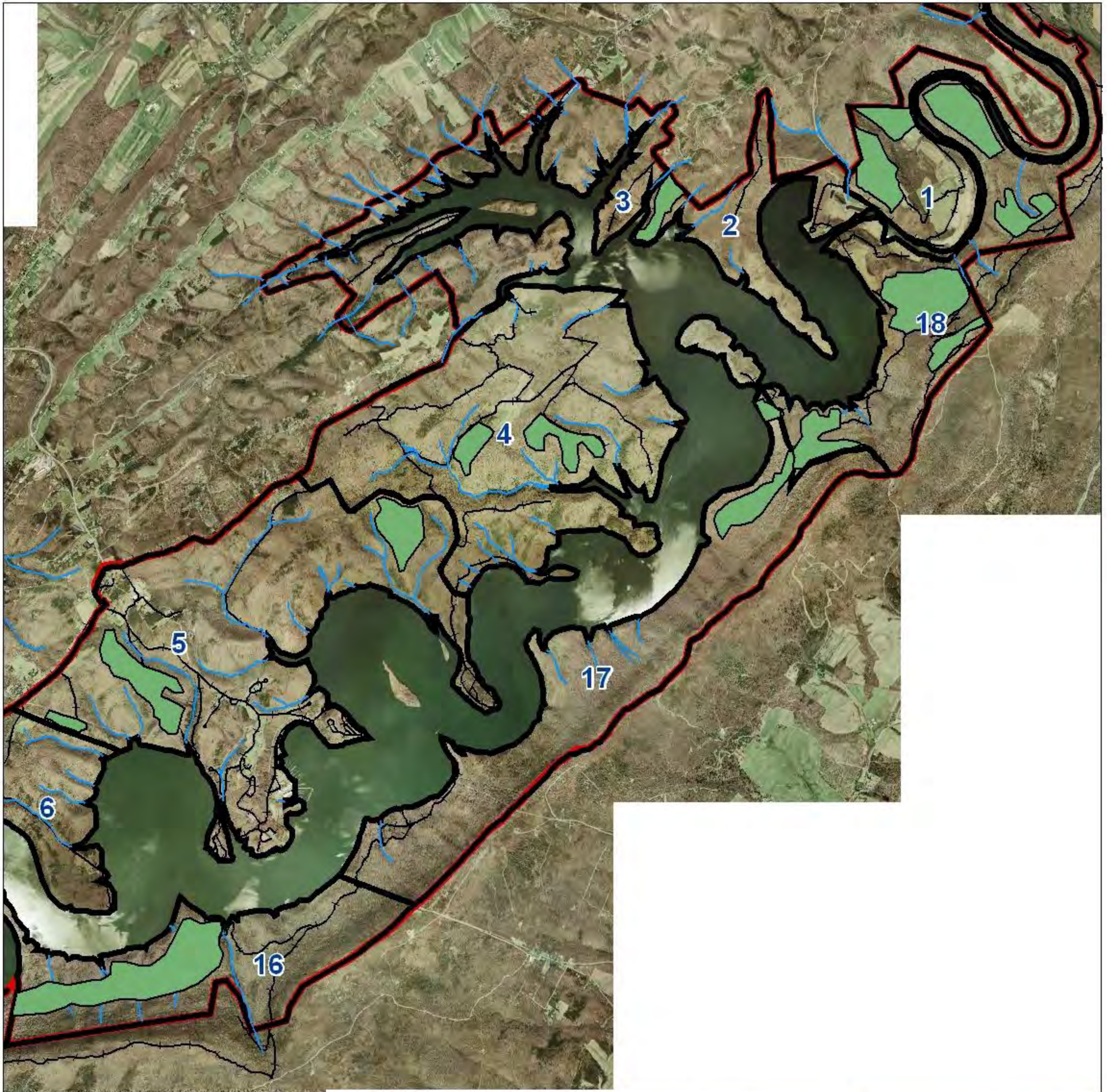
U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010

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Timber Management Areas (North)



Legend

- +— Project Roads
- Project Streams
- ▭ Project Boundary
- ▭ Forest Compartments
- ▭ Timber Management Areas

U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010



0 0.5 1 1.5 2
Miles



Table 1. Forest Management for 2011-2020.

Forest Compartment	Total Acres	Acres of Management	Forest Type
1	650	95	Northern Hardwoods, Oak
2	420	31	Oak, Pine
3	927	0	
4	1,840	78	Northern Hardwoods, Oak
5	2,150	158	Northern Hardwoods, Oak, Pine
6	1,151	202	Northern Hardwoods, Oak
7	2,757	0	
8	363	0	
9	783	132	Northern Hardwoods, Oak, Pine
10	1,615	312	Northern Hardwoods, Oak, Pine
11	1,256	136	Oak, Pine
12	1,759	211	Northern Hardwoods, Oak
13	82	0	
14	1,220	242	Northern Hardwoods
15	632	51	Northern Hardwoods, Oak
16	1,582	530	Northern Hardwoods, Oak, Pine
17	1,367	63	Northern Hardwoods, Oak
18	1,130	308	Northern Hardwoods, Oak
Total:	21,684	2,549	

**PUBLIC NOTICE MAILING LIST
RAYSTOWN LAKE FOREST PLANNING
HUNTINGDON, PENNSYLVANIA**

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Ms. Julie E. Johns
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Ms. Cheryl J. Russell
Lincoln Township Supervisor
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**PUBLIC NOTICE MAILING LIST
RAYSTOWN LAKE FOREST PLANNING
HUNTINGDON, PENNSYLVANIA**

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President
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Bedford, Pennsylvania 15522

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National Wild Turkey Federation
Regional Wildlife Biologist
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Mr. Jason Albright, District Forester
Rothrock State Forest
DCNR
Bureau of Forestry
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Ms. Chris Firestone
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Phillipsburg, New Jersey 08865

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Ruffed Grouse Society
Regional Biologist
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Lemont, Pennsylvania 16851-1171



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

August 5, 2010

Planning Division

Mr. Clint Riley
U.S. Fish and Wildlife Service
315 S. Allen Street, Suite 322
State College, Pennsylvania 16801-4850

Dear Mr. Riley:

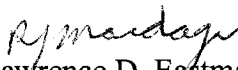
The purpose of this letter is to solicit comments from your agency regarding impacts, if any, to threatened and endangered species in accordance with Section 7 of the Endangered Species Act of 1973 (ESA)(87 Stat. 884, as amended; 16 U.S.C. 1531 et seq) and the U.S. Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). The U.S. Army Corps of Engineers, Baltimore District (the Corps) is preparing an Environmental Assessment (EA) for the Forest Management Project at Raystown Lake in Huntingdon County, Pennsylvania. The proposed action to be evaluated in the EA is forest management activities including thinning, group selection removal, and tree age management on approximately 2,549 acres over a 10 year period to promote long term forest sustainability, biodiversity, watershed protection, wildlife benefits, recreation and aesthetics (Maps 1, 2 and 3). The proposed action will utilize existing service and forest roads and will not involve stump removal or excavation. The proposed total acres & management for the 18 forest compact are shown on Table 1. The work involves approximately 1 percent of land base each year and will be completed after appropriate forest stand analysis and completion of stand prescription for harvest. The analysis will include consideration of forest regeneration, soil conditions, potential for erosion, special wildlife considerations, endangered species protection and review of the project cultural resources management plan.

Although the Bald Eagle is no longer listed, it is still protected under Bald and Golden Eagle Protection Act. Raystown Lake continues to aggressively monitor and protect bald eagles and their nests. No work is proposed within 1000 feet of a nest site. Future forest management would be modified should additional eagle activity be found.

The Corps has also coordinated closely with your office on the protection of the Indiana Bat and has conducted over 200 survey nights of mist net surveys since 2001. The most recent survey conducted in 2009 included 50 net sites within the proposed forest management areas. To date no Indiana bats have been found at Raystown Lake. However, the Corps continues to implement conservation measures to protect potential roosting habitat including protection of snags, dens and trees with defoliating bark. Forestry activities will preserve hickories and other tree exhibiting potential roosting habitat along with approximately 10 areas of trees with a diameter greater than 12 inches.

To assist us in identifying environmental issues that may affect the implementation of this project, please provide written comments within 15 days of receipt of this letter to Ms. TJ Flanagan, U.S. Army Corps of Engineers, Baltimore District, ATTN: CENAB-PL-E, P.O. Box 1715, Baltimore, Maryland 21203-1715. You may contact Ms. TJ Flanagan at (410) 962-3314 if you have any comments or questions regarding this matter.

Sincerely,


for Lawrence D. Eastman
Chief, Planning and Environmental
Services Branch

Enclosures

Timber Management Areas (South)



Legend

- +— Project Roads
- Project Streams
- ▭ Project Boundary
- ▭ Forest Compartments
- ▭ Timber Management Areas

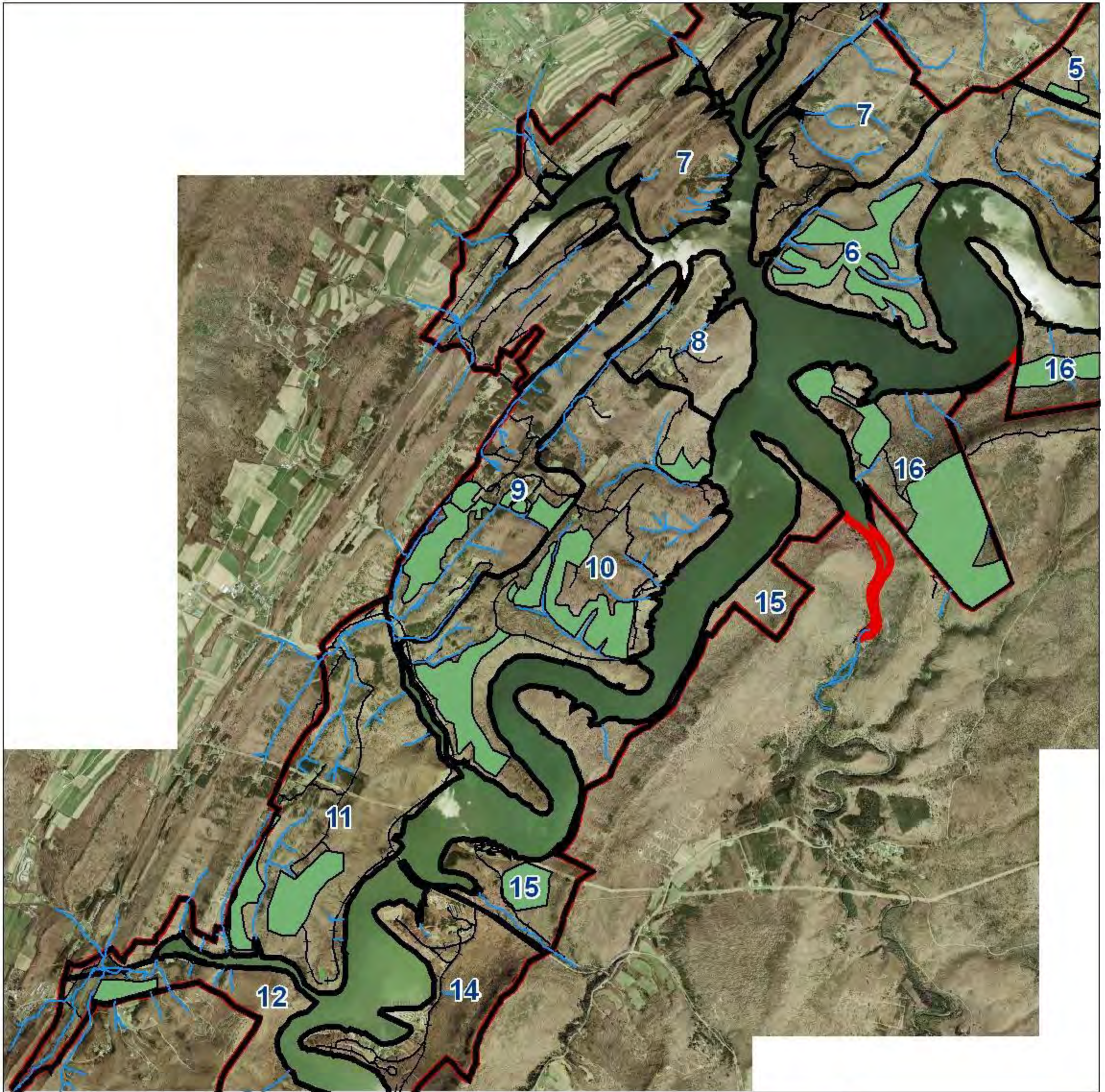
U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010

N

0 0.5 1 1.5 2 Miles



Timber Management Areas (Central)



Legend

- +— Project Roads
- Project Streams
- ▭ Project Boundary
- ▭ Forest Compartments
- ▭ Timber Management Areas

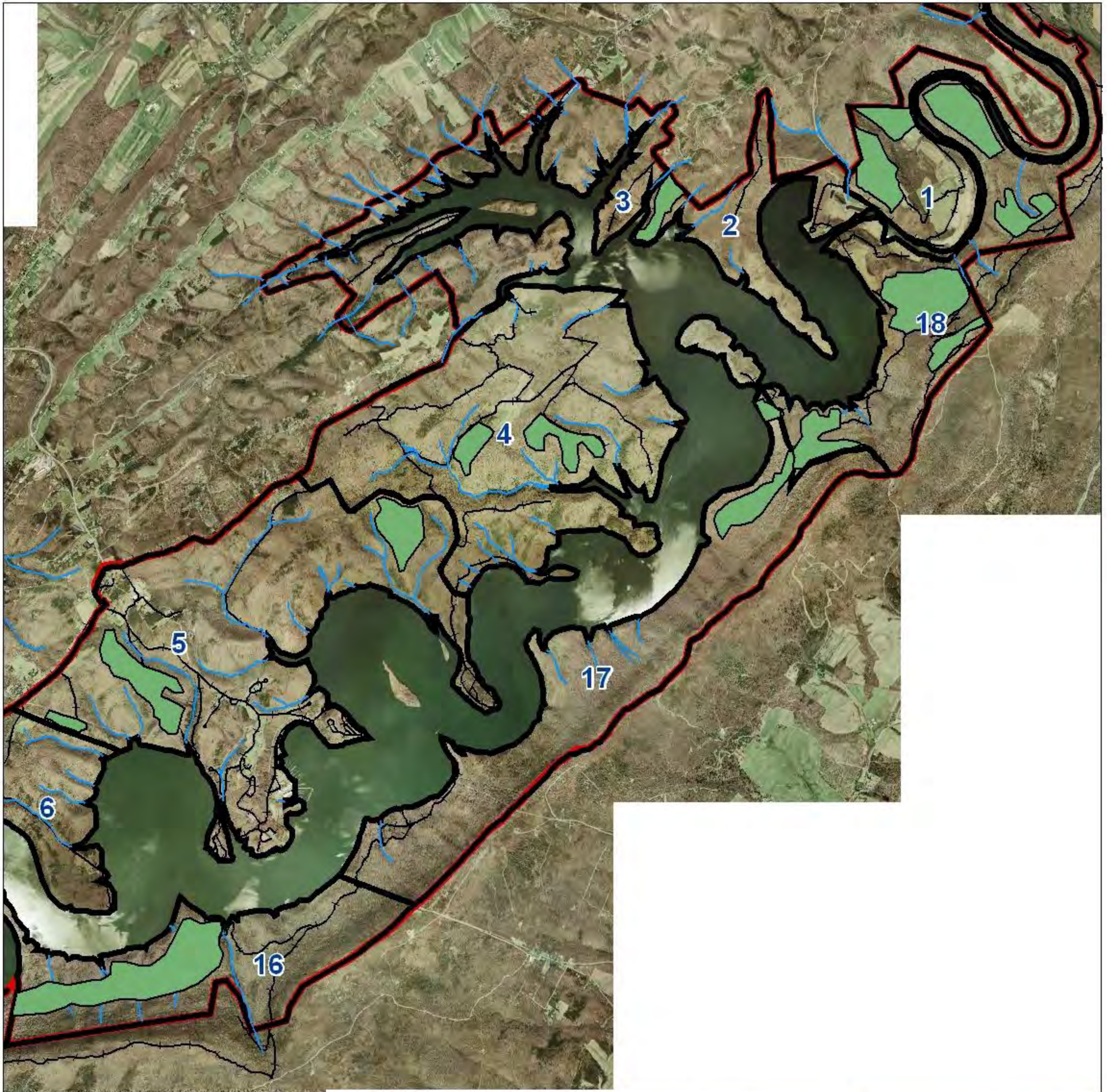
U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010

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Timber Management Areas (North)



Legend

- +— Project Roads
- Project Streams
- ▭ Project Boundary
- ▭ Forest Compartments
- ▭ Timber Management Areas

U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010



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Miles



Table 1. Forest Management for 2011-2020.

Forest Compartment	Total Acres	Acres of Management	Forest Type
1	650	95	Northern Hardwoods, Oak
2	420	31	Oak, Pine
3	927	0	
4	1,840	78	Northern Hardwoods, Oak
5	2,150	158	Northern Hardwoods, Oak, Pine
6	1,151	202	Northern Hardwoods, Oak
7	2,757	0	
8	363	0	
9	783	132	Northern Hardwoods, Oak, Pine
10	1,615	312	Northern Hardwoods, Oak, Pine
11	1,256	136	Oak, Pine
12	1,759	211	Northern Hardwoods, Oak
13	82	0	
14	1,220	242	Northern Hardwoods
15	632	51	Northern Hardwoods, Oak
16	1,582	530	Northern Hardwoods, Oak, Pine
17	1,367	63	Northern Hardwoods, Oak
18	1,130	308	Northern Hardwoods, Oak
Total:	21,684	2,549	



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

August 10, 2010

Planning Division

Ms. Jean Cutler
State Historic Preservation Officer
Pennsylvania Historic and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, Second Floor
400 North Street
Harrisburg, PA 17120-0093

Dear Ms. Cutler:

In 1996 and 2004, the U.S. Army Corps of Engineers, Baltimore District (Baltimore District) consulted with your office concerning potential impacts to archeological resources from forest management activities at Raystown Lake in Huntingdon County, Pennsylvania. Your office had determined that standard silvacultural practices that did not involve stump removal, road construction, working in wet or soft conditions, excavation, or work in areas with a high potential for cultural resources would have no effect on archaeological resources.

The Baltimore District is producing a new 10-year Forest Management plan at Raystown Lake. Forest management activities will be conducted on approximately 2,549 acres at Raystown Lake (see Maps 1, 2 and 3, attached), and are designed to promote long term forest sustainability, biodiversity, watershed protection, wildlife benefits, recreation, and enhanced aesthetics. The work will include tree thinning, group selection removal, and timber age management. Existing service and forest roads will be used, and the work will not involve stump removal or excavation. The total acres and proposed managed acres for the 18 forest compartments are shown on Table 1 (attached). Forest management activity will be ceased should rutting or erosion occur, or if any evidence of archaeological remains is found.

The Baltimore District is currently producing an Integrated Cultural Resource Management Plan (ICRMP) for Raystown Lake, which should be completed this fall. The ICRMP will include a new predictive model for prehistoric and historic archaeological site locations, and will be provided to your office for review and comment prior to its implementation. The predictive model will assist in timber management site selection, to ensure the protection of cultural resources.

The Baltimore District has determined that the proposed action described above would have no effect on historic properties. Should we become aware, from any source, that historic properties are located at or near the property, we will notify your office immediately. Questions regarding this matter should be directed to Mr. Scott C. Watson, at (410) 962-9500.

Sincerely,

A handwritten signature in black ink, appearing to read "L. Eastman", with a long horizontal line extending to the right.

Lawrence D. Eastman
Chief, Planning and Environment
Services Branch

Enclosures

Timber Management Areas (South)



Legend

- +— Project Roads
- Project Streams
- ▭ Project Boundary
- ▭ Forest Compartments
- ▭ Timber Management Areas

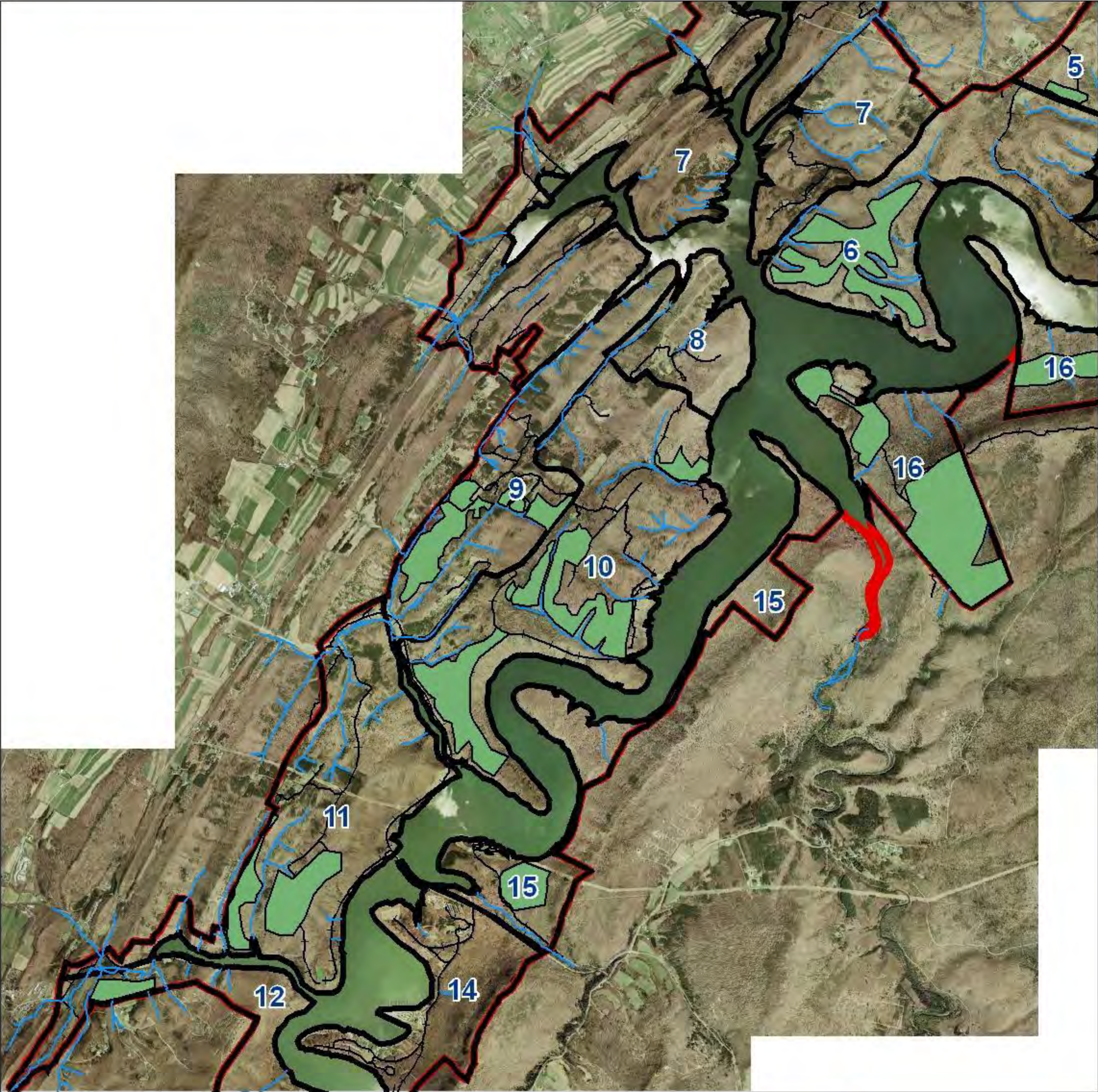
U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010

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Timber Management Areas (Central)



Legend

- +— Project Roads
- Project Streams
- ▭ Project Boundary
- ▭ Forest Compartments
- ▭ Timber Management Areas

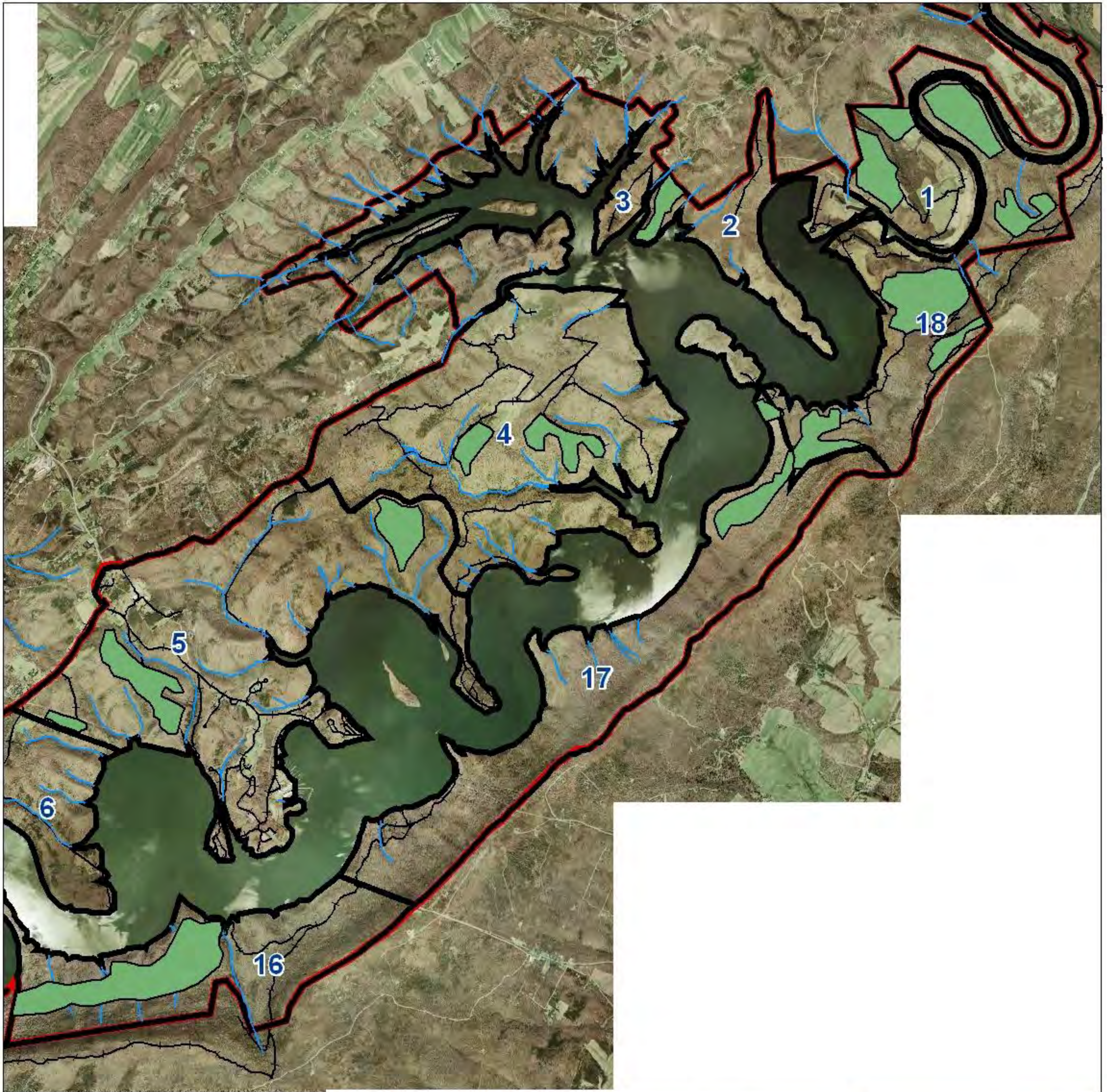
U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010

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Timber Management Areas (North)



Legend

- +— Project Roads
- Project Streams
- ▭ Project Boundary
- ▭ Forest Compartments
- ▭ Timber Management Areas

U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010



0 0.5 1 1.5 2
Miles



Table 1. Forest Management for 2011-2020.

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17	1,367	63	Northern Hardwoods, Oak
18	1,130	308	Northern Hardwoods, Oak
Total:	21,684	2,549	

NATIONAL



WILD TURKEY FEDERATION

WILD TURKEY CENTER
POST OFFICE BOX 530
EDGEFIELD, SC 29824-0530
770 AUGUSTA ROAD
EDGEFIELD, SC 29824-1573
803-637-3106
FAX 803-637-0034
E-MAIL: NWTF@nwtf.net

27 Canterbury Road
Phillipsburg, NJ 08865

U.S. Army Corps of Engineers
Baltimore District
PO Box 1715
Baltimore, Maryland 21203-1715

ATTN: CENAB-PL-E (TJ Flanagan)

Dear Sir or Madam:

Thank you for the opportunity to provide comments on the preparation of an Environmental Assessment for the Raystown Lake Forest Project. We appreciate being considered among the organizations with a real interest in projects on the facility. Raystown Lake is a great area for wildlife featuring a diversity of habitats and opportunities for hunting, angling and wildlife viewing activities. The quality of wildlife habitat on the property is directly attributable to active management of fields and forests on the site.

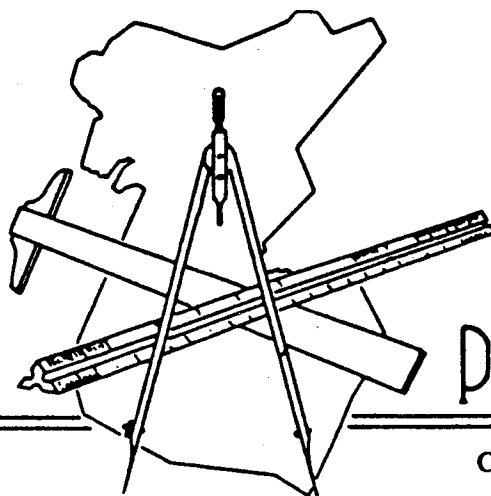
The National Wild Turkey Federation supports forest management plans based on good data and silvicultural practices grounded in the latest science. Active management of our forest resources is in the best interest of the future of the forests, the wildlife dependent on them and the residents of Pennsylvania. The issues of invasive plant species, forest health and forest regeneration, especially oak regeneration are vitally important to wildlife. Active forest management addresses these matters. The forest management projects outlined in this public notice will provide for a wider range of forest age classes which will benefit a number of wildlife species associated with earlier seral stages. In addition areas affected by timber operations will result in improved nesting and brood-rearing habitats for wild turkeys. Ultimately managing tracts of forest in varying age classes and tree species compositions will improve the health of the forest by making the forests on Raystown more resistant to insect pests and disease threats. The management activities will also reduce concerns about wildfire.

We look forward to reviewing the Environmental Assessment when it is available and anticipate a finding of no significant impact as a result of the proposed activities.

Sincerely,

Bob Eriksen, Certified Wildlife Biologist
NWTF Director of Conservation Operations- Northeast Region

HUNTINGDON COUNTY



PLANNING COMMISSION

(814) 643-5091

Court House - Huntingdon, Pennsylvania 16652

August 20, 2010

U.S. Army Corps of Engineers
Baltimore District
ATTN: CENAB-PL-E (TJ Flanagan)
P.O. Box 1715
Baltimore, MD 21203-1715

RE: Raystown Lake Forest Project Environmental Assessment

To Whom It May Concern:

The Huntingdon County Planning Commission reviewed the above referenced Environmental Assessment at their August 18, 2010 meeting. According to the information submitted, the proposed environmental assessment will determine the impacts of forest management activities on 2,549 acres over a ten year period at Raystown Lake, Huntingdon County, Pennsylvania.

This proposal is consistent with the following goal and policy of the Huntingdon County Comprehensive Plan, *Continuity Through Conservation II*, "to provide for the preservation, protection, management, and enhancement of Huntingdon County's natural resources and environmental quality for present and future generations" and "to encourage conservation and protection of forest resources and their ecosystem through implementation of woodland management plans". In addition, the Planning Commission encourages management practices for a sustainable yield.

If you have any questions or concerns, please contact me at (814) 643-5091.

Sincerely,

A handwritten signature in black ink that reads "Richard E. Stahl". The signature is written in a cursive, somewhat stylized font.

Richard E. Stahl
Planning Director

RES/ljn

File:GC,Mtg,PR
pc: Raystown Lake Project



PENNSYLVANIA CHAPTER NATIONAL WILD TURKEY FEDERATION

ORGANIZED 1975

**Dedicated to the Conservation of the Wild Turkey and
Preservation of the Turkey Hunting Tradition**

Pa. Chapter NWTF home page www.go2pa.com/panwtf E-mail: panwtf@go2pa.com

Box 167 Stonetown Road
Noxen, PA 18636
August 18, 2010

U.S. Army Corps of Engineers
Baltimore District
PO Box 1715
Baltimore, Maryland 21203-1715

ATTN: CENAB-PL-E (TJ Flanagan)

Dear Sir or Madam:

Thank you for the opportunity to provide comments on the preparation of an Environmental Assessment for the Raystown Lake Forest Project. We appreciate being considered among the organizations with a real interest in projects on the facility. Our relationship with the staff at Raystown Lake and the investment of time, energy and money by our local chapters has helped to make Raystown Lake a great area for wildlife featuring a diversity of habitats and opportunities for hunting, angling and wildlife viewing activities.

Our chapter supports forest management plans based on good data and forest management practices grounded in the latest science. The issues of invasive plant species, forest health and forest regeneration, especially oak regeneration are vitally important to wildlife. The basic forest management projects outlined in this public notice will provide for a wider range of forest age classes which will benefit a number of wildlife species associated with earlier seral stages. In addition areas affected by timber operations will result in improved nesting and brood-rearing habitats for wild turkeys. Ultimately managing tracts of forest in varying age classes and tree species compositions will improve the health of the forest by making the forests on Raystown more resistant to insect pests and disease threats. The management activities will also reduce concerns about wildfire.

We look forward to reviewing the Environmental Assessment when it is available.

Sincerely,

Dale C. Butler

Dale C. Butler

President, Pennsylvania Chapter-NWTF

MARK BANKER
Senior Biologist



**P.O. Box 1171
Lemont, PA 16851
Bus: 814-867-7946
Cell: 412-720-6034
Fax: 814-867-8436
Email: rgsbank@comcast.net**

September 17, 2010

U.S Army Corps of Engineers
Baltimore District
Attn: CENAB-PL-E (TJ Flanigan)
P.O. Box 1715
Baltimore, MD 21203-1715

To whom it may concern,

The Ruffed Grouse Society supports the proposed timber management at Raystown Lake. We have visited most of the timber management sites done previously at Raystown more than once over several years. In our opinion, they have met the intended outcomes for forest health, forest stand improvement, forest regeneration, and wildlife habitat. We are not aware of any unintended, negative impacts from past management.

The scientific literature has strongly established the need for managing large forest tracts for age class and structural diversity for the benefit of nearly all forest wildlife. Breeding bird surveys have established beyond any doubt that young forest (early successional) songbirds are the most imperiled group of forest-dwelling birds. Several studies from across the eastern U.S. also have suggested that young forests are heavily used even by songbirds that typically breed in mature forests. This was not known 15 years ago. We are happy to provide full references for these studies and many others upon request. A bibliography of relevant literature is attached.

The Society greatly appreciates the opportunity to comment on this proposal and is looking forward to assisting with the implementation of this project in any way we can.

Sincerely,

Mark Banker
Senior Biologist

***Dedicated To Improving The Environment For
Ruffed Grouse, Woodcock, And Other Forest Wildlife***

NATIONAL HEADQUARTERS
451 McCormick Road Coraopolis, Pennsylvania 15108-9377
412-262-4044 ♦ Fax 412-262-9207 ♦ Toll Free 888-564-6747 ♦ www.ruffedgrousesociety.org

Suggested References: Wildlife population and habitat trends and response of songbirds, gamebirds and other wildlife to managed vs. unmanaged forests.

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United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
315 South Allen Street, Suite 322
State College, Pennsylvania 16801-4850

December 21, 2010

TJ Flanagan
U.S. Army Corps of Engineers
Baltimore District
ATTN: CENAB-PL-E
P.O. Box 1715
Baltimore, Maryland 21203-1715

RE: USFWS Project #2007-1096

Dear Ms. Flanagan:

This responds to your letter of August 5, 2010, requesting Fish and Wildlife Service comments on the Corps' proposed Forest Management Project at Raystown Lake in Huntingdon County, Pennsylvania. Comments were solicited to assist the Corps in preparing an Environmental Assessment for the proposed project. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) and the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended; 16 U.S.C. 668-668d).

The proposed forest management activities include thinning, group selection removal, and tree age management on approximately 2,549 acres over a 10-year period (2011-2020). Forest management is proposed in 14 of the 18 forest compartments at Raystown Lake, with approximately one percent of the land base proposed for management annually.

Federally-Listed Species

Raystown Lake is in the range of the federally-listed endangered Indiana bat (*Myotis sodalis*). The property has an abundance of suitable foraging and roosting habitat for this species, and is within 11 miles of Pennsylvania's largest Indiana bat hibernaculum (Hartman Mine). In light of this, a mist-net survey was carried out at Raytown Lake in the summer of 2009 (*Summer Indiana Bat Survey Raystown Lake 2009*). During this survey, 472 bats of seven species were captured at 50 mist-net sites. No Indiana bats were captured in the areas that were sampled.

While we have maps of the forest compartments and a map of the mist-net survey locations, it is difficult to determine to what extent the mist-net sites coincide with the forest compartments due to differing map scales. Under the Service's *Indiana Bat Mist-Netting Guidelines*, a mist-net site is typically considered adequate to sample 123 acres. Therefore, where mist-net sites coincide with the acreage proposed for forest management, we would not expect forest management on those particular acres to have any adverse effects on Indiana bats due to the negative mist-net survey results. However, where mist-net sites do not coincide with the forest acreage proposed

for management, we would recommend that the Corps assume Indiana bats may be present and implement the enclosed *Forest Management Practices for Conserving Indiana Bats and Summer Habitat* to avoid potential adverse effects on the species. Alternatively, mist-netting could be done in the unsampled areas proposed for management, and if negative sampling results are obtained, no further measures would be needed to avoid potential adverse effects on Indiana bats.

Based on our understanding of the types of forest management proposed by the Corps, the enclosed *Forest Management Practices* should be compatible with the Corps' proposal as well as with Indiana bat conservation. Even where negative mist-net survey results were adequate to sample forest areas proposed for management, we would encourage the Corps to implement the enclosed *Forest Management Practices*, since this would retain forest habitat in a condition that is suitable for Indiana bats now and in the future.

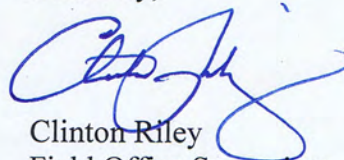
Bald Eagle

We appreciate the Corps' continued efforts to monitor and conserve bald eagles (*Haliaeetus leucocephalus*) and their nests at Raystown Lake. As you noted, this species is protected under the Bald and Golden Eagle Protection Act. The Corps' proposal to include a 1000-foot buffer around bald eagles nests will serve to protect bald eagles from disturbance during forest management activities, consistent with the *National Bald Eagle Management Guidelines*.

Please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

Please contact Carole Copeyon of my staff at 814-234-4090 if you have any questions or require further assistance.

Sincerely,



Clinton Riley
Field Office Supervisor

Enclosure

Forest Management Practices for Conserving Indiana Bats and Summer Habitat

The following general guidelines are intended to assist land managers and land owners in managing forests in a way that is consistent with the conservation of the endangered Indiana bat (*Myotis sodalis*). The guidelines consider the Indiana bat's needs for foraging and roosting habitat to survive and successfully reproduce. Note that these guidelines will likely result in habitat that is suitable, but generally less than optimal, for Indiana bats. Application of these guidelines is intended to minimize the risk of "take" of Indiana bats.

FOREST MANAGEMENT GUIDELINES

1. Retain at least 60% canopy closure within forested stands.
2. Retain all snags, except where they pose a serious human safety hazard due to their location near a building, yard, road or powerline. A tree with less than 10% live canopy should be considered a snag. When possible, delay removal of hazard trees until bats are hibernating or concentrated near their hibernacula (between October 1 and March 31).
3. Do not harvest or manipulate shagbark hickory trees (*Carya ovata*) unless the density of shagbark hickory exceeds 16 trees per acre. If present, maintain at least 16 live shagbark hickory greater than 11" dbh (diameter at breast height) per acre. If there are no shagbark hickory trees greater than 11" dbh to leave, then the 16 live shagbark hickory trees per acre must include the largest specimens in the stand.
4. The following species of trees have been identified as having relatively high value as potential Indiana bat roost trees:

shagbark hickory (<i>Carya ovata</i>)	eastern cottonwood (<i>Populus deltoides</i>)
bitternut hickory (<i>Carya cordiformis</i>)	northern red oak (<i>Quercus rubra</i>)
mockernut hickory (<i>Carya tomentosa</i>)	scarlet oak (<i>Quercus coccinea</i>)
pignut hickory (<i>Carya glabra</i>)	black oak (<i>Quercus velutina</i>)
other hickories (<i>Carya</i> spp.)	white oak (<i>Quercus alba</i>)
silver maple (<i>Acer saccharinum</i>)	chestnut oak (<i>Quercus prinus</i>)
sugar maple (<i>Acer saccharum</i>)	slippery elm (<i>Ulmus rubra</i>)
red maple (<i>Acer rubrum</i>)	American elm (<i>Ulmus americana</i>)
green ash (<i>Fraxinus pennsylvanica</i>)	black locust (<i>Robinia pseudoacacia</i>)
white ash (<i>Fraxinus americana</i>)	

This list is based on review of literature and data on Indiana bat roosting requirements. Other species may be added as they are identified. Other tree species with exfoliating bark, crevices or cavities could also serve as potential roost trees.

5. At least 3 live trees per acre greater than 20" dbh (of the species listed above) should always be maintained in the stand. These must be the largest trees of these species in the stand. An additional 6 live trees per acre greater than 11" dbh (of the species listed above) must also be maintained.

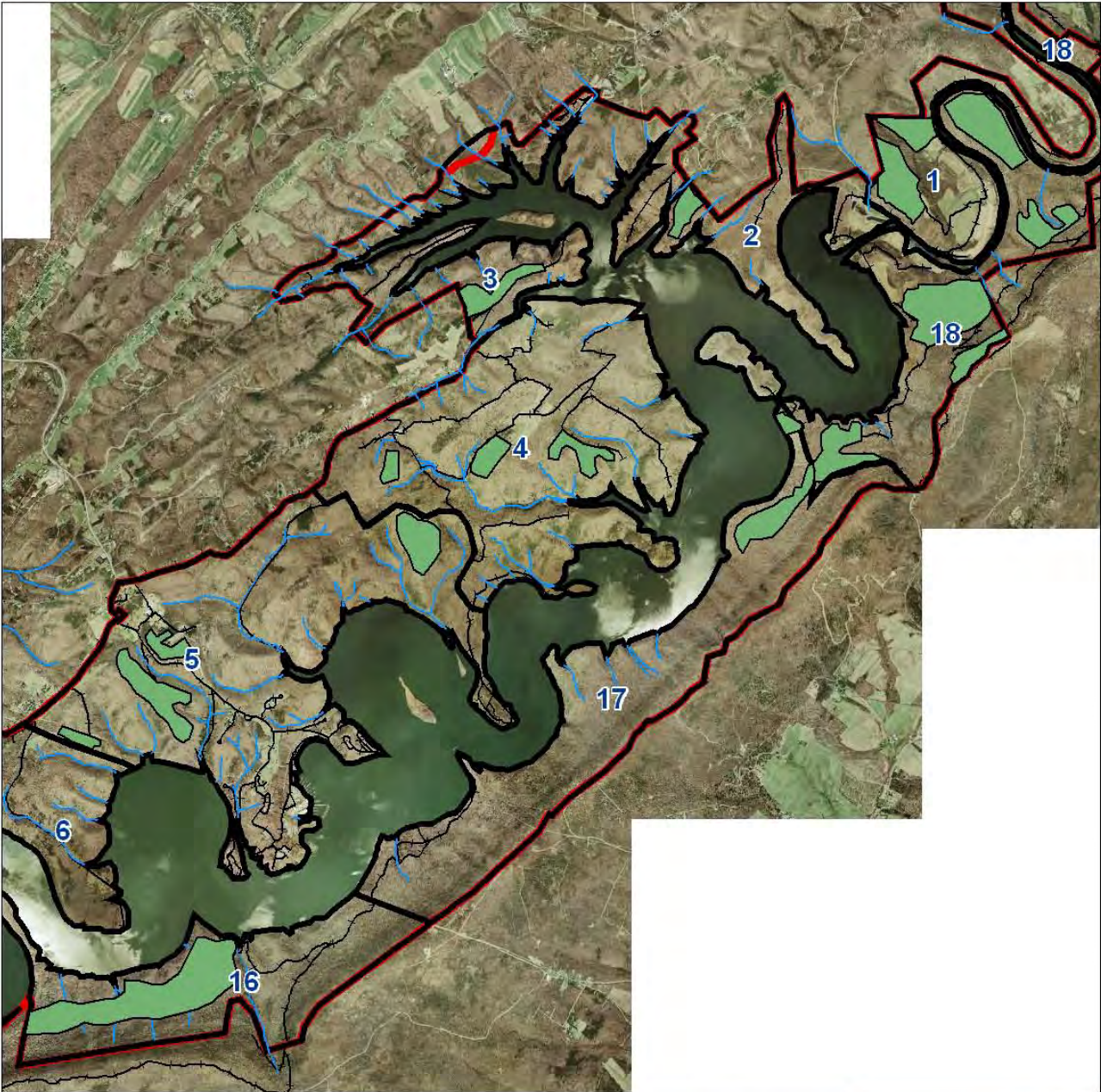
In areas of the stand where there are no trees greater than 20" dbh to retain, then 16 live trees per acre must be retained, and these must include the largest specimens of the preferred species (see list above) in the stand.

6. No harvest or timber stand improvement activities within 100 feet on both sides of perennial streams, and within 50 feet on both sides of intermittent or ephemeral streams.
7. Do not cut trees between April 1 and September 30. This corresponds to the Indiana bat reproductive and spring/fall emergence and swarming seasons.
8. Do not carry out prescribed burns in forest habitat between April 1 and September 30.

Appendix B

Maps of Forest Management Activities

Timber Management Areas (North)



Legend

- +— Project Roads
- Project Streams
- ▭ Project Boundary
- ▭ Forest Compartments
- ▭ Timber Management Areas

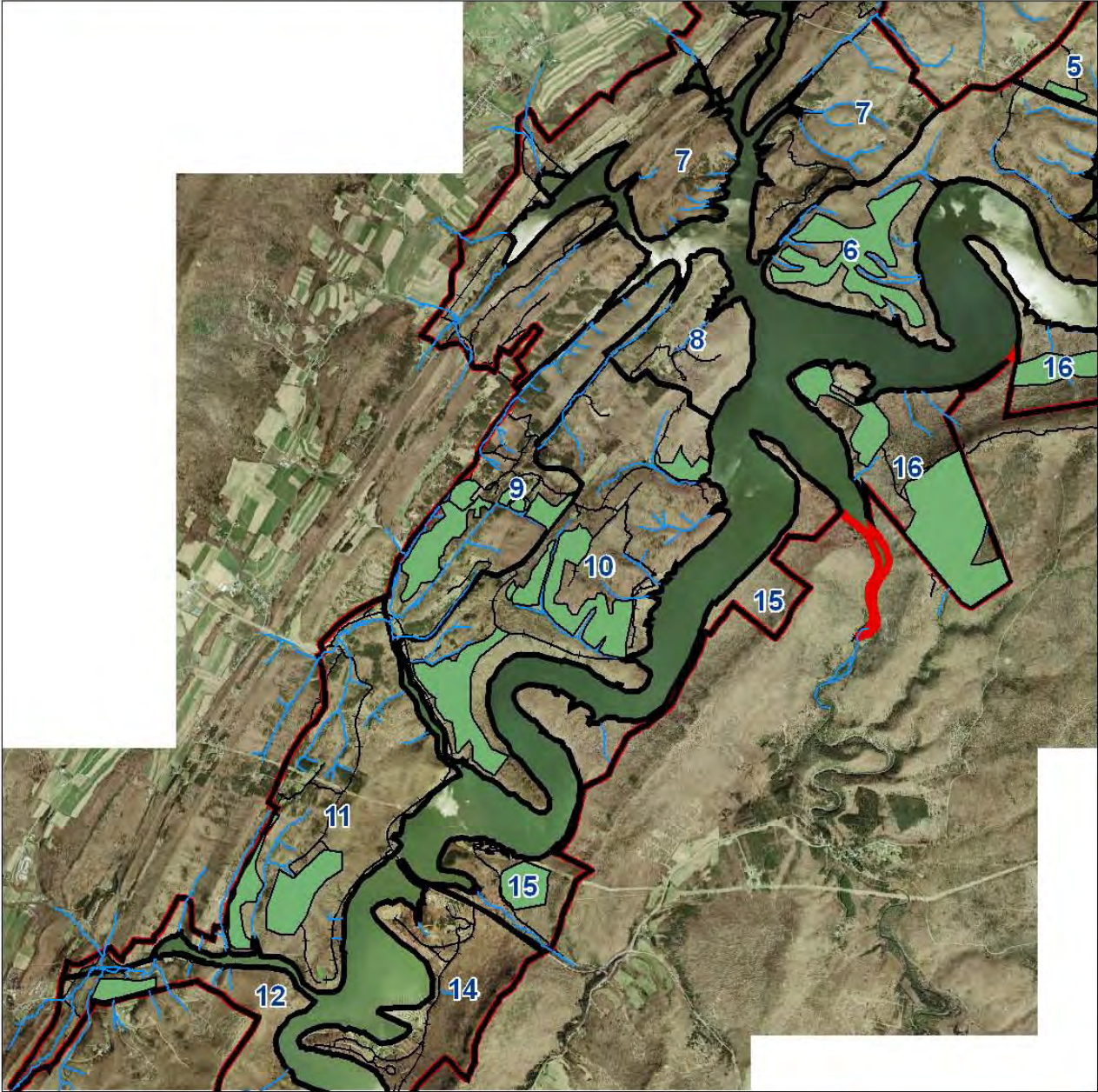
U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010

N

0 0.5 1 1.5 2 Miles



Timber Management Areas (Central)



Legend

- +— Project Roads
- Project Streams
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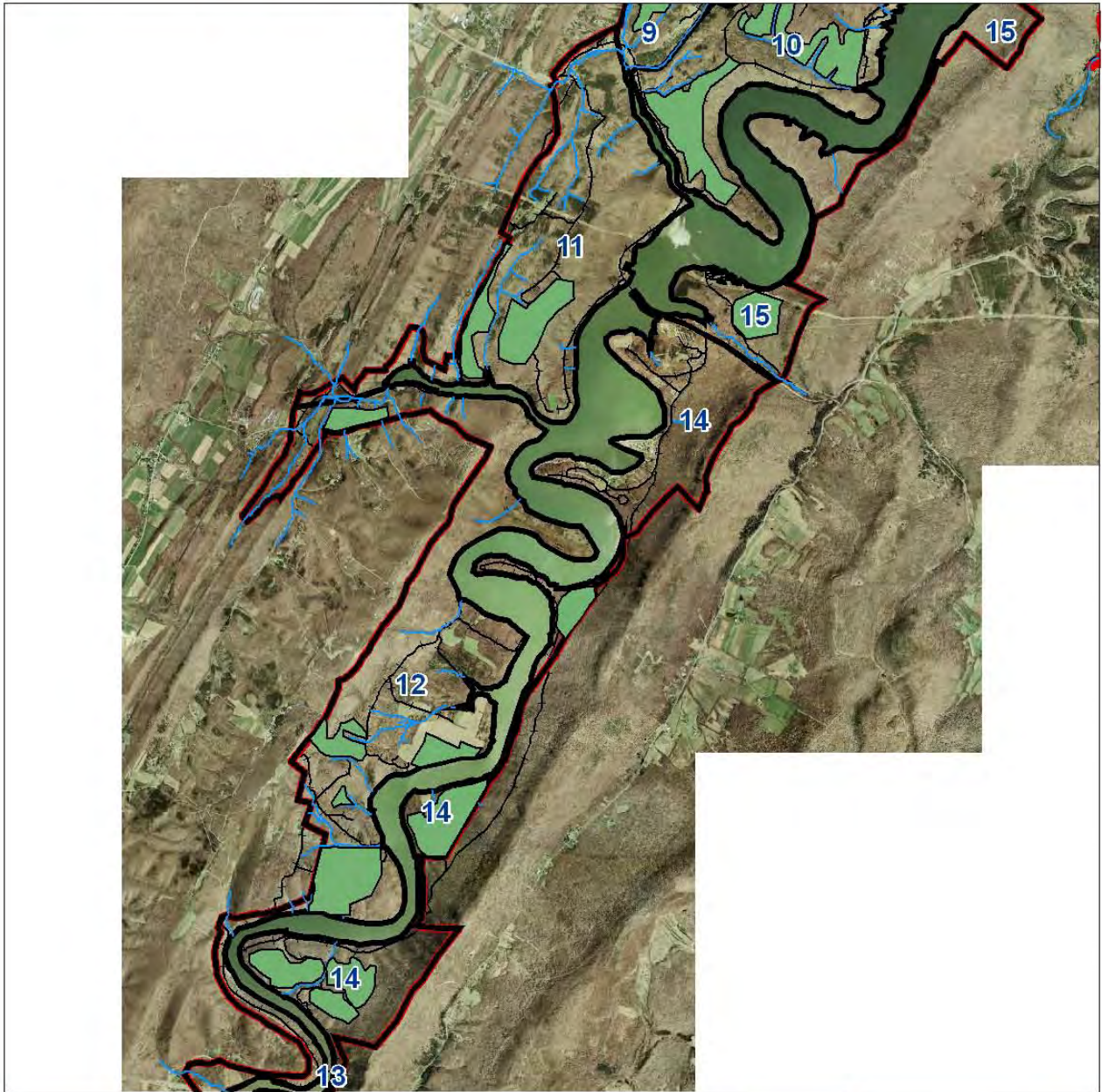
U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010

N

0 0.5 1 1.5 2 Miles



Timber Management Areas (South)



Legend

- +— Project Roads
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U.S. Army Corps of Engineers
Raystown Lake Project
July 13, 2010



0 0.5 1 1.5 2
Miles

