DRAFT
PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR EXECUTION OF NATURAL RESOURCES MANAGEMENT PROJECTS & TASKS at JOINT BASE LANGLEY-EUSTIS (EUSTIS)

July 2022

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Letters or other written comments provided may be published in the Final EA. As required by law, substantive comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

For

Integrated Natural Resource Management Projects and Tasks
Joint Base Langley-Eustis, Fort Eustis, Virginia

Pursuant to the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act of 1969 (NEPA), Title 40 of the Code of Federal Regulations (CFR) Parts 1500-1508 and the Air Force Environmental Impact Analysis Process Regulations (32 CFR Part 989), the U.S. Air Force (Air Force) has prepared this Environmental Assessment (EA) to evaluate the potential impacts on the natural and human environment associated with the Integrated Natural Resource Management Plan (INRMP) Projects and Activities at Joint Base Langley-Eustis, Fort Eustis, Virginia.

The EA considers all potential impacts of INRMP projects and tasks, two options for limited execution of INRMP projects and tasks, and the No-Action Alternative. The EA also considers cumulative environmental impacts with other projects in the Region of Influence.

Purpose and Need

The purpose of implementing the projects and tasks articulated in the INRMP is to develop and meet the intent of the Sikes Act (SA) (16 USC Part 670 et seq.,). Whereas the SA is an Act "To promote effectual planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation in military reservations." The proposed projects and tasks would include restorations of both upland and wetland habitat types, management of current forested and fallowed lands, restoration of native vegetation, and would seek to increase the ecological stability and diversity that supports the mission at Fort Eustis as well as to increase local and regional water quality, native plant and wildlife diversity, and to further protect the installation against flooding and sea level rise. This Programmatic EA would greatly reduce redundant review and EIAP documentation as the projects and tasks articulated in the INRMP are similar and repetitive in nature. Additional project-specific environmental analysis will be conducted using project-specific data prior to implementing projects.

Proposed Action

Under the proposed action, INRMP projects and tasks would fully be executed as described in the current INRMP and INRMP Annual Review Summaries. With the completion of several flora and fauna surveys in 2020 and 2021 several changes to INRMP procedures and tasks have become necessary. Although most INRMP projects and tasks are covered under previous environmental impact assessment documents, changes to current objectives require further review including management of over-mature loblolly pine stands, re-introduction of prescribed fire as a management tool, completion of a new timber inventory in December 2021, replacement of Air Force Instruction (AFI) 32-7064 (Integrated Natural Resources Management) with AFMAN 32-7003 (Environmental Conservation) in 2020, and consideration of recent USFWS Section 7 Consultation findings: the listing of the black rail (*Laterallus jamaicensis*) in October 2020, and removal of Indiana bat (*Myotis sodalist)* from the official Fort Eustis Species List.

Projects in the preferred alternative include:

1. In-house species richness and population assessments. Utilizing historical fauna and botanical surveys/inventories from 1996 through completion of contracted surveys in 2021 as a baseline for future data collection and assessment. Such inventories and surveys involve field visual and audio encounters or recordings, live trapping or netting, photography, and habitat evaluation with the objective of determining presence/absence of species or assessment of species richness and population strength.

2. Habitat management. Habitats include natural forested areas, urban forests, wetlands, early successional areas, and shoreline/surface water/aquatic systems. The management objective is to improve unmanaged existing habitats to create healthy habitats. Management options include timber stand improvements for forests (such as controlling growth of certain trees or undesirable herbaceous vegetation, replanting with native trees/vegetation), reforestation, restoration of degraded wetland habitats, evaluating shoreline erosion, conducting prescription fires, maintaining wildland fire breaks, introduction of native fauna (when permitted by the Commonwealth), management of invasive organisms (vertebrate, invertebrate and vegetation), and management of native organisms that may be undesirable (vertebrate, invertebrate and vegetation).

3. Hazard tree assessment and removal. Dead or dying trees are assessed and removed from locations where they pose risks to human safety and/or property damage. Identification and reporting of hazard trees are maintained with the Natural Resources & IPM Branch.

4. Re-introduction of prescribed fire. Prescribed fire is a tool that has fallen out of favor in the mid-Atlantic; there is however, extensive evidence that fire is an efficient tool for managing forest health, open grassland habitats, forest debris clean-up, hardwood re-generation, and management of ectoparasites in the environment.

5. Whitetail deer (*Odocoileus virginianus)* management. Ungulate populations have the potential to cause extensive damage to sensitive plant communities leading to soil erosion and water quality issues when not properly managed. Proactive population management ensures species carrying capacities are not exceeded.

6. Nuisance wildlife management. Nuisance wildlife calls have increased an average of 44% annually in the last 6 years with a peak 151 incidents in 2020, increasing the need for nuisance wildlife control and reporting. Nuisance wildlife management includes control of non-native wildlife species, any species creating significant environmental/habitat damage, species causing property or materiel damage, and species posing human health and safety risks.

7. Assessment of marketable timber resources. AFMAN 32-7003 requires the assessment of timber resources and subsequent management to meet military missions. The 2021 Timber Inventory & Forest Management Plan recommends marketable timber should be sold prior to construction events. Funds generated by timber sales are returned to the installation, while timber sold by a contractor is a loss of revenue. Documenting timber volumes and values prior to disposition is vital for reimbursing USAF for timber products and re-circulates funds to promote healthy ecosystems and forest management into the future.

8. Management of federally listed threatened and endangered species. Management of federally listed species involves surveillance to document species presence/absence and management of suitable habitat. When federally listed species are identified, proactive measures are established to mitigate mission impacts while ensuring minimal effect on the species of concern.

9. Management of wild turkeys. The Eastern wild turkey (*Meleagris gallopavo)* was re-introduced to the installation in the 1990's. The population was volatile for several years but has since grown into a robust population. Management of turkeys is primarily a balance between habitat alterations and managed hunting involving a limited harvest of birds.

10. Monitoring of bald eagles (*Haliaeetus leucocephalus)*. Since this species was federally de-listed in 2007, many management restrictions and constraints have gone away. Protections are still afforded under the Bald and Golden Eagle Protection Act that require monitoring of eagle nest locations on the installation. This will be conducted by both field observations and aerial surveys with the use of rotary or fixed wing aircraft.

11. Manage other wildlife and fauna species by improving habitats, installing bird/waterfowl nest boxes, bat housing, and other artificial microhabitats.

12. Conversion of over-mature loblolly pine stands and fallowed areas of the installation into early successional habitat to promote pollinators and northern bobwhite quail (*Colinus virginianus*).

13. Assess sites of overstocked loblolly pine dominated stands and thin sufficiently to achieve basal areas of 80-100 ft^2 per acre to reduce risks of southern pine beetle infestations and promote healthy forest ecosystems.

14. Continue to manage existing longleaf pine stands and intersperse other native species to decrease southern pine beetle risks and increase biodiversity.

15. Eliminate loblolly pine saplings from Training Area 1 and 2, and retain as a mature hardwood forest ecosystem.

Alternatives

Action Alternatives were evaluated against a set of selection standards to determine which alternatives would be carried forward and those that could be eliminated from further discussion. Limited execution of INRMP projects and tasks also met the selection criteria for federal and Air Force regulatory requirements, but did not meet the goals of State and Local cooperative goals, preserving and enhancing mission readiness, and would not fully protect the native flora and fauna located on the installation. The no action alterative, no implementation of INRMP projects and tasks, was not carried further for evaluation at Federal and Air Force regulations would not be met, and would leave the installation less able to combat periodic flooding and eventual sea level rise.

Environmental Consequences

The analyses of the affected environment and environmental consequences of implementing the Preferred Alternative presented in the EA concluded that by implementing standing environmental protection measures and operational planning, the Air Force would be in compliance with all terms and conditions and reporting for implementation of the reasonable and prudent measures stipulated by AFMAN 32-7003, the United States Fish and Wildlife Service (USFWS), Virginia Department of Wildlife Resources (DWR), Virginia Department of Environmental Quality, National Oceanic and Atmospheric Administration, US Army Corps of Engineers, US Geological Survey, Virginia Dept. of Conservation and Recreation, Virginia Dept. of Historic Resources, and local municipalities.

The US Air Force has concluded that no foreseeable significant adverse effects would result to the following resources as a result of the Preferred Alternative: Air Installation Compatible Use Zone and related utilities and transportation resources, air quality, earth, biological, and natural resources, wetlands, floodplains, occupational health and human safety, and socioeconomics / environmental justice. No significant adverse cumulative impacts would result from activities associated with the Preferred Alternative when considered with past, present, or reasonably foreseeable future projects. This conclusion was preceded by a FONSI determination by USFWS at Presquile National Wildlife Refuge, located approximately 40 miles North-West along the James river, and bearing similar habitats, management goals, and projects and tasks (August 2012).

Mitigation Measures and Permit Requirements

The following mitigation measures and permitting actions are required in areas such as water resources, biological resources, and culture resources.

Water Resources

- Acquire all necessary wetlands and water resource permits for the projects and tasks included in the INRMP. This is completed for each project prior to execution through the Virginia Marine Resource Commission Joint Permit Application Process and involves all regulatory agencies having jurisdiction within the area in influence for that specific project or task.
- Mitigation measures implemented by the installation are documented on the joint permit application. Mitigation measures required by a water resource regulatory agency are indicated through direct contact and permit issuance between the installation and the regulatory agency.
- Implementation of Best Management Practices as defined in the Stormwater Pollution Prevention Plan and using Virginia Department of Forestry guidelines.

Biological Resources

- Permitting, best management practices, and verification for federally protected species are identified by completion of Section 7 consultation with U.S. Fish and Wildlife Service (USFWS).
- Adhere to Fort Eustis INRMP management plans and best management practices to avoid disturbance of protected species and sensitive habitats.

Culture Resources

- If prehistoric or historic artifacts that could be associated with Native American, early European, or American settlement are encountered at any time during implementation of INRMP projects and tasks, cease all activities involving surface disturbance in the vicinity of the discovery. Contact the installation Culture Resources Team Lead and do not resume work without verbal and/or written authorization.
- In the event unmarked human remains are encountered during permitted activities, stop all work immediately and notify the proper authorities.

Hazardous Materials/Waste and Solid Waste

- Report any spills or discharges discovered during the course of demolition and construction.
- Manage hazardous materials and disposal of hazardous substances in compliance with Joint Base Langley-Eustis, Fort Eustis' Hazardous Waste Management Plan.
- Ensure construction contractor compliance with 29 CFR 1910.120 to address the health and safety of its employees during construction and demolition activities, with respect to worker exposure to hazardous substances and proper management of soil and groundwater encountered during construction, including testing, handling, and disposal procedures.

Public Review and Stakeholder Coordination

Coordination letters were submitted to numerous public stakeholders, including but not limited to: Virginia Marine Resources Commission, Virginia Dept. of Wildlife Resources, state and local wetland and water quality boards, SHPO, USFWS, and Native American Tribes claiming cultural affinity to the area. An early notification of impacts on wetlands and floodplains was published in the Daily Press 16 June 2022. Copies of the notice and coordination letters are included in the EA. The Draft EA was released for public review for 30 days on 24 July 2022 with a Notice of Availability published in the Daily Press. Xx # public xX comments on the Draft EA were received. The following federal, state, and local regulatory agencies and tribal governments have responded to the Draft EA or project-specific consultations related thereto: Xx List of those responding xX.

Find of No Significant Impact

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR §989, I conclude that the Proposed Action would not have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, the requirements of NEPA regulation have been fulfilled. An Environmental Impact Statement is not required and will not be prepared. The signing of this Finding of No Significant Impact completes the environmental impact analysis process.

Finding of No Practicable Alternative

Executive Order (EO) 11990, *Protection of Wetlands*, (24 May 1977) directs agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland and the proposed construction incorporates all possible measures to limit harm associated with development in the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands. In accordance with EO 11990 and 32 CFR Part 989, a Finding of No Practicable Alternative (FONPA) must accompany the Finding of No Significant Impact (FONSI) stating why there are no practicable alternatives to development within or affecting wetland areas.

Similarly, EO 11988, *Floodplain Management* (May 24, 1977), requires Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. If it is found that there is no practicable alternative, the agency must minimize potential harm to the floodplain and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted flood proofing and flood protection to include elevating structures above the base flood level rather than filling in land. In accordance with EO 11988, a FONPA must accompany the FONSI stating why there are no practicable alternatives to development within or affecting floodplains.

The Proposed Actions would result in impacts to both wetlands and floodplains. The following FONPA is therefore presented with the FONSI, pursuant to EO 11990 and EO 11988.

Wetlands: The intent of the Preferred Alternative is to restore native and natural habitats and maintain ecosystem stability and biodiversity in support of the Sikes Act and to support the training missions of the installation. Creating natural ecosystems, removing invasive and problematic species, and promoting native and endemic species on the installation both improves the experience and authenticity of training missions. Simultaneously reduced storm water run-off, pollutants, excessive nutrients and soil, and invasive species existing in wetland ecosystems will increase the ability of these ecosystems to improve local and regional water quality, fish, game, and plant and wildlife species. Two alternative actions were considered and determined that neither would fully satisfy the selection standards. The alternatives either would not support Federal and Air Force regulation, Sikes Act, and executive orders described within the EA or would not sufficiently address ecosystem degradations that take away from mission training requirements and the ability to conduct the mission into the future. This action does not include construction or infrastructure within wetlands. In essence, to correctly manage and restore wetland ecosystems the projects and tasks articulated in the INRMP must occur within wetlands themselves. Taking all the environmental, economic, and other pertinent factors into account, pursuant to EO 11990, the authority delegated by Secretary of the Air Force Order 791.1, and taking into consideration the

submitted information, I find that there is no practicable alternative to this action and the proposed action includes all practical measures to minimize harm to the environment.

Floodplains: Similarly, there is no practicable alternative to implementing the Preferred Alternative within floodplains. As described in the EA, sea level rise and flood events will have an increasing impact on the installation in coming years. The projects and tasks articulated in the INRMP will inherently create more robust ecosystems, capable of withstanding localize flooding events and slowing the impacts of sea level rise. Implementation of the Proposed Actions would not increase the frequency, duration, depth, or velocity of flood flows and does not create construction, infrastructure, or buildings within the floodplains. As with all environmental restorations, projects and tasks must be completed within those ecosystems if an effective restoration is to occur. Short-term negative impacts will quickly be overcome by long-term gains of this action. Taking all the environmental, economic, and other pertinent factors into account, pursuant to EO 11988, the authority delegated by Secretary of the Air Force Order 791.1, and taking into consideration the submitted information, I find that there is no practicable alternative to this action and the proposed action includes all practical measures to minimize harm to the environment.

_____ _____

SIGNATORY NAME, Rank/Title Date

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AFCEC	Air Force Civil Engineer Center
AFI	Air Force Instruction
AFMAN	Air Force Manual
AICUZ	Air Installation Compatible Use Zone
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CES	Civil Engineering Squadron
CFR	Code of Federal Regulations
DODI	Department of Defense Instruction
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEDMMA	Fort Eustis Dredged Materials Management Area
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
HazWOPER	Hazardous Waste Operations and Emergency Response
HW	Hazardous Waste
INRMP	Integrated Natural Resource Management Plan
IPAC	Information, Planning, and Consultation System
IPM	Integrated Pest Management
IPMP	Integrated Pest Management Plan
JBLE-E	Joint Base Langley-Eustis, Fort Eustis
MAJCOM	Major Command
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NOA	Notice of Availability
NRHP	National Register of Historic Places
PREIAP	Planning Requirements for the Environmental Impact Analysis Process
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SA	Sikes Act
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USFWS	United States Fish and Wildlife Service
VDWR	Virginia Department of Wildlife Resources

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1. PURPOSE OF AND NEED FOR ACTION

The Sikes Act (16 USC Part 670 et seq.,) is an Act "To promote effectual planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation in military reservations." The Sikes Act (SA) further specifies that the Secretary of Defense "shall carry out a program to provide for the conservation and rehabilitation of natural resources on military installations: and "To facilitate the program, the Secretary of each military department shall prepare and implement an integrated natural resources management plan for each military installation in the United States under the jurisdiction of the Secretary, unless the Secretary determines that the absence of significant natural resources on a particular installation makes preparation of such a plan inappropriate." This requirement is articulated in Department of Defense Instruction (DODI) 4715.03, Natural Resources Conservation Program. US Air Force (AF) installations are subsequently required to manage their respective natural resources as directed by Air Force Manual (AFMAN) 32-7003, Environmental Conservation (20 Apr 2020). Air Force-managed installations determine whether Integrated Natural Resources Management Plans (INRMP) are needed based on criteria set forth in AFMAN 32-7003. Joint Base Langley-Eustis (Eustis) [JBLE-E] meets the criteria of a Category I installation and therefore contains natural resources warranting management via an INRMP. The projects and tasks needed to effectively manage JBLE-E natural resources are articulated in the JBLE-E INRMP, updated in INRMP Annual Review Summaries, and identified in recent surveys and observations. Programmatic Environmental Assessments increase efficiency of the environmental impact analysis process (EIAP) by reducing repetitive reviews and documentation of actions that are routine and reoccurring. The projects and tasks articulated in the FE INRMP and annual review summaries are routine and repeatable in nature and similar in scope despite the fact that individual projects may occur sporadically and at differing locations across the installation. Therefore this EA does not describe specific projects or tasks but analyzes potential impacts of the culmination of projects and tasks. It is nearly impossible to predict the exact location, scopes, and timelines of the projects articulated in the INRMP and specific projects will be considered under EIAP as project specific information is collected.

1.1. INTRODUCTION

JBLE-E meets the criteria set on AFMAN 32-7003 requiring preparation and execution of an INRMP. US Air Force (AF) installations are required to manage their respective natural resources in consultation with state and federal agencies and to support perpetuity of the military mission. The primary objective of USAF natural resources management is to "sustain, restore, and modernize natural infrastructure to ensure operational capability and no net loss in the capability of USAF lands to support military mission of the installation."

1.2. PURPOSE OF THE ACTION

The purpose of this action is to meet statutory requirements under the Sikes Act (16 US Code [USC] § 670a et seq.) and manage natural resources in a sustainable manner. This includes recent identification of mature loblolly pine stands requiring short-term alteration to remove hazard trees and transform into more viable natural habitats, implement other forest management actions (based on a new forest inventory completed December 2021), and reintroduce prescription fires as a viable habitat management technique. Natural resource management projects and tasks also supports the Air Force Pollinator Action Plan and Total Maximum Daily Load goals for the installation. Natural resource projects and tasks are executed as articulated in the INRMP.

1.3. NEED FOR THE ACTION

The need for natural resource management at JBLE-E arises from the SA requirements that the Secretaries of the military departments prepare and implement INRMPs. In order to maintain consistency with the SA and USAF policies, JBLE-E prepared and executed INRMPs since the promulgation of the SA. INRMPs cover 5-year periods with annual reviews and updates when necessary. The current JBLE-E

INRMP was approved 5 June 2019. This INRMP articulates the natural resource tasks and projects that must be executed for the INRMP to remain compliant. These tasks and projects are modified in scope or location based on various factors including weather/climate changes, availability of resources to execute a given task or project, completion in selected areas, vegetation regrowth, identification of new invasive species, tree damage, new listing of a species under the Endangered Species Act, and other factors. Such modifications become articulated in INRMP annual reviews and work plans but may require more immediate modification.

1.4. DECISION TO BE MADE

The decision to be made is the selection of an alternative for JBLE-Eustis 733 CES to execute natural resource projects and tasks based on the INRMP, INRMP Annual Review Summaries, or updates. The decision options are:
To implement projects and tasks as articulated in the JBLE-Eustis INRMP;
Selecting an alternative and preparing a FONSI; or
Preparing an Environmental Impact Statement if the alternatives would result in significant environmental impacts.

1.5. INTERAGENCY AND INTERGOVERNMENTAL COORDINATION AND CONSULTATIONS

Federal, state, and local agencies with jurisdiction that could be affected by the alternative actions were notified and consulted during the development of this EA. Appendix A contains an example agency notification letter pertaining to this EA.

1.6. GOVERNMENT TO GOVERNMENT CONSULTATIONS

EO 13175, Consultation and Coordination with Indian Tribal Governments (6 November 2000), directs Federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. To comply with legal mandates, federally recognized tribes that are affiliated historically with the Joint Base Langley-Eustis geographic region shall be invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation and requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of intergovernmental consultations. The JBLE-E point-of-contact for Native American tribes is the Installation Commander. The JBLE-E point-of-contact for consultation with the Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation is the Cultural Resources Manager.
The Native American tribal governments that will be coordinated with regarding this action are listed in Appendix A.

1.7. PUBLIC AND AGENCY REVIEW OF EA

An Early Public Notice (Appendix B) was posted in the Daily Press Newspaper on 16 June 2022. A Notice of Availability (NOA)(Appendix C) of the Draft EA was published on the JBLE Website and through the Daily Press Newspaper announcing the availability of the EA for review on 24 July 2022. The NOA invited the public to review and comment on the Draft EA. The public and agency review period ended on 24 August 2022. Public and agency comments are provided in Appendix G.

1.8. MISSION OF PROJECT PROPONENT

JBLE-E is a joint military installation that is managed by the US Air Force in support of US Army units. Training by Army units (and to a lesser extent by other organizations) is a predominant function. Other mission partners and tenant activities are also located at JBLE-E.

1.9. LOCATION OF THE PROPOSED ACTION

The proposed action (natural resources management) occurs at Joint Base Langley-Eustis (Eustis), Fort Eustis, Virginia. Joint Base Langley-Eustis (Eustis) [JBLE-E] is located in southeastern Virginia within the mid-Atlantic Coastal Plain and Chesapeake Bay Watershed (Figure 1-1). It is a joint military installation as part of Joint Base Langley-Eustis which comprises Fort Eustis and Langley Air Force Base. Fort Eustis is managed by the US Air Force (USAF) in support of primarily US Army operations and to a lesser extent other DOD and non-DoD activities. JBLE-E is adjacent to the city of Newport News with a small parcel adjacent to James City County. The James and Warwick Rivers serve as boundaries on the west and east sides of installation, respectively.

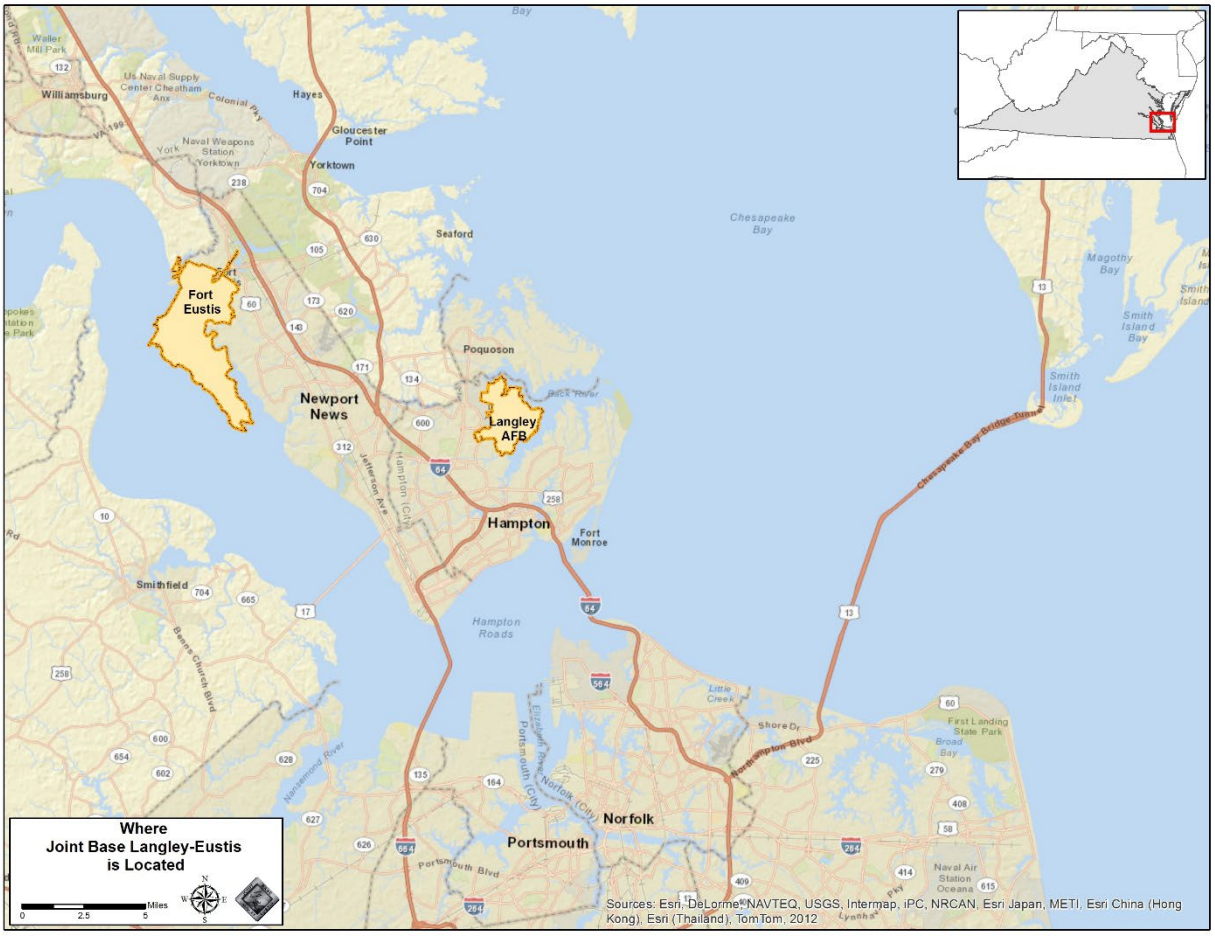

Figure 1-1: Geographical location of JBLE-Fort Eustis.

2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1. PROPOSED ACTION

Alternative 1 (Preferred Alternative) is to execute projects and tasks articulated in the current INRMP and INRMP Annual Review Summaries as well as conversion of selected over-mature loblolly pine stands to early successional habitat restoration, re-introduction of prescribed fire to the landscape, and restoration of degraded wetland habitats when sufficient resources and funds are available. All projects and tasks considered here are related to the preservation, enhancement, and improvement of natural resources and a no-net loss of Air Force, Army, and other military missions that occur on the installation. These projects and tasks are not related to construction, military training, or control of mosquitoes via aerial platforms.

2.2. SELECTION STANDARDS

The National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations mandate the consideration of reasonable alternatives for the preferred alternative. "Reasonable alternatives" are those that also could be utilized to meet the purpose of and need for the proposed action. Per the requirements of 32 Code of Federal Regulations (CFR) §989, the USAF Environmental Impact Analysis Process (EIAP) regulations, selection standards are used to identify alternatives for meeting the purpose and need for the USAF action.

The proposed action alternatives must meet the following selection standards:

- Compliance with the SA and AFMAN 32-7003.
- Compliance with Endangered Species Act (ESA), Bald and Golden Eagle Protection Act (BGEPA), Migratory Bird Treaty Act (MBTA), and other respective federal laws & regulations, and applicable Virginia Code.
- Compliance, where applicable, to State Regulations.
- Supports the INRMP.
- Supports the military mission in perpetuity.
- Reduces public health and safety risks.
-Reduces costs associated with infrastructure and landscape maintenance.

2.3. SCREENING OF ALTERNATIVES

The following potential alternatives that might meet the purpose and need for implementing the INRMP were considered:

1) Alternative 1 - Preferred alternative, would be to implement projects and tasks articulated in the current INRMP as well as subsequent annual review summaries, over-mature loblolly pine stand conversions, a re-introduction of prescription fire and restoration of degraded wetland habitats as resources are available.
2) Alternative 2 - Selective natural resource tasks limited to compliance with federal conservation-related regulations, invasive vegetation control and projects executed under contract would be implemented.

3) Alternative 3 - No action alternative, would implement only fulfillment of federal regulations, hazard tree removal in urban areas, and execution of hunting, fishing, and boating programs.

The selection standards described in Section 2.2 and depicted in Table 2-1 were applied to these alternatives to determine which alternative(s) could meet implementation of INRMP tasks and projects and would fulfill the purpose and need for the action.

Table 2-1: Selection Standards for Preferred and Alternative Actions.

	Selection Standards						
Descriptions	**Compliance with Sikes Act and AFMAN 32-7003.**	**Compliance with Federal laws and Regulations.**	**Compliance with State Regulations.**	**Fully Supports INRMP.**	**Supports Military Missions in Perpetuity.**	**Reduce Public Health and Safety Risk.**	**Reduces Costs of Infrastructure Maintenance.**
Alternative 1 (Preferred Alternative)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Alternative 2 (Limited Action Alternative)	Yes	Yes	Partially	No	Partially	Partially	Partially
Alternative 3 (Legal and Safety Alternative)	Partially	Partially	Partially	No	Partially	No	No
Alternative 3 (No Action Alternative)	Partially	Partially	No	No	Partially	No	No

2.4. DETAILED DESCRIPTION OF THE ALTERNATIVE(S)

Three alternatives, as well as "No-Action" are analyzed in the detailed description of the alternatives. Alternatives ranged from full implementation of INRMP tasks and projects, limited implementation of the INRMP, and implementation of tasks and projects that are legally required or are required to maintain public health and safety. The "no-action" alternative assumed no implementation of the projects and tasks articulated within the INRMP.

2.4.1. ALTERNATIVE 1 (EXECUTE ALL NATURAL RESOURCE PROJECTS & TASKS ARTICULATED IN THE INRMP/ANNUAL REVIEW SUMMARIES)

Execution of natural resources management tasks and projects is the preferred alternative and includes the following:

1. Utilize historical fauna and botanical surveys/inventories from 1996 through completion of contracted surveys in 2021 from which to conduct in-house species-specific occurrences/population assessments. Such inventories and surveys involve field visual encounters, live trapping or netting, photography, wetland delineation, and bird/amphibian call recordings with the objective of determining presence/absence of species or assessment of respective populations.

2. Hazard tree assessment and removal. Dead or dying trees are assessed for causality and potential preventative measures to reduce the hazard, reverse damage, or prevent future hazard

tree. Damage and death causality can be monitored and used to predict and prevent future hazard trees or allow for treatment or corrective pruning of potential hazard tree. Hazard trees that cannot be corrected are to be removed from locations where they pose risks to human safety and property damage in the cantonment area and on Mulberry Island.

3. Habitats include natural forested areas, urban forests, wetlands, early successional areas, and surface water/aquatic systems. The objective is improve or enhance existing habitats to more healthy natural habitats. Management activities include timber stand improvements and timber harvests (such as controlling growth of certain trees or herbaceous vegetation, replanting with native trees/vegetation), reforestation, control of invasive wetland vegetation, evaluating shoreline erosion, introduction of native fauna, management of invasive organisms (vertebrate, invertebrate and vegetation), and management of native organisms within carrying capacities of the installation to include those species that may be undesirable towards natural habitat improvements (vertebrate, invertebrate and vegetation). Forest management involves maintaining healthy forest habitats, and is different from construction projects that require removal of trees leading to a permanent change in the land use. Changes in land use away from natural habitats do not constitute forest management. 4. Whitetail deer management where proactive management ensures a healthy population within habitat carrying capacities.

5. Nuisance wildlife management that reduces risks to human health & safety, and environmental/habitat damage.

6. Assessment for marketable value of timber resources/forestry products and overseeing related harvests.

7. Management of federally listed threatened and endangered species. This may involve management of suitable habitat, surveys, and meet section 7 ESA requirements.

8. Management of wild turkeys involving field surveys and management of limited harvests.

9. Management of bald eagles involves periodic nest surveys via aircraft, management of suitable habitat, and identification, and management of conflicts between nesting sites and military operations.

10. Manage other wildlife and fauna species by improving habitat, installing bird/waterfowl nest boxes, bat housing, and other artificial microhabitats.

11. Conversion of over-mature loblolly pine stands into early successional habitat to promote arthropod biodiversity, early successional song bird diversity, and northern bobwhite quail population improvement.

12. Assess sites of overgrown loblolly pine stands and thin sufficiently to achieve basal areas of less than 100 ft2 per acre to reduce risks of southern pine beetle infestations and allow for better pine habitat.

13. Reduce loblolly pine saplings across the installation forests and retain as a mixed pine-hardwood forest.

14. Re-introduce prescription fires as a habitat management technique to reduce invasive and undesirable vegetation, promote ecological diversity, and restore native diversity to augment the training mission on the installation.

15. Improve wetland habitats to include controlling invasive common reed (Appendix F) and replanting with native vegetation.

Natural resource management projects and tasks are not related to or associated with construction projects or military training events.

2.4.2. ALTERNATIVE 2 (LIMITED EXECUTION OF NATURAL RESOURCE PROJECTS AND TASKS)

Natural resources tasks and projects in the limited execution alternative would include all tasks and projects within the INRMP for legal requirements, public health and safety, and habitat restoration, but will exclude entry into wetlands and wetland habitat restorations.

1. Incorporate previous planning level surveys and conduct planning level surveys every 5 years with species specific surveys as needed.

2. Conduct wildlife management activities as described in alternative 1 (preferred alternative). Focus species will include white-tailed deer, eastern wild turkey, and various nuisance wildlife species.

3. Conducting timber stand improvements and limited forestry harvests to promote forest regeneration in upland locations of the installation. Forestry actions would not occur within 100ft riparian buffer defined by the Newport News Wetlands Board.

4. Conducting native habitat restorations and replantings in upland sections of the installation, but would not include wetland restoration or planting within wetland areas.

5. Re-introduction of prescription fire as a management tool to manage upland timber and native habitats and training areas. Prescription fire would not be used to manage or control wetland vegetation or invasive and undesirable species.

6. Hazard tree removal and determination of causality and potential treatments would be evaluated, hazard trees occurring in known wetland locations would be removed, but would not be monitored for causality or treatment options.

2.4.3. ALTERNATIVE 3 (LEGAL AND SAFETY EXECUTION OF NATURAL RESOURCE PROJECTS AND TASKS)

Natural resources tasks and projects in the legal and safety execution alternative would include only those tasks that are legally required or protect human health and safety:

1. Limits vertebrate wildlife surveys to once every 5 years via contract to fulfill AF planning level survey regulations.
2. Identify hazard trees and remove without evaluating preventive measures or causative factors.
3. Implement whitetail deer hunting program in accordance with Virginia hunting laws and regulations but without assessing population conditions.
4. Implement hunting seasons, deer management hunts, and spring gobbler hunting without assessing population conditions.
5. Limit habitat management by precluding invasive vegetation control measures.
6. Limit management of loblolly pine stands to removal of over mature pine stands that only pose immediate risks to property and personnel safety.

2.4.4. NO-ACTION ALTERNATIVE

Natural resources tasks and projects in the no action alternative would include only implementation of the hunting, fishing, and boating programs, fulfilling federal habitat permitting and reporting requirements, and hazard tree identification.

2.5. ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

As one of the other alternatives that were considered would meet the purpose and need, the following alternatives have been eliminated from further consideration:

- No Action Alternative: The Natural Resources and IPM branch are tasked with monitoring wildlife, bald eagle reporting, threatened, and endangered species monitoring, and management of hunting, fishing, and boating programs on Fort Eustis in accordance with AFMAN 32-7003 and USFWS permitting requirements. At a minimum these requirements must be completed by the branch and may not be carried out by contractors. This alternative is not carried forward for analysis in this EA.

3. AFFECTED ENVIRONMENT

The Region of Influence (ROI) for the Proposed Action is any area of Fort Eustis, Joint Base Langley-Eustis, Virginia unless otherwise specified below for a particular resource area where a resource would have a different ROI.

3.1. SCOPE OF THE ANALYSIS

This chapter describes the current conditions of the environmental resources, either man-made or natural, that would be affected by implementing the INRMP Activities Preferred Alternative.

Based on the scope of the Proposed Action, issues with minimal or no impacts were identified through a preliminary screening process. The following describes those resource areas not carried forward for a detailed analysis, along with the rationale for their elimination.

Regardless of the alternative selected, the following resources would not be affected by the Proposed Action and are not discussed in detail in this EA:

- Utilities/Transportation Resources: The Preferred Action, nor alternatives, would not permanently utilize or disrupt utility services. INRMP activities such as forestry operations, prescribed fire, invasive species control, may result in minor increases to local traffic and potential roadway delays; however, these would be temporary and infrequent in occurrence. As a result, the USAF anticipates no significant short or long-term adverse impacts, and this resource area was not carried forward for detailed analysis. There would be no significant impacts to Utilities/Transportation Resources. INRMP Activities increase forest health would ultimately lead to reduced infrastructure maintenance costs and increased safety.
- Earth Resources: The Preferred Alternative or alternative actions would not have significant impacts to earth resources such as geology, soils, and topography. Minimal disturbance to soils and geology would occur in the short-term, post timber harvest, habitat restoration, or shortly after a prescribed fire. Through erosion mitigation and forestry best management practices, these actions, or alternative actions would have no long-term effect on earth resources. Topography would not be changed by any action or alternative action. INRMP projects and tasks will likely increase overall stem density and ground cover within 6 months of completion, ultimately leading to an increase in soil and geologic stability and improved water quality.
- Water Resources: At times, INRMP-programmed projects and tasks may occur within or directly adjacent wetlands (habitat restoration, wildlife monitoring, hazard tree removal, etc.), but will not disturb wetland or coastal soils and hydrology. These activities should result in a net increase of wetland and riparian functions and services and reduce erosion and soil instability in the near and long-term. Restoration work would include removal of invasive vegetation (predominantly common reed) by physical methods supported by appropriate/approved herbicides and prescription fire, with replanting with native wetland vegetation. Execution of restoration work would occur in accordance with federal, state and local permitting requirements such as (but not necessarily limited to) US Army Corps of Engineers Nationwide Permit 27 (Aquatic Habitat Restoration, Enhancement, and Establishment Activities).

- Socioeconomic Justice: The Proposed Action would result in no or negligible impacts to socioeconomics or environmental justice. No change in personnel or economic conditions at JBLE-Eustis would be anticipated as a result of the Proposed Action; therefore, no effects to socioeconomics would be expected.
- Environmental Justice. Executive Order (EO) 12898, Environmental Justice, directs Federal agencies to identify low-income and minority populations potentially affected because of proposed Federal actions. As adverse impacts generated from the Proposed Action would be mostly confined to JBLE-Eustis, no Environmental Justice communities, if present in nearby Newport News, would be particularly or disproportionately affected. Further, no change in personnel or economic conditions at JBLE-Eustis would be anticipated as a result of the Proposed Action that would impact Environmental Justice populations. The Proposed Action would not have disproportional impacts to low-income, or minority communities; therefore, no effects to Environmental Justice would be expected.

Similarly to this FONSI, several other USAF Installations have conducted NEPA review of INRMP activities to include prescribed fire and forest management operations. Eglin AFB (2021) determined that 8 environmental areas were expected to have less than significant impacts, Warren AFB noxious weed control EA (2012) found that prescribed fire and invasive and noxious weed control resulted in less than significant impacts to several environmental areas. U.S. Forest Service found that similar projects conducted on National Forest Service Lands (2019) lead to insignificant impacts to water quality, erosion, sedimentation, and resource production. All of these EAs lead to FONSIs.

3.2 DESCRIPTION OF THE JBLE-E LANDSCAPE AND RELATED RESOURCES

General. JBLE-E is a military installation supporting the overall mission of national defense. JBLE-E approximately 7,900 acres of land utilized for national defense. The installation is informally divided into two general areas: Cantonment and Mulberry Island.

Figure 3-1 Cantonment Area and Mulberry Island, Fort Eustis VA.

3.2.1. Cantonment Area. The cantonment area consists of approximately 2,000 acres located in the northern part of the installation. The majority of this area is disturbed/developed containing most buildings/structures, athletic fields, parking areas, elementary school, soldier billets, privatized family housing, a closed landfill, and motor pools. Additionally, it includes a military watercraft port facility (Third Port), Eustis Lake, Browns Lake, the Fort Eustis Nature Trail, MWR campground, and some training areas. These training areas include two contiguous training areas (Training Areas 1 and 2) which are predominantly commercial hardwood forest, and Training Area 8 which is in a

commercial pine-mixed hardwood forest that contains an obstacle course. Bailey Creek separates the developed portions of the cantonment from Training Areas 1 and 2. The cantonment contains some urban forest.

3.2.2 Mulberry Island. This portion of the installation contains most of the natural areas. Such areas are dispersed across the majority of the training areas and an impact area. These natural areas comprise various habitats including upland pine-hardwood forests, forested wetlands, tidal creeks, emergent and scrub-shrub wetlands, riparian corridor/shoreline, and early successional habitats. Mulberry Island also contains a golf course which itself contains islands of upland forest and forested wetlands. It also contains Felker Army Airfield, small arms firing ranges, and a small number of buildings/structures. The impact area is an unused area due to unexploded ordnance and is predominantly upland forest and wetlands.

3.2.3 Training Area 30. Training Area 30 is a small parcel of land comprising an estimated 50 acres located on the north side of Skiffes Creek opposite Third Port. It remains an undeveloped parcel available for training purposes. It contains upland forest, ephemeral pools, and marsh habitats. No structures or utilities exist. The land is adjacent to James City County.

3.3. AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ)/LAND USE/NOISE

3.3.1. Work performed by natural resources staff. Some degree of noise is expected to be generated during natural resources management operations (such as timber stand improvements [TSI] and other similar habitat management work). However, noise generation is limited to one forestry mower, three tractors, chain saws, and two 4-wheel drive pickup trucks as used by natural resources staff. This equipment is not normally operated concurrently. There are two staff members who would use these items thus limiting the number of equipment that can be operated at any given time. These types of equipment do not generate excessive noise decibels, are not operated for extended periods of time or a night, and are usually operated in more remote areas of Mulberry Island.

3.3.2. Work performed by contractors. At times some natural resources work (such as TSI and other habitat management projects) is conducted via contracts or official agreements. In these cases the contractor/provider would provide his/her own equipment. Such equipment is expected to be similar in type and utilized in a similar manner as that used by the natural resources staff with one exception. The exception would be the use of commercial aircraft to conduct aerial application of herbicides against invasive vegetation (primarily common reed [Phragmites australis]) or insecticides possibly against outbreaks of forest arthropod pests. In these cases, small rotary-wing aircraft would be used. Examples would include UH-12 Raven or OH-58 Kiowa equivalent aircraft. Such aircraft would be expected to operate up to 20 hours per year during daytime hours, and would not contribute significant noise in addition to the existing aircraft operated at the installation. Aerial treatments against common reed were evaluated in an *Environmental Assessment for Control of Phragmites australis at the US Army Transportation Center, Fort Eustis, Virginia* (September 2004), *Supplemental Environmental Assessment for*

Control of Common Reed at Joint Base Langley-Eustis, Fort Eustis, Virginia (September 2012), and is being assessed further in a an EA entitled *Aerial Application of Pesticide for Mosquito and Invasive Plant Species Control at Joint Base Langley-Eustis, Fort Eustis and Langley Air Force Base, Virginia*, in 2022.

3.3.3. The EAs prepared in 2004 and 2012 resulted in FONSIs. A similar EA for vegetation clearing around Felker Army Airfield found 11 environmental areas with less than significant impacts and resulted in a FONSI (December 2017).

3.3.4. Timber harvests. Timber harvesting is conducted for habitat management projects with the end result being removal of trees and conversion of the forest stand to a non-forest habitat or a reforestation effort (Removal of timber for construction projects is not considered natural resources management and is not assessed here, as such projects require their own environmental impact analysis). Timber harvesting as a natural resources project involves altering existing forest conditions with the intent of promoting healthy forest systems that supports the military mission. Timber harvests are performed by commercial logging companies that purchased the timber. Consequently, this is not a contracted operation. This type of operation varies by project in terms of acreage and duration. This operation involves use of timber harvesting heavy operating equipment, timber skidder, chainsaws, tractor-trailer, and pickup trucks. These operations are infrequent and limited in acreage due to limited accessible commercial forest land. Frequency is one harvest per year at a maximum. Most locations would likely be in more remote portions of the installation. Tables 3-1, 3-2, and 3-3 depict equipment deployed and estimated usage for these projects and tasks.

Table 3-1: Equipment Employed by NR&IPM Branch for Implementation of INRMP Activities, 2021.

Equipment Type	Quantity	Horsepower rating	Fuel	Estimated hours of operation	Comments
All-Terrain Vehicle	1	47	Gasoline	100/year	
Kubota M5400 Tractor	1	54	Diesel	3,000/year	
Kubota M8200Tractor	1	82	Diesel	3,000/year	
Rayco C100 Forestry Mower	1	99	Diesel	400/year	
Generator	1	11	Gasoline	5/year	
Water Tank	1		Battery	25/year	25 gallon capacity
Stihl 038 Chainsaws	2	5	Gasoline	200/year	
Blower	1	2	Gasoline	125/year	

Water Tank Sprayer	1	6	PTO	60/year	110 gallon capacity
Backpack Sprayer	2		Manual	120/year	5 gallon capacity

Table 3-2: Equipment Employed by Contractors for Implementation of Forestry and INRMP Activities, 2021.

Equipment Type	Quantity	Horsepower rating	Fuel	Estimated* hours of operation	Comments
Timber harvesting heavy operating equipment	1	300	Diesel	270/year	6/hr/day for 45 days.
Timber skidder	1	250	Diesel	240/year	6/hr/day for 40 days.
Chainsaws	3	7	Gasoline	270/year	6hr/day for 45 days.
Tractor-trailer	2	300	Diesel	360/year	6hr/day/30 days.
Pickup truck/equivalent	1	250	Diesel	90/year	2 hr/day for 45 days.
Tank Sprayer	1	8	Battery	100/year	
Backpack Sprayer	2		Manual	200/year	5 gallon capacity

Table 3-3: Equipment Employed by USAF Wildland Fire Center for Prescribed Fire Applications of INRMP Activities, estimated 2022.

Equipment Type	Quantity	Horsepower rating	Fuel	Estimated* hours of operation	Comments
Fire enabled ATV	2	50	Gasoline	12/year	6/hr/day for 2 days.
Backpack Blower	2	3	Gasoline	12/year	6/hr/day for 2 days.
Chainsaws	3	7	Gasoline	12/year	6hr/day for 2 days.
Pickup truck/equivalent	1	250	Diesel	90/year	7 hr/day for 2 days.
Backpack Pump	2		Manual	12/year	7 gallon capacity
ATV Water Sprayer	1		Battery	12/year	25 gallon capacity

3.4. AIR QUALITY

EPA Region 3 and the VDEQ regulate air quality in Virginia. The Clean Air Act (42 U.S.C. 7401-7671q), as amended, gives the EPA the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) that set acceptable concentration levels for seven criteria pollutants: particulate matter (PM), fine particulate matter (PM 2.5 and PM 10), sulfur dioxide, carbon monoxide, oxides of nitrogen, Ozone, and lead. Short-term NAAQS (1, 8, and 24-hour periods) have been established for pollutants contributing to acute health effects, while long-term NAAQS (annual averages) have been established for pollutants contributing to chronic health effects. Each state has the authority to adopt standards stricter than those established under the federal program; however, the Commonwealth of Virginia accepts the federal standards.

Federal regulations designate regions in violation of the NAAQS as nonattainment areas. Federal regulations designate regions with levels below the NAAQS as attainment areas. Maintenance regions are areas that have previously been designated nonattainment and have been re-designated to attainment for a probationary period through the implementation of maintenance plans. The project and all associated areas are within the Hampton Roads Area. The USEPA has designated this region as: attainment for all criteria pollutants (40 CFR 81.347) as of 2012.

In the past, the Hampton Roads area, which is the Region of Influence (ROI) for air quality, was considered a Maintenance Area for a defined Hampton Roads non-attainment area that included the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Suffolk, Virginia Beach, and Williamsburg and the Counties of James City, York, Gloucester, and Isle of Wight (VDEQ, 2006). Due to improvements in air quality, the Hampton Roads area has been designated as an attainment area for the 2008 ozone National Ambient Air Quality Standard (NAAQS) based on 2009-2011 air quality monitoring data. Air quality in the region has improved significantly in the last 15 years (Hampton Roads Action Plan, 2013).

VDEQ (re)issued Fort Eustis's Stationary Source Permit to Operate in December 2010. Existing stationary sources at the installation include: boilers, helicopter engine testing, marine engine testing, generators, fuel pumping station, landfills, storage tanks, woodworking shops, paint booths, and abrasive bead blasting. Natural resources management projects do not have any stationary sources. In addition, existing mobile and area sources of emissions at the installation include on- and non-road vehicles, rotorcraft, and fixed-wing aircraft.

Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Pollutants such as ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter, are considered criteria air pollutants for which ambient air quality standards have been set.

Habitat restoration activities have the potential to impact air quality through the use of vehicles and heavy operating equipment in restoration sites. However, the scope and number of projects as well as equipment required would be miniscule in comparison to the amount and frequency of equipment used on the installation during construction, military training, and operating missions. It was assumed that similar equipment/vehicle types would be used as with the Base Operations Support contractor but at a much lower duration and frequency. Air emissions of both pollutants

and greenhouse gases would be minimal, and would not contribute substantially to local or regional air pollutant emissions or climate change.

The amount of air emission from timber harvest, reforestation, and habitat improvement restoration vary greatly depending on the frequency, acreage, and equipment used for these actions. Potential impacts to air quality are most likely to occur during timber harvest operations when large equipment is used to remove timber and manage residual debris. Air quality impacts for timber stand improvement projects and habitat restorations would be negligible as similar resources are already being used to manage, maintain, or combat nuisance and invasive vegetation in the same locations.

The amount of air emissions from prescribed fires varies depending on the size and intensity of the fire, which is dependent upon the meteorological conditions, the species of vegetation involved, and their moisture content, and the weight of the consumable fuel per acre (available fuel loading). Potential impacts to air quality would result from emissions related to the fire, such as smoke emissions, and from the equipment used before and during a prescribed fire (Table 3-3). Any potential emissions from a UXO explosion during a fire would be negligible, as this is a rare occurrence.

Products from the combustion of forest fuels are mainly carbon-containing compounds; the most important pollutants being particulate matter (estimated at 10 to 2,000lbs per ton of fuel depending on fire intensity) and carbon monoxide (estimated at 20 to 500lbs per ton of fuel). Two products of complete combustion are carbon dioxide and water that make up over 90% of the total emissions and are estimated at 1,500lbs and 1,000lbs per ton of fuel, respectively. Additional emissions from prescription fire include hydrocarbons (est. 4 to 10 lbs per ton of fuel), nitrogen oxides (est. 1 to 9 lbs per ton of fuel), and sulfur oxides (negligible amounts) as described by the Virginia Department of Forestry. Emissions occurring during prescription fire are highly dependent on fuel moisture, weather patterns, and amounts of fuel on the ground. Estimates at FE for mixed hardwood/pine litter 3-6 tons per acre, for early succession habitats are 2-4 ton per acre, and for timber slash is 8-10 tons per acre.

3.5. WATER, WETLAND, AND FLOODPLAIN RESOURCES

JBLE-E has an estimated 21.6 miles of open tidal shoreline along the James River, Warwick River, and Skiffes Creek. In addition, there are several miles of shoreline within installation boundaries along small tidal creeks. The named waterways bordering the installation are Bailey Creek, Skiffes Creek, Warwick River, and James River. Other named creeks on the installation include Milstead Creek, Island Creek, Butlers Gut, Blows Creek, Morrison's Creek, Fort Creek, Nellis Creek, and Jail Creek. Bailey Creek is located near the northern boundary and is a tidally influenced tributary of Skiffes Creek. It flows in a westerly direction through a low wetlands area and empties into Skiffes Creek, which flows into the James River. Milstead Creek, Island Creek, and Butlers Gut connect the James and Warwick Rivers. A canal connected these creeks early this century to create a thoroughfare between the rivers. Jail Creek drains the southern tip of Mulberry Island and discharges to the James River at its confluence with the Warwick River. Morrison's Creek, Blows Creek, and Fort Creek drain the western portion of Mulberry Island and discharge to the James River. There are several unnamed tributaries as well as six golf

course ponds. The Warwick River defines the eastern boundary of the installation and flows southward into the James River. The installation contains two man-made ponds, Eustis and Brown's Lakes. It contains approximately 80 acres of ephemeral pools, and approximately 3,600 acres of tidal and non-tidal wetlands. Management of health wetland habitats increase biodiversity, improve recreational hunting and fishing opportunities, and reduce flooding and erosion. Peripheral marshes along riverine and tidal creeks are imperative to mitigate flooding at JBLE-E. Common reed is the predominant invasive plant impacting nearly 500 acres of wetlands at JBLE-E (Appendix F). This reduces biodiversity, impacts wildlife habitat increases risks of wildfires, reduces recreational fishing opportunities, increases safety risks by reducing line of sight along road networks, and impacts force protection/security.

Floodplains are generally areas of low level ground present on one or both sides of a stream channel that are subject to periodic or infrequent inundation by flood waters. Floodplains are typically the result of lateral erosion and deposition that occurs as a river valley is widened. The porous material that comprises the floodplain is conducive to retaining water that enters the soil during flooding events and at times when the groundwater table is elevated. Floodplains in their natural form are beneficial in reducing the number and severity of floods, minimizing non-point source water pollution, filtering storm water, providing habitat for plants and animals, and providing aesthetic appeal and outdoor recreation benefits. Inundation dangers associated with development of floodplains have prompted federal, state, and local legislation to limit floodplain development to recreation, agriculture, and preservation activities. Executive Order 11988, Floodplain Management, requires federal agencies to protect the values and benefits of floodplains and to reduce risks of flood losses by not conducting or allowing activities within floodplains, unless there is no practical alternative. Executive Order 13690, establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, amends EO 11988 with the intent of improving the resilience of communities and federal assets against the impacts of flooding, which is anticipated to intensify over time due to the effects of climate change and other threats. Executive Order 13690 creates a new Federal Flood Risk Management Standard and requires agencies to expand analysis of floodplain impacts from the base elevation for both the 100 year (Figure 3-1) and 500 year (Figure 3-2) flood plains elevation for federally funded projects.

Figure 3-2: 100 Year Floodplain Prediction Map, Fort Eustis Virginia, 2022.

Figure 3-3: 500 Year Floodplain Prediction Map, Fort Eustis Virginia, 2022.

3.6. SAFETY AND OCCUPATIONAL HEALTH INCLUDING PROTECTION OF CHILDREN

Natural resources management requires physical exertion and field work. Consequently, various safety and occupational health issues exist including operating or maintaining tractors and chain saws, walking for extended periods or performing laborious tasks during weather extremes, handling potentially hazardous wildlife, exposure to blood-borne pathogens, exposure to disease-vectoring arthropods, and applying pesticides for habitat management or forest pest control. Natural resources tasks are not expected to involve exposure to asbestos-containing materials, lead-based paint, or ionizing radiation.

Natural resource functions occur primarily in natural areas of the installation; however, some urban forest and other natural resources management work may occur in the cantonment area. Some natural resources work occur in training areas utilized by military personnel and managed by civilian support staff. Recreational hunters and fishermen have access to areas where natural resources work may occur. Consequently, many natural resources work sites or projects may be in proximity to other activities.

3.7. HAZARDOUS MATERIALS AND SOLID/HAZARDOUS WASTE

Hazardous Materials. Hazardous materials are serviceable products intended for a given purpose that may pose as physical hazards or chemical toxicity. These materials are defined as commercially available chemical products considered to be in serviceable condition. Natural resource projects require the use of such materials. Normally these materials are fuels and automotive fluids (used in vehicles, tractors, and chain saws) and pesticides (as discussed in Section 8). Additional examples could include trapping lures for vertebrate species and some insect taxa. All such materials are obtained through a centralized procuring and tracking system.

Hazardous Waste. Hazardous wastes are chemical substances that are no longer considered serviceable and meet criteria to be identified as a hazardous waste. JBLE-E is a large quantity generator of hazardous waste and manages these substances in accordance with the Resource Conservation and Recovery Act (RCRA) and related federal regulations as well as related components of the Virginia Code.

3.8. BIOLOGICAL AND NATURAL RESOURCES

3.8.1 Habitats. There are approximately 2,700 acres of commercial forested land, approximately 1,000 acres of urban forest, approximately 80 acres of ephemeral pools, and approximately 3,600 acres of tidal and non-tidal wetlands. These different habitat types constitute a diversity of wildlife, invertebrate fauna, and plant communities. To manage these habitats and their component organisms, installation natural resources staff conduct and oversee recorded surveys and inventories of such organisms. A complete list of fauna and flora surveys and inventories is provided in the 2019 INRMP with new information becoming available since the INRMP was last drafted.

3.8.2. Fauna species including federally listed species. Surveys/inventories implemented by and observations made by natural resources staff over the course of several years

yielded estimated numbers of plant, vertebrate and invertebrate taxa. Surveys, inventories, and observations for vertebrate wildlife, invertebrate fauna, and botanical species have been conducted and documented from1997 through 2021. A list of all wildlife and plant surveys and inventories are listed in the current INRMP and Appendix D of this EA. Several surveys were executed after the current INRMP was drafted as were several observations by installation natural resources staff. Consequently, new information regarding botanical and fauna resources was obtained. Consequently, the number of species increased. At least 263 herbaceous and woody plant species have been documented. There are 39 mammals, 176 avian species, 16 amphibians, and 23 reptiles identified on the installation. Invertebrates are represented by 7 shellfish, 584 insects, and 27 arachnids. Vertebrate taxa demonstrating more visible effects on natural resources management and military missions include white-tailed deer, resident Canada geese (*Branta canadensis*), wild turkey, Eastern coyotes (*Canis latrans*), and small mammalian carnivores such as raccoon (*Procyon lotor*), red fox (*Vulpes vulpes fulva*), gray fox (*Urocyon cinereoargenteus cinereoargenteus*), and opossum (*Didelphis virginiana virginiana*). Rare sightings of bobcat (*Lynx rufus rufus*) have occurred. One black bear (*Ursus americanus*) was observed in 2013. Federally listed vertebrate taxa documented on JBLE-E is represented by the threatened Northern long-eared bat (*Myotis septentrionalis*). The Black Rail (*Laterallus jamaicensis jamaicensis*) was listed as threatened by the USFWS under the ESA on March 2020. Its distribution includes the ROI as shown in the USFWS IPaC system. This species has never been documented on the installation as per the wildlife surveys conducted between 1997 and the present. The Atlantic sturgeon (*Acipenser oxyrhynchus oxyrhynchus*) received federal protection under the ESA in 2012. It occurs at certain times of the year in the James River.

No federally listed invertebrates have been documented on the installation. The bald eagle is commonly observed on the installation. Though bald eagles are no longer federally listed, this species carries special protections in the BGEPA with active nests. Currently, there are 11 active bald eagle nests (see Figure 3-3).

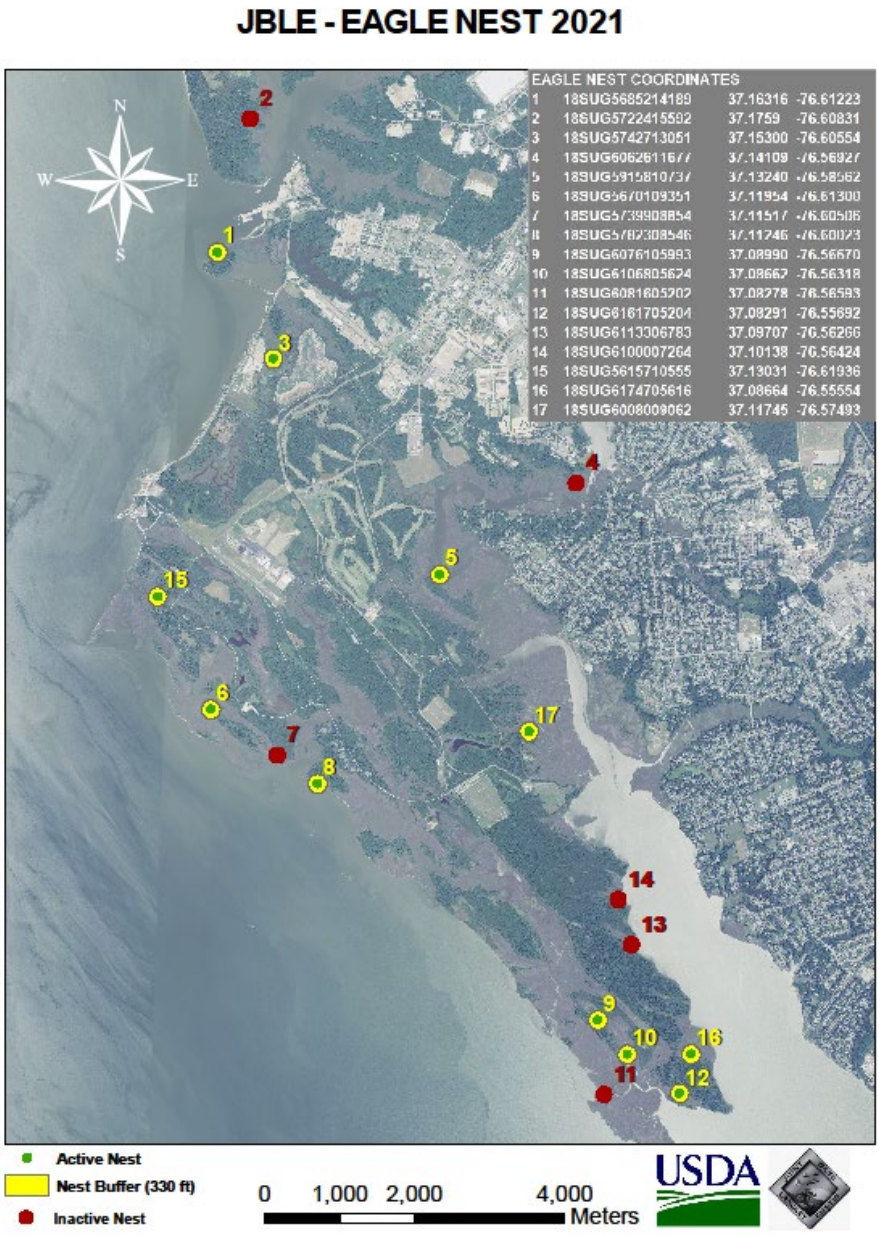

Figure 3-4: Fort Eustis Bald Eagle Nest Locations, 2021.

3.8.3. Flora/botanical species including federally listed species. As mentioned in Appendix D, surveys/inventories executed by, and observations made by natural resources staff (as well as wetland delineation by the USACE Norfolk District staff) since 1997 also yielded an estimated number of plant species. These surveys/inventories are also noted in the current INRMP and Appendix D. The most recent formal flora/botanical surveys include Natural Resource Management, Species, Survey Update: Botanical Survey of 1,225 Acres of Natural Areas (July 2016) and Environmental Support for Wetland Management at Felker Army Airfield & Taylor Avenue Marsh. Other surveys and inventories include Timber Inventory & Forest Management Plan of Fort Eustis, VA (US ARMY) (October 2007), USACE-Norfolk District Preliminary Jurisdiction

Determination (completed 18 December 2014), and Plant Survey and Herbarium Collection Final Report for Fort Eustis and Fort Story (June 2001). Additionally, field surveys were conducted for sensitive joint vetch (Field Survey for Sensitive Joint Vetch (*Aeschynomene virginica*) at JBLE-E, Virginia (December 31, 2013). Sensitive joint vetch is a federally threatened herbaceous plant that was listed in 1992 and was previously included in the IPaC system for the installation ROI. This species was not found during any of the surveys noted above nor observed by installation natural resources staff and it was removed from the ROI in the USFWS Information, Planning, and Consultation System (IPAC).

3.8.4. Forest management.

3.8.4.1 Forest management tasks and projects. Management of both commercial forest and urban forest habitats are natural resource tasks articulated in the INRMP. Tasks include forest and individual tree health evaluations, forest/timber surveys, hazard tree management, timber stand improvements and occasionally timber harvests. Timber stand improvements are intended to improve the habitat quality and typically involve controlling undesirable vegetation (such as overgrowth of loblolly pine, sweet gum and red maple as well as invasive/adventive tree and herbaceous species), removal of hazard trees posing risks to human safety and property damage, and replanting with native hardwood trees. Some timber harvesting/sales occur but very infrequently due to limited forest resources. Marketable timber slated for removal is assessed for its value and offered for sale as feasible. Forest management and timber stand improvements are also conducted in a way that promotes biological diversity.

3.8.4.2 Forest Inventory & Management Plan. A forest inventory is required to be prepared ever 10 years. The most recent forest inventory was completed in December 2021. It serves as a guide for forest management in the next 5 - 10 years. In total, Fort Eustis holds nearly 2,000 acres of merchantable timber at a value of around $3,000,000. In addition, an extra 1,000 acres is located within the duded impact area or in inaccessible tracts and is non-merchantable but should continue to be managed for forest health, fire risk, and hazard tree mitigation.

3.8.4.3 Overstocked mature loblolly pine stands. The 2021 Forest Inventory & Management Plan identified several areas, approximately 400 acres being overstocked with mature loblolly pine. These areas are either in decline or will become so in the near future. Under such conditions, risks from hazard trees increase that could affect safety to personnel operating within a given area or road and rail road networks that may be adjacent. These areas (or portions of given areas) are considered for conversion to early successional habitat or habitat suitable to bobwhite quail and Eastern cottontail. This increases biodiversity while mitigating potential hazard tree risks and can be accomplished by installation staff.

3.8.4.4 Forestry activities. Timber harvesting and mechanical site preparation forestry activities have the most potential for soil disturbance. These activities conducted in flat areas have low erosion potential. However, forestry operations conducted on slopes can disrupt the soil and cause erosion during a heavy rainfall,

especially on steep slopes with sandy soils where there is high potential for gully formation. Initially, higher water yields (moisture and run-off) reducing tree canopy and water uptake can be expected, but would be short-term in nature. Tree canopies intercept many raindrops that never hit the forest floor. These droplets are returned to the atmosphere through evapotranspiration. Tree removal can increase soil moisture due to lack of interception and water uptake. Soil type in combination with the steepness of terrain, defines the erosion potential. Careful timber removal and care in all forestry operations can reduce the erosion potential through the use of established best management practices (BMPs) and management requirements within the Silviculture BMPs for Virginia (Virginia Department of Forestry). Examples include: brush matting, halting operations when excessive rutting exist, installing water bars, and use of cover crops. Proper equipment and techniques would be utilized to avoid unnecessary soil disturbance and to minimize soil runoff into nearby water bodies. Special guidance is provided while operating within streamside management zones or areas sensitive to erosion. Following BMPs in place would greatly reduce the risk of water quality impacts within these areas. The proposed actions would ultimately be more restrictive than current local and state guidelines and lead to an overall increase in canopy cover in these locations.

Similarly, firebreak construction/maintenance associated with prescribed burning has the potential to cause erosion. When vegetation is cleared, rainfall events can cause water to move across non-vegetated surfaces and transport soils into local water bodies. Prevention of this transport can be achieved through minimizing ground disturbances from firebreak construction/ maintenance and implementing erosion minimization measures, as summarized here:

- Firebreaks would be situated to reduce or minimize soil disturbance and placed in locations without steep slopes or that previously exhibit sheeting of ground water.
- Previously used firebreaks and existing barriers would be used when possible. Wet lines will be used when possible to eliminate soil disturbance in sensitive portions of the fire break(s).
- Firebreaks that disturbed soil will be returned to the natural grade at the completion of the burn and re-seeded during the appropriate growing season.

Habitat restoration practices utilizing drill seeding or other forms of minimally disturbed tillage can reduce or even eliminate soil disturbance. Any incidental soil disturbance in restoration planting areas would be minimal as areas would be re-vegetated as part of the habitat restoration or forestry action. Hand tools and small equipment (tractors and all-terrain vehicle) usage on these sites further mitigate the potential of erosion and water quality impacts. No new permanent roads or trails would be created during the proposed or alternative actions, temporary (less than 30 day) trails would be returned to the natural state prior to the conclusion of the actions.

3.8.5. Use of prescription fires.

3.8.5.1 Prescription Fires. Prescription (or "prescribed") fires are defined as any fire intentionally ignited by qualified prescribed fire personnel to meet specific land/habitat management objectives. Fire, both prescribed and natural, were known to shape our region of Virginia and the Mid-Atlantic nearly 12,000 years ago at the end of the Paleo-Indian era. Many habitat types on the installation are either fire tolerant (benefit from fire) or are fire dependent (require fire for at least some portion of the life cycle).

3.8.5.2 History of use at JBLE-E. Prescription fires were used to a very limited extent at JBLE-E in small selected areas. At one time a team comprised of natural resources and Range Operations staffs conducted limited prescription fires in Training Area 21 in the approximate 1997 time frame, and in 2003-2004 to control common reed in areas north of Felker Army Airfield. Prescription fire professionals were also contracted in 2013 to support habitat management in small selected areas involving early successional habitat near the Taylor Avenue-Mulberry Island Road network, loblolly pine stand at the vicinity of Mulberry Island-Wilson Avenue, and controlling common reed at the marsh adjacent to Eustis Lake. However, no further execution of prescription fires had occurred since due to staffing shortfalls and removal of installation authorization to contract prescription fires with other tasks in habitat management contracts.

3.8.5.3 Re-introduction of prescription fires in habitat management. Recent changes in the availability of resources to perform prescription fires are expected to return this habitat management technique. While viable, prescription fires are still limited by the small size of the installation, proximity to Newport News, and certain areas within the installation that preclude the effects of prescription fire. All prescription fires must be coordinated with installation activities and mission partners as well as with state and local authorities. A prescription fire plan must be prepared for each specific fire event and approved by installation commander and installation fire chief. Table 3-4 identifies the prescription fire planning:

Table 3-4: Prescribed Fire Locations and Planning, Fort Eustis, 2022.

Location,	Habitat Type	Acreage	Purpose	Frequency
Mathew Jones Plantation	Oak Savannah	5	Early Succession Habitat	3 Year Rotation
Golf Course Wildlife Habitats	Mixed Pine/ Hardwood Meadow	21	Early Succession Habitat	3 Year Rotation
TA 17C	Mixed Pine/ Hardwood Savannah	25	Line of Sight for Training; Bobwhite Quail Restoration	2-3 Year Rotation
Archery Range	Upland Meadow	4	Bobwhite Quail Restoration	3 Year Rotation

Driving Range	Upland Meadow	9	Bobwhite Quail Restoration	Every other Year
TA 22/24	Hardwood Forest	177	Hardwood Regeneration	Every 5-7 years
TA 23	Mixed Pine/ Hardwood	200	Hardwood Regeneration; Line of Sight for Training	Every 5-7 years
TA 29	Hardwood	50	Slash Removal; Hardwood Regeneration	2023
Across Installation	Forest Habitat	3,500	Invasive Species Control, Slash Removal; Hardwood Regeneration	As Necessary

3.9. INTEGRATED PEST MANAGEMENT AND INVASIVE SPECIES

The Department of Defense (DOD) defines Integrated Pest Management (IPM) as "A science-based, sustainable, decision-making process that identifies and reduces risks from pests and pest management-related strategies. IPM coordinates the use of pest biology, environmental information, and available technology to prevent unacceptable levels of pest damage using the most economical means, while minimizing risk to people, property, resources, and the environment. IPM provides an effective strategy for pest management in all areas from developed agricultural, residential, and public lands to natural and wilderness areas." (DOD Instruction [DoDI] 4150.07, DOD Pest Management Program, 26 Dec 2019). DoDI 4150.07 articulates the requirement for the military to follow the tenets of IPM.

IPM uses a set of principles that employs the best approach towards resolving the effects of pest organisms. These principles include first identifying whether a pest(s) does in fact exist. Once this is ascertained other factors including (but not necessarily limited to) the biology of the pest organism(s) and the environmental conditions are evaluated towards the appropriate control technique to be employed. This process reduces costs, reduces resistance of the pest(s) to pesticides, enhances public health and safety, reduces risks to non-target organisms, and reduce the IPM concept. It considers non-chemical control techniques (such as physical, mechanical, biological, regulatory, and cultural controls) before implementing pesticide controls. JBLE-E prepares and executes an Integrated Pest Management Plan (IPMP) that is reviewed annually (and revised as appropriate). The IPMP is cross-referenced with the JBLE-E INRMP.

Several pests do affect management of natural resources. These include both plant and animal pests. Examples include invasive vegetation as well as invasive and certain native insect/arthropod and possibly vertebrate pests that impact habitat and wildlife health. Approximately 22 invasive plants are documented on the installation. Surveillance for several arthropod pests of habitats and wildlife are documented in the IPMP. Coyotes are documented on the installation and annual surveillance for nutria is performed pending availability of resources.

Some pesticides are necessary for various habitat work when non-chemical control techniques are not feasible. A pesticide is defined by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) as "any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest." There are several types of pesticides used based on the target pest(s). These include acaricides, algaecides, fungicides, herbicides, rodenticides, piscicides, insecticides, and nematocides as well as other pesticide categories.

Pesticides utilized for natural resource projects and tasks at JBLE-E are predominantly herbicides primarily to control invasive and undesirable vegetation to manage natural habitats. Piscicides could be used to manage undesirable fish in freshwater habitat sites within the boundaries of JBLE-E. Such sites consist of Eustis Lake, Browns Lake, Memorial Park Pond, and ponds at the golf course. Undesirable fish would include species of carp or koi that are not native and detrimental to the aquatic system, or possibly non-native predatory fish such as northern pike or muskellunge released into these sites by unauthorized personnel. Currently, there is no need for fish control at JBLE-E; however, it must be considered as a possibility in the future. Application of insecticides to control insect pests such as invasive gypsy moth, spotted lanternfly, and Japanese beetle as well as native pests from damaging native vegetation may be necessary at times. Additionally, application of insecticides/acaricides to control pests or disease vectors of wildlife (such as ticks or biting flies) would be considered under certain conditions. Fungicides to save individual trees infected with wood destroying fungi could be used but not necessarily routinely. Certain pesticides are not used for natural resources management at JBLE-E and include primarily rodenticides while nematocides and algaecides are not expected to be needed. All pesticides must be registered/approved by the Environmental Protection Agency (EPA) and approved for use prior to application.

Executive Order 13751 (Safeguarding the Nation from the Impacts of Invasive Species, (5 December 2016) requires federal activities to manage the impacts of invasive and undesirable vegetation species. As stated above, the INRMP cites at least 22 non-native plant species on the installation. Some of these plants have become invasive with significant impacts to the natural functions of the ecosystem. This is particularly true of wetlands where over 400 acres are adversely impacted by common reed (*Phragmites australis*). Some primary terrestrial invasive vegetation impacting natural areas at JBLE-E include tree of heaven (*Ailanthus altissima*), Chinese privet (*Ligustrum sinense*), autumn olive (*Elaeagnus umbellate*), lespedeza (*Lespedeza* sp.), Japanese stiltgrass (*Microstegium vimineum*), Japanese honeysuckle (*Lonicera japonica*), kudzu *(Pueraria montana*), golden bamboo (*Phyllostachys aurea*), and Johnsongrass (*Sorghum halepense*). Some native vegetation such as loblolly pine, sweetgum, and red maple may experience significant overgrowth that creates localized monocultures, impassable conditions, poor wildlife habitat, and limited growth potential of more valuable species. In addition these monocultures and undesirable species impact the training mission and increase the threat of forest pests and diseases. Replanting or reforestation efforts may experience herbaceous vegetation competition with seedlings and saplings which would require control measures that could include herbicides.

Typical herbicides used include (but are not limited to) those products with the active ingredients glysophate, imazypyr, and triclopyr. Such herbicide use has been used against common reed, tree of heaven, Chinese privet, Japanese honeysuckle, autumn olive, johnsongrass, and lespedeza as well as competing herbaceous cover. Aerial treatments against common reed were evaluated in an *Environmental Assessment for Control of Phragmites australis at the US Army*

Transportation Center, Fort Eustis, Virginia (September 2004) and again in *Supplemental Environmental Assessment for Control of Common Reed at Joint Base Langley-Eustis, Fort Eustis, Virginia* (September 2012).

3.10 CULTURE RESOURCES.

3.10.1 Definition. The USAF defines Cultural Resources in AFMAN 32-7003 as "Any prehistoric or historic district, site, building, structure, or object as defined by 36 CFR Part 800 included in, or eligible for inclusion in, the National Register of Historic Places, whether or not such eligibility has been formally determined, including artifacts, records, and material remains related to such a property or resource; cultural items as defined in NAGPRA; American Indian, Eskimo, Aleut, or Native Hawaiian sacred sites as defined in EO 13007; archaeological resources as defined in NHPA; and, archaeological artifact collections and associated records as defined in 36 CFR Part 79."

3.10.2 Types of cultural resources at JBLE-E. The cultural resources of Fort Eustis are archaeological sites and historic buildings.

3.10.2.1 Archaeological sites. Two hundred and thirty-four archaeological sites have been identified at Fort Eustis. The sites range in time from 8,000 BCE to the early twentieth century. The installation has an on-going program to evaluate the archaeological sites for eligibility for inclusion in the National Register of Historic Places (NRHP) and currently twenty-six are either listed in the NRHP or have been determined eligible for inclusion, 24 have been determined not eligible and 184 have not yet been evaluated. The Native American presence on the land that is now Fort Eustis began in the Early Archaic period some 10,000 years ago and lasted until the early seventeenth century. The English colonizers named the land that is now Fort Eustis "Mulberry Island" when they explored it in 1609 CE and they established plantations in 1618 CE. There are archaeological sites from the seventeenth century until the early twentieth century when the area was purchased to establish Camp (now Fort) Eustis. Table 3-5 provides a summary of these resources by time period.

Table 3-5: Known Culture Resources Components by Time Period and Date, Fort Eustis, 2022.

Time Period	Date Range	Number of Components
Unidentified Prehistoric	15,000 BCE – 1600 CE	56
Unidentified Woodland	1,200 BCE – 1600 CE	6
Pre-Clovis and Paleo-Indian	15,000 – 8,000 BCE	0
Early Archaic	8,000 – 6,500 BCE	5
Middle Archaic	6,500 – 3,000 BCE	6
Late Archaic	3,000 – 1,200 BCE	11
Early Woodland	1,200 BCE – 300 CE	22
Middle Woodland	300 – 1000 CE	25
Late Woodland	1000 – 1600 CE	10
Settlement to Society	1607 – 1750 CE	46
Colony to Nation	1750 – 1789 CE	40
Early National	1789 – 1830 CE	42
Antebellum Period	1830 – 1860 CE	48
Civil War	1860 – 1865 CE	15
Reconstruction and Growth	1865 – 1917 CE	121
World War I to World War II	1917 – 1945 CE	5
The New Dominion	1945 - CE	0

3.10.2.2. Historic buildings. The historic buildings on Fort Eustis fall into two categories, buildings that have been determined individually eligible for or are listed in the National Register of Historic Places and those considered historic for purposes of a Program Alternative. This latter category of building have no requirements under the National Historic Preservation Act due to nationwide identification and mitigation programs developed between the Department of Defense and the Advisory Council on Historic Preservation. There are 59 buildings that are considered historic for purposes of a Program Alternative, fifty-two are Cold War Era unaccompanied personnel housing (barracks), and seven are ammunition storage structures (igloos). Building 415, the Landship, has been determined individually eligible for the NRHP and Building 1611, The Matthew Jones House is listed on both the Virginia Landmarks Register and the NRHP. Building 415 Building 415 was constructed in 1954 as a Landship training facility at an approximate cost of $2,937,188. It is still being used as a shipload mock-up training module for the soldiers at Fort Eustis. Building 415 (landship) is found to be ELIGIBLE for the National Register under Criterion A since it was constructed during the first era of permanent construction (1952 to 1958) and still has its integrity (overall size, location, setting on Skiffes Creek, construction materials, feeling, and association)

to the training mission at Fort Eustis. Building 1611, the Jones House began c. 1715 as a classic "Hall and Parlor" house with two large masonry chimneys. The house was built utilizing "earthfast" construction techniques. In the 1720s the building was heavily modified. While maintaining the original c. 1715 timber framing the walls were converted from wood to brick, a small addition was placed on the rear, and a two-story stair tower or porch was added to the front of the building. This building was rehabilitated in 1995 to highlight its architectural history in order to use it as an architectural teaching tool.

3.11 COASTAL RESOURCES

JBLE-E is located in the Chesapeake Bay watershed near the confluence of the James River and the Chesapeake Bay (Figure 3-4). Consequently, the installation contains a number of coastal resources including shoreline with the James and Warwick Rivers, tidal and non-tidal wetlands and is located within Virginia's Coastal Zone. In accordance with the Coastal Zone Management Act of 1972, as amended (16 USC sections 1451-1465) and the "Federal Consistency Regulations" (Title 15, Code of Federal Regulations, Part 930), federal agency actions that affect a state's coastal resources or uses must be consistent with the enforceable policies of the state's NOAA-approved Coastal Zone Management Program. This requirement applies to actions at JBLE-E (Appendix E).

FIGURE 3-5: Virginia's Coastal Zone, 2022 (Courtesy Virginia Department of Environmental Quality).

4. ENVIRONMENTAL CONSEQUENCES

4.1. INTRODUCTION

This section articulates whether significant environmental impacts would occur as a result of implementation of the alternatives being considered. Impacts described in this section are evaluated in terms of type (positive/beneficial or adverse), context (setting or location), intensity (none, negligible, minor, moderate, severe), and duration (short-term/temporary or long-term/permanent). The type, context, and intensity of an impact on a resource are explained under each resource area. Unless otherwise noted, short-term impacts are those that may result from these projects and tasks include temporary soil disturbance for invasive species removal and planting, increase in particulate matter from planting of native vegetation and during prescription fire events, and would end upon the completion of those tasks.

Execution of projects and tasks articulated in the Preferred Alternative is intended to sustain natural resources to perpetuity. Overall, this is a positive action with the intent to enhance, protect, and retain these resources to support the military mission. Natural resource management (as with any project or activity) must be conducted in accordance with respective federal and state laws and regulations including (but not limited) to ESA, MBTA, Clean Water Act, BGEPA, and Sikes Act. No violations of laws and regulations are expected to occur from properly executed natural resource projects and therefore, the analysis of environmental consequences has no bearing on laws and regulations. Environmental consequences and impacts are similar under both alternatives 2 and 3, and cumulative effects or impacts for either alternative would be less than described for alternative 1 (preferred alternative); therefore alternatives 2 and 3 are discussed together for most environmental consequences.

4.2. AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ)/LAND USE/NOISE

Alternative 1 (Preferred Alternative). Execution of natural resource projects and tasks is not expected to increase noise, air traffic, or the land use within the AICUZ based on the number, type, and frequency of natural resource operating equipment. Impacts would be minimal with respect to current operating and training missions and is not considered an environmental consequence.

Alternatives 2 and 3. These alternatives involves more limited execution of natural resource projects than Alternative 1. Consequently, this alternative would have no significant impact on AICUZ.

4.3. AIR QUALITY

Alternative 1 (Preferred Alternative).

Fort Eustis holds a stationary source permit for air quality (December 2010), but only applies to emissions from sources that are non-mobile in nature. Emissions from mobile sources are tracked every 3 years by contractor for the entire installation. Air emissions were calculated in a prior EA for a small-scale tree-cutting activity at Felker Army Airfield (Felker Army Airfield Vegetation Clearing Environmental Assessment, December 2017). The 2017 EA calculated that there would be 3.08 tons NOx and 0.89 tons VOC emitted as a result of implementing an Alternative that covers half the area addressed in the present EA. Due to the actions otherwise

being identical (forestry actions involving clear- and selective-cutting in different Zones), we estimate that emissions would be doubled to 6.16 tons NOx and 1.78 tons VOCs during the harvesting activity, which is estimated to take from 6 months to a year to conduct. As these emissions are significantly less than the conformity threshold values for NOx and VOCs of 100 tons/year, no significant negative impact to air quality as a result of implementing Alternative 1, the preferred alternative, is expected. Emissions would be slightly less under Alternative 2. These levels are below those that would be considered regionally significant, as NOx estimates are over 40,000 tons/year and VOCs are estimated at over 40,000 tons/year currently (Ozone Advance Action Plan, Hampton Roads Area, 2013). Effects would be minor for implementing any of the Action Alternatives. No significant impacts to air quality are expected as result of implementation of any of the Action Alternatives.

The NR&IPM Branch has decreased their in-house equipment use by nearly half since the vegetation clearing EA was written in 2016 and are currently converting many small, gas powered equipment to rechargeable models. No significant impacts to air quality are expected as a result of NR&IPM Branch activities for any of the alternatives discussed.

Alternatives 2 and 3. Habitat management tasks would use the equipment at the expected frequency as discussed in Section 3.2. This is expected to be similar to implementation of the existing INRMP (2014-2019) and subsequent Annual Reviews. Both alternatives would emit less air pollutants than the preferred alternative, but would increase the amount of contract work that is conducted. Contractor air quality measures and data would not be captured in future tasks and projects.

4.4. WATER, WETLANDS, AND FLOODPLAIN RESOURCES

Alternative 1 (Preferred Alternative). Natural resources management focuses on the enhancement and sustainment of these habitats with the intent to replace non-native/invasive vegetation with native aquatic vegetation, improve biodiversity, support habitat for migratory waterfowl, and reduce erosion and flooding. Natural resources projects do not include construction projects, military training activities, or other actions that are not specifically related to management of wetlands. The INRMP that covers the 2019-2024 time frame does not include any specific wetland projects; however, the following tasks would continue: (1) control of common reed in the Fort Eustis Dredge Materials Management Area (FEDMMA) via herbicides, (2) small-scale site control of common reed where ground-based herbicide treatments are expected to be effective without other control techniques (with replanting of native wetland vegetation), and (3) surveys and assessments of common reed acreage expansion and impacts. Removal of adventive or invasive vegetation with native vegetation replacement is not considered an impact but rather an enhancement. This includes use of herbicides formulated for aquatic habitats. Herbicide applications are performed by personnel who hold DOD or VDACS pesticide application certificates for aquatic systems (category 5A) and are directed by the natural resources program manager/Installation Pest Management Coordinator (IPMC). Only herbicides specifically formulated for use in aquatic systems (as registered by the EPA) and intended for specific invasive vegetation control are used. Such herbicides are used strictly in accordance with the respective label as per federal and state laws and regulations. All pesticides considered for use at the installation are reviewed by the IPMC to ensure there are no installation

issues and to ensure they are authorized for use in Virginia. If both requirements are met, official use is granted by Air Force Civil Engineer Center (AFCEC).

Additionally, three major sites containing common reed are slated for control as discussed in the 10-*Year Phragmites Management Plan at Joint Base Langley-Eustis, Fort Eustis, Virginia*, and September 25, 2017. See Appendix F for known common reed infestations. The objective is to eliminate common reed by employing a combination of physical, mechanical, and herbicidal techniques with subsequent replanting with native vegetation. Collectively, these 3 sites comprise approximately 82 acres. Actual completion including monitoring efficacy would take approximately 10 years. A successful outcome would return the acreage to a healthy native habitat and subsequent improvement in biodiversity. Additionally, this increases recreational wildlife & bird watching opportunities, reduce erosion and mitigate flooding as well as improve aesthetics. This project would enhance environmental conditions and therefore, is not considered an adverse impact.

Enhancements and improvements to wetlands habitats are executed under HERT (FY) 5336 (Management of Invasive Species) and HERT (FY) 5337 (Habitat Management). Compliance with Sections 401 and 404 of the Clean Water Act remains a requirement as applicable and acquisition of respective federal and state permits are met if required. Non-tidal wetland enhancements/improvements may be covered under the three Nationwide Permits issued by the US Army Corps of Engineers:

- Nationwide Permit (4) Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities
- Nationwide Permit (27) Aquatic Habitat Restoration, Enhancement, and Establishment Activities
- Nationwide Permit (30) Moist Soil Management for Wildlife

The techniques involved would generally equate to those articulated in Nationwide Permit 27. As discussed above, application of aquatic-formulated herbicides would occur in accordance with respective labels by qualified/certified applicators. Consequently, no significant impacts to wetlands are expected.

Lack of wetland management would promote further expansion of common reed. This would reduce biodiversity and increase risks of wildland fires. Lack of monitoring wetland habitat functioning and seeking corrective action when damage is identified would lead to degraded habitats, erosion of shorelines, and increased flooding.

Alternative 2 . This alternative does not include management of wetlands other than what is legally required or necessary to protect human health and safety. In this alternative invasive wetland vegetation may be controlled in order to facilitate training mission, vehicle navigation, and hazards, but would merely be maintained instead of restored and would be limited to those wetlands directly adjacent roadway or infrastructure.

Alternative 3. This alternative would have less consequences than either previously mentioned alternatives."Neither alternative 2 nor 3 includes alteration of surface water habitats (particularly tidal creeks, streams, or shoreline with the exception of controlling common reed and replanting with *Spartina* spp. (or other applicable native emergent vegetation) if the given site is applicable.

Natural resource projects and tasks are designed to improve or restore ecosystems in and around the floodplain. Such work does not degrade or eliminate natural habitats. Consequently, neither alternative disturbs the integrity of the floodplain and therefore has any negative impact. Unfortunately, limiting INRMP tasks and projects to only upland sections of the installation reduces the ability to fight rising water levels, increased flooding, and will ultimately reduce the floodplain beneficial effects and coastal zone resiliency of FE.

4.5. SAFETY AND OCCUPATIONAL HEALTH INCLUDING PROTECTION OF CHILDREN

Executive Order 13045 - Protection of Children from Environmental Health Risks and Safety Risks requires that the installation train, annually, all who handle and may handle hazardous water or materials. These requirements are met by the Natural Resources branch and are for the safety of its employees, the environment, and all stakeholders.

Alternative 1 (Preferred Alternative). Natural resources tasks are performed by either the existing 3-person staff or by contractors (or commercial loggers concerning timber harvesting). However, complete safety and health risk assessments are prepared and documented for natural resources-related projects involving firearms, trapping, water-borne operations, timber harvesting, and timber stand improvements. Installation staff members are required to complete Hazardous Waste Operations & Emergency Response (HazWOPER) as well as operator training for the various equipment. Natural resources staff that apply pesticides must be DoD-certified. Natural resources staff must also receive rabies pre-exposure vaccinations. Existing policy requires staff to take appropriate measures to prevent tick-borne diseases. Neither installation staff nor contractors are expected to encounter asbestos, lead-based paint or ionizing radiation as part of their routine duties. No highly toxic substances are typically used for natural resources projects as discussed in Section 3.6.1. Nonetheless, safety data sheets are maintained at related work sites and appropriate personal protection used. Consequently, no significant impact on health and safety is expected from implementing the revised INRMP concerning either alternative. There is no difference between these alternatives regarding safety and occupational health.

Natural Resource projects and tasks do not typically occur in areas occupied by children. Such work generally does not occur within or near the elementary school, child development centers, privatized housing, or playgrounds. If such work were to occur in proximity to these facilities, natural resources staff would coordinate with respective facility managers and avoid leaving equipment or hazardous materials onsite. Children, as with personnel in general, are not authorized to roam freely on the installation. Most natural areas are considered off-limits to unauthorized persons. Consequently, natural resource projects and tasks do not pose significant risks to children.

Alternatives 2 and 3. Limited execution of natural resource projects and tasks under these alternatives would have even less risks than the preferred alternative. Consequently, natural resource projects and tasks do not pose significant risks to natural resources staff, children, and the installation community as a whole.

Natural resources staff (including contractors) must utilize appropriate personal protection gear. This includes hearing protection when operating tractors, forestry mowers, chainsaws, and other

equipment that generates loud noise regardless of decibel rating. Additionally, this staff must wear appropriate personal protection attire/gear when operating chainsaws or performing prescription fires. Approved eye protection (safety glasses or face shields) when handling hazard wildlife or conducting tree removal or pruning. Anti-biting gloves are worn when dealing with hazardous wildlife as well as snake tongs for snakes. All staff involved in handling mammalian wildlife receive pre-exposure series immunizations against rabies and titers which are verified every 2 years. Natural resources work does not involve alteration or damaging asbestos-containing materials or lead-based paint sources. None of the equipment used for natural resources work contains ionizing radiation.

Coordination is made with facility managers and privatized housing management prior to work in areas adjacent to facilities and housing. Military police support is requested in advance to facilitate access control to some work areas. Prescription fires must be approved in advance by Fire & Emergency Services which also provides support during such work. Installation-wide messaging systems are also used to communicate health and safety aspects of a given project. Coordination is also made with the elementary school and child development facilities if any natural resources work is to occur near these facilities. Generally, most areas are restricted with most personnel including children being excluded from natural areas, training areas, firing ranges, construction sites, airfield, and 3d Port.

4.6. HAZARDOUS MATERIALS / WASTE

Alternative 1 (Preferred Alternative). Hazardous materials used for natural resources management include primarily automotive fuels and fluids used in vehicles, tractors, and chain saws. Additional examples could include trapping lures for vertebrate species and some insect taxa. These are familiar products are commercially available. Such materials do not pose any significant physical or toxic hazards. Neither natural resources staff nor contractors require large quantities and major storage tanks. Risks of hazardous material spills would be expected to be low based on how these products are used and the small quantities being on hand. Consequently, no significant impacts are expected from serviceable hazardous materials for either alternative.

Implementation of the 2019-2023 INRMP would follow the types and usage of serviceable hazardous materials noted above (and Sections 3.5.1 and 3.6.1). This remains consistent with the previous INRMP. The type and quantities of hazardous materials do not constitute any significant impact.

Natural resources management activities are not expected to generate hazardous wastes defined by RCRA based on the types of hazardous materials noted in Section 4.6.1. Historically, no hazardous wastes have been generated by natural resource activities in the at least the past 28 years. As a result, no increase in hazardous waste stream volume or sources is expected from these activities. Consequently, conducting natural resource projects would not have any impact on hazardous waste management for these alternatives.

Alternative2 2 and 3. The types and quantities of hazardous materials and waste are not expected to have significant environmental consequences for either the preferred or other alternatives.

4.7. INTEGRATED PEST MANAGEMENT AND INVASIVE SPECIES

Alternative 1 (Preferred Alternative). Natural resource projects may involve pest/invasive organisms as discussed in section 3.8. Pesticides are sometimes utilized to improve habitats by controlling adventive or invasive vegetation, or forest pests when physical or mechanical techniques are not feasible. When such actions occur, the projects are executed in accordance with the installation IPM program and IPMP. Installation natural resources staff and contractors who apply pesticides for natural resources projects and tasks are DoD certified or VDACS certified, respectively, in appropriate categories. All pesticides must be approved/registered by the EPA and in accordance with the respective label. Preparation of pesticide application formulations is performed at BLDG 1422 which is the 733d Civil Engineering Squadron (CES) pest control facility. No mixing of pesticides is performed in the field for natural resources projects.

4.8. BIOLOGICAL AND NATURAL RESOURCES

Alternative 1 (Preferred Alternative).

4.8.1 Federally threatened and endangered species.

Currently, there are three federally listed species occurring in the region of influence of these projects and tasks. These species include: Atlantic sturgeon, Northern long-eared bat, and Eastern black rail. Only the Northern long-eared bat is known to occur within the confines of the installation. The Atlantic sturgeon occurs in the James River adjacent the installation. The Eastern black rail is identified as possibly occurring on the installation based on JBLE-E being in the region of influence for this species in the USFWS IPaC system but has not been documented on the installation.

4.8.1.1 Northern long-eared bat. There is a potential for disturbance or incidental take of Northern long-eared bats while executing portions of the preferred alternative. Forestry operations will include a comprehensive Section 7 Consultation or will be performed under Programmatic Biological Opinion on the Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions (US Fish and Wildlife Service Regional Office, Bloomington, Minnesota, 5 January 2016) for all natural resources forestry and prescribed fire tasks. This is primarily related to the forest management work regarding the natural resources work under the preferred alternative. Forestry work would include logging of marketable timber as well as TSI. This includes conversion of overstocked mature forest stands into bobwhite quail and early successional habitats. A conversion of approximately 75 acres is planned for 2022-2023. However, tree removal at JBLE-E is restricted annually between 1 June and 31 July to mitigate potential impacts to the Northern long-eared bat. Habitat restorations, dormant season (using fire when vegetation is not actively growing) prescribed fire and management of non-forested habitats will not have negative consequences to this species, further, increasing open space and early successional habitats may create a benefit to the Northern long-eared bats by providing more open and vegetative feeding habitats. JBLE-E natural resources staff anticipate USFWS approved surveyor certification for endangered bat species by 2023 and would be capable of conducting in house surveys to satisfy section 7 of the endangered species act requirements at that time. This certification requires

documentation of bat identification, handling, and demonstration of proper acoustic sampling experience before becoming approved by USFWS.

4.8.1.2. Atlantic sturgeon. No programmed natural resource projects would occur in the James River, Warwick River, or Skiffes Creek under the preferred alternative. These areas are generally outside the installation property boundary. One possible exception would be severe shoreline erosion as experienced at JBLE-E along the James River, Warwick River, and Skiffes Creek. This can be corrected with shoreline stabilization, living shorelines or oyster beds represent potential corrective actions. Separate environmental impact assessment documentation (in the form of an environmental assessment) was completed 9 Jun 2021 for repair of shoreline erosion adjacent to Training Area 1 along Skiffes Creek. The project associated with that EA would involve construction of a natural living shoreline. This action would help improve sturgeon habitat as opposed to impacting associated populations. Actual projects are discussed in Section 9 of the revised INRMP. None these projects are expected to have any significant impact on the sturgeon based on the scope of these projects and predominately occur in terrestrial or wetlands where the sturgeon would not occur. Natural resources staff do not conduct fish surveys in the James or Warwick Rivers. Consequently, no natural resources activities are expected to impact the sturgeon.

4.8.1.3. Eastern black rail. Eastern black rail has not be observed or formally documented on the installation at the time of this EA

This is documented through the following wildlife surveys:

- A Natural Heritage Zoological Inventory of Ft Eustis VA (1997).
- Breeding Bird Survey Results on US Army Garrisons FE and Ft Story, VA (1999).
- Spring Migration Bird Survey Results on U.S. Army Garrisons FE and Fort Story (2000).
- Planning Level Surveys for Amphibians and Reptiles, Mammals, Birds, and Fish, As
  Well As Pest Insects and Invasive Plants at FE, Virginia in 2004-2005 (2006).
- Final Fort Eustis Faunal Survey Report (2015).
- CIRE Final Report JBLE-JBA FY 19-20 Natural Resources Support (2021).

Additionally, over 400 acres of marsh habitat at JBLE-E contains invasive common reed. This condition would make large portions of installation marsh habitat unfavorable for the black rail. Consequently, this species is not expected to occur on the installation and therefore, the preferred alternative will not affect the black rail. However, control of Common Reed with subsequent improvement of marsh habitats could have a net positive affect on this species. *Alternative 1* would allow the installation biologist to investigate presence or absence of this species.

4.8.2. State listed species. Based on Virginia Department of Wildlife Resources Special Status Faunal Species in Virginia dated 16 Dec 2021, the Little Brown Bat (*Myotis lucifugus*) [state endangered] and the Tricolored bat (*Perimyotis subflavus*) represent the state-listed species documented on the installation. This is confirmed based on the following wildlife/fauna surveys:

- A Natural Heritage Zoological Inventory of Ft Eustis VA (1997).
- Planning Level Surveys for Amphibians and Reptiles, Mammals, Birds, and Fish, As Well As Pest Insects and Invasive Plants at FE, Virginia in 2004-2005 (2006).
- Final Fort Eustis Faunal Survey Report (2015).
- Final Fort Eustis Forest Insect Survey Report (2015).
- Bat Survey for the Ft Eustis, Sling Load-Aviation Complex, Newport News, Virginia (2016)
- U.S. Air Force Bat Acoustic Survey Natural Resources Program (2016-2018).
- Bat (Chiroptera) Surveys for Midwest AFCEC Installations (2019).
- Bat Survey at Building 1610 (2020).
- Bat Mist-Netting Survey Report (2021).
- CIRE Final Report JBLE-JBA FY 19-20 Natural Resources Support (2021).
- Insects, Other Arthropods & Other Macroinvertebrates Observed on Fort Eustis: Understanding the Significance of Invertebrate Taxa on Military Missions (2021).

Management implications for these two species rely heavily on management of winter hibernacula and known roost trees. There are no known hibernacula on or near FE, therefore consideration would be given to Roost Tree Conservation Measures. These measures encompass the same time of year restriction as the federally protected Northern Long-eared bat (1 June-31 July) and call for no removal of timber, prescribed fire, or land disturbance within 150ft of known roost trees. If roost trees are identified and the above protocols followed, no lethal take of little brown or tri-colored bats is expected.

Alternatives 2 and 3. Limited execution of INRMP Activities would have fewer biological and natural resources consequences, but would also reduce the amount of habitat restoration acres, TMDL credits, and would further decrease the health of the installation ecosystems. Choosing either of these alternatives would have negative impacts on biological and natural resources.

4.9. CULTURE RESOURCES

The Preferred Alternative, nor alternatives would disturb, damage, or remove cultural resources. Habitat improvement and invasive species removal do not occur directly within these sites, tree removal conducted by the NR office would not occur within these sites without disturbance mitigations measures in place. Prescribed fire will be conducted in a manner that will not damage culture resources. Low heat and length of burn obtained during dormant and cool season burns would not impact mineral soils and a layer of protective duff remains post fire. Habitat plantings and restorations occur only within the top 4” of soil and would not occur on above ground culture resources sites. Any resources found on the surface during habitat and natural resource projects will be handled in accordance with the Installation Culture Resources Management Plan. 36 CFR 800.3 requires consultation with the State Historic Preservation Office (SHPO) for any ground disturbing activities. Any activities that will disturbed the ground will be discussed with the installations Culture Resources (CR) office for coordination to SHPO and other CR agencies. There would be no significant impacts to culture resources

Alternative 1 (Preferred Alternative). The Natural Resources and Culture Resources offices are co-located within the Environmental Element of 733d CES. Natural resources staff routinely consult with Cultural Resources staff prior to any event that may disturb cultural resources. Protocols and communication exist so that artifacts found in the field are correctly marked and described to CR staff. Coordination with the installation archaeologist, completion of respective archaeological surveys and consultation with the State Historic Preservation Office (Virginia Department of Historic Resources) would occur before any natural resource project impact known archaeological resources. No natural resource projects or tasks are expected to occur within or on historical buildings. No negative consequences to cultural resources are expected as a result of executing natural resource projects and tasks.

Alternatives 2 and 3. No negative consequences to cultural resources are expected as a result of executing natural resource projects and tasks. If this alternative is selected there would an increased risk of impacts to cultural resources as the installation would rely more heavily on contractors and outside entities for execution projects.

4.10. COASTAL RESOURCES

Coastal resources at JBLE-E are critical components to long-term sustainment of the installation land mass. An examination of each enforceable policy was performed with an overall determination that natural resource projects and tasks are consistent with Virginia's Coastal Resources Management program. A federal constancy articulating this is posted in Appendix E.

The DOD is taking a deeper look at impacts of global sea level rise on AF installations. INRMP projects and tasks are fluid in nature and strive to create habitats conducive for training and the native ecosystem that are resistant to sea level rise. Because the projects and tasks are restorative in nature, sea level rise and natural flooding would have little to no impact on these projects and tasks. Because they are not construction related projects, the end result is no net loss of infrastructure or training missions regardless of sea level or floodplain impacts.

5. OTHER NEPA CONSIDERATIONS

5.1. UNAVOIDABLE ADVERSE EFFECTS

This EA identifies any unavoidable adverse impacts that would be required to implement the Proposed Action and the significance of the potential impacts to resources and issues. Title 40 of the *Code of Federal Regulations* §1508.27 specifies that a determination of significance requires consideration of context and intensity.

Unavoidable short-term adverse impacts for the Proposed Action or alternative actions include initial soil disturbance and invasive vegetation competition with native vegetation during timber harvesting and site preparation for planting and a temporary, local, increase in dust or particulate matter during prescribed fire application and equipment operating, and short-term noise effects. These impacts would be minimal in nature and cumulative with the current training mission and construction projects but would make up only a small portion of the impact of the entire installation. Further, the overarching goal of the proposed action would increase soil biota, increase air and water quality and decrease incidents of erosion and sedimentation.

For the execution of natural resource projects and tasks to be accomplished, these impacts would occur. The action is required to restore fallowed and failing ecosystems, remove invasive species and restore natural areas post-eradication, increase forest health and promote re-growth of the forest stands, and increase quality natural space for the use of military training missions and support of military families and recreational opportunities. These impacts would occur only in the short term and would result are minimal in comparison to the positive effects of implementing the proposed action.

5.2. RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

The Proposed Action and alternatives would significantly enhance the long-term productivity of the installation environment because no significant environmental impacts are anticipated and the intent is to enhance the environment. Any short-term uses of the environment are expected to yield long-term beneficial results to enable continued use for military training and recreational purposes.

5.3. IRREVERSIBLE AND IRRETRIEVABLE RESOURCES

This EA does not identify any irreparable damage to the installation environment nor irreplaceable resources as a result of the alternatives presented. An irreversible effect results from the use or destruction of resources (e.g., energy) 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 commitments of resources would include funding, equipment usage, and planning of three natural resources staff and equipment already occurring in the branch. Current funding sources would be used to obtain equipment, resources, and contracted work. Training areas and mission may be impacted in the short term, but would lead to a long term increase and improvement of environmental resources, marketable forest products, and recreational opportunities.

As the objective of implementing the INRMP would be long-term sustainment of natural resources, the commitment of irreversible and irretrievable resources is not anticipated. Natural

resources management has the goal of ensuring the continued health and availability of natural resources while sustaining the military mission and supporting soldier and family health and recreational opportunities. These efforts are not likely to significantly decrease the availability of the resources. Small amounts of debris would be generated and the loss of recreational or training mission may occur in the short-term; however, the USAF does not consider these amounts to be appreciable and does not expect them to affect the availability of these resources or future mission requirements.

6. LIST OF PREPARERS

This EA has been prepared under the direction of the Air Force Civil Engineer Center, USAF, and 733d CES-CEIE.

The individuals that contributed to the preparation of this EA are listed below.

Table 6-1. List of Preparers.

Name/Organization	Education	Resource Area	Years of Experience
Timothy P. Christensen, MS, CHMM, BCE Natural Resources & IPM Branch Chief, Environmental Element, 733 CES	BS General Biology, MS Management, MS Community Health, MS Entomology,	Natural Resources, Integrated Pest Management, Hazardous substances	38
Adam S. Priestley, Biological Scientist/Habitat Manager, Environmental Element, 733 CES	BS Wildlife Sciences: Forestry; Biology	Forestry and Wetlands	14
James A. Carr, Wildlife Biologist Natural Resources & IPM Branch Chief, Environmental Element, 733 CES	BS Wildlife Sciences: Forestry; Biology	Wildlife Biology	14
Christopher L. McDaid, Archaeologist, Environmental Element, 733 CES	PhD. Archaeology and Ancient History, MA. History	Culture Resources	34

7. PERSONS AND AGENCIES CONSULTED/COORDINATED

The following Persons and Agencies were contacted in the preparation of this EA

Table 7-1. Persons and Agencies Consulted/Coordinated

Federal Agencies	
Ms. Cynthia Schulz U.S. Fish and Wildlife Service Virginia Field Office 6669 Short Lane Gloucester, VA 23061	Ms. Barbara Rudnick U.S. Environmental Protection Agency, Region 3 1650 Arch Street Philadelphia, PA 19103-2029
Mr. Gary LeCain U.S. Geological Survey (USGS), Env. Affairs John W. Powell Building 12201 Sunrise Valley Dr. Reston, VA 20192	U.S. Army Corps of Engineers Norfolk District Office 803 Front Street Norfolk, VA 23510
Ms. Karen Greene NOAA Fisheries 55 Great Republic Drive Gloucester, MA 01930	
State Agencies	
Mr. Marc Holma Review and Compliance Division Virginia Department of Historic Resources 2801 Kensington Avenue Richmond, VA 23221	Ms. Valerie Fulcher Office of Environmental Impact Review Virginia Department of Environmental Quality PO Box 1105 Richmond, VA 23218
Ms. Laura McKay Virginia Coastal Zone Management Program Virginia Department of Environmental Quality PO Box 1105 Richmond, VA 23218	Mr. Gary Martel Virginia Department of Wildlife Resources Director's Office P.O. Box 90778 Henrico, VA 23228
Mr. Marc Holma Review and Compliance Virginia Department of Historic Resources 2801 Kensington Ave. Richmond, VA 23221	Ms. Allison Lay Habitat Management Division Virginia Marine Resources Commission 380 Fenwick Road Ft. Monroe, VA 23651

Local Agencies	
Ms. Cindy Rohlf City Manager Newport News City Hall 2400 Washington Avenue Newport News, VA 23607	Ms. Sharon Neal Newport News Wetlands Board Office of the City Clerk 2400 Washington Avenue, 9th Floor Newport News, VA 23607
Other Stakeholders	
None Identified.	
Tribal Agencies	
Chief Wayne Adkins Chickahominy Indian Tribe 8 200 Lott Cary Road Providence Forge, VA 23140	Ms. Caitlin Rogers Catawba Indian Nation Tribal Historic Preservation Office 1536 Tom Steven Road Rock Hill, SC 29730
Leigh Mitchell Natural Resources Coordinator Upper Mattaponi Indian Tribe 13476 King William Road King William, VA 23086	Ms. Erin Paden Historic Preservation Director Delaware Nation P.O. Box 825 Anadarko, OK 73005
Chief Keith Anderson Nansemond Indian Nation 1001 Pembroke Lane Suffolk, VA 23434	Shaleigh Howells Cultural Resource Director Pamunkey Indian Tribe 1054 Pocahontas Trail King William, VA 23086

8. REFERENCES AND SUPPORTING DOCUMENTS

10-Year Phragmites Management Plan at Joint Base Langley-Eustis, Fort Eustis, Virginia W9128F-12-2-0002 [Task 4.3-5], September 25, 2017.

2006 ACHP, Program Comment For Cold War Era Unaccompanied Personnel Housing (1946-1974) https://www.achp.gov/sites/default/files/program_comments/2018-07/Dept%20of%20Defense%20Unaccompanied%20Personnel%20Housing%20Program%20Comment.pdf accessed 29 DEC 2021

2006 ACHP, Program Comment for World War II and Cold War Era (1939 - 1974) Ammunition Storage Facilities
https://www.achp.gov/sites/default/files/program_comments/2018-07/Dept%20of%20Defense%20Ammunition%20Storage%20Program%20Comment_0.pdf accessed 29 DEC 2021

733d Air Base Wing, Joint Base Langley–Eustis, VA, 2019, Fort Eustis Integrated Natural Resources Management Plan, Plan Years 2019-2023.

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AFI 32-7064, Integrated Natural Resources Management, 18 Nov 2014.

AFMAN 32-7003, Environmental Conservation. 20 April 2020.

AFMAN 32-1053, Integrated Pest Management. 6 August 2019.

Assessment of Vernal Pools on Fort Eustis, 2008-2009.

Bullet Background Paper-Wildlife Response Calls 2020. Official After Action Review Memorandum. Natural Resources and IPM Branch. Environmental Elemenent-733d CES.

City of Newport News, 2021a, Municipal Code Section 28-36 Loud Noises Prohibited, at: https://library.municode.com/va/newport_news/codes/code_of_ordinances?nodeId=CD_ORD_CH28OFIS_S28-36LONOPR, accessed 5 November 2021.

DoDI 4150.70, DoD Pest Management Program, 26 Dec2019.

DoDI 4715.03, Natural Resources Conservation Program, 18 Mar 2011.

Environmental Assessment for Controlled Burn of Felker Army Airfield Approach Zones and Wildlife Management Areas, Fort Eustis, Virginia. March 1998.
Environmental Assessment for Felker Army Airfield Vegetation Clearing, Fort Eustis, Virginia, December 2017.

Environmental Assessment for Timber Harvest of Forest Compartment 16, Fort Eustis, Virginia, October 1997.

Environmental Assessment for Management of Vegetation Airfield Clearances at Felker Army Airfield. December 2017.

Environmental Compliance Consolidation Efforts at Joint Base Langley-Eustis, Virginia, 24 July 2015 (Resource Management Associates, Inc.) includes tasks of management of invasive species and botanical survey on 1,225 acres of natural resources.

Environmental Support for Wetland Management at Felker Army Airfield and Taylor Avenue Marsh, Joint Base Langley-Eustis, Virginia, 28 August 2015 includes tasks of invasive species identification and botanical review.

Evaluation of Forest Health, Fort Eustis, Virginia, December 2013 (Resource Management Associates, Inc.).

FECRMP 2020. Joint Base Langley- Eustis-Eustis Integrated Cultural Resources Management Plan on file with FECRMP.

Final Environmental Assessment Prescribed Burning for Weed Management at F. E. Warren AFB, Wyoming. April 2012.

Final Environmental Assessment for Development and Implementation of the Fort Eustis Integrated Natural Resources Management Plan, October 2004.

Finding of No Significant Impact for INRMP Activities at Eglin AFB, Florida. Environmental Assessment. September 2021.

Kenneth L. Clark, Nicholas Skowronski, Michael Gallagher, Warren Heilman, John Hom. Fuel Consumption and Particulate Emissions during Fires in the New Jersey Pinelands. International Association of Wildlife Fire. Oct 2010.

Gleim, Elizabeth R., Zemtsova, Galine E., Berghaus, Roy D., Levin, Michael, L., Conner, Mike., Yablsey, Michael J., Frequent Prescribed Fires Can Reduce the Risk of Tick-borne Diseases. July 2019. Scientific Reports. https://doi.org/10.1038/s41598-019-46377-4

Houston South Vegetation Management and Restoration Project Draft Environmental Assessment. US Forest Service, Hoosier National Forest. July 2019.

JBLE-E Integrated Pest Management Plan, 19 May 2020.

Mallette, Stephen., Watson, Larry., Chaquin, Daniel. 2021. Timber Inventory and Forest Management Plan. Official JBLE-Eustis Report. Resource Management Associates, LLC.

National Oceanic and Atmospheric Administration (NOAA), 2020, About the National Coastal Zone Management Program, available at https://coast.noaa.gov/czm/about/, accessed 5 November 2021.

Presquile National Wildlife Refuge Draft Comprehensive Conservation Plan and Environmental Assessment. August 2012. https://www.fws.gov/refuge/Presquile/what_we_do/draftccp.html

Programmatic Biological Opinion on the Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions - US Fish and Wildlife Service Regions 2, 3, 4, 5, and 6 (US Fish and Wildlife Service Regional Office, Bloomington, Minnesota, 5 January 2016).

Richter, J., 2000, A History of Mulberry Island, Warwick County, 1610 to 1784. The Colonial Williamsburg Foundation, Williamsburg, VA. Submitted to The United States Army Transportation Center, Fort Eustis Virginia.

South Carolina Forestry Commission. Smoke Management Guidelines. Aug 2006. https://www.state.sc.us/forest/smg05.pdf

Supplemental Environmental Assessment for Control of Common Reed (Phragmites australis) at Joint Base Langley-Eustis, Fort Eustis, Virginia. September 2012.

Timber Inventory & Forest Management Plan, Fort Eustis, Virginia, 2007.

US Fish and Wildlife Official Species List, Felker Army Airfield Clear Zone Tree Removal. Consultation Code: 05E2VA00-2021-SLI-383328 July 2021.

United States Fish and Wildlife Service (USFWS), 1 2020, Information for Planning and 2 Consultation (IPaC), available at https://ecos.fws.gov/ipac/, accessed September 2020.

Virginia Department of Wildlife Resources (VDWR), 2020b, 1 Northern Long-Eared Bat Winter 2 Habitat and Roost Trees Application, available at https://dwr.virginia.gov/wildlife/bats/northern3long-eared-bat-application/, accessed September 2020.

Virginia Department of Game and Inland Fisheries Guidance Document on Best Management Practices for Conservation of Little Brown Bats and Tri-Colored Bats. Feb 2016. http://www.dwr.virginia.gov/wp-content/uploads/LBBA_TCBA_Guidance.pdf

Virginia Department of Forestry. Virginia's Smoke Management Guidelines. June 1998. https://dof.virginia.gov/wp-content/uploads/VA-Smoke-Management-Guidelines.pdf

APPENDIX A

Interagency/Intergovernmental Coordination and Public Participation Letter

Civil Engineering Division

26 July 2022

U.S. Environmental Protection Agency (USEPA), Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

SUBJECT: Implementation of INRMP Project and Tasks at Joint Base Langley-Eustis - Eustis (JBLE-Eustis), Virginia

1. The United States (US) Air Force is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts associated with the implementation of Integrated Natural Resource Management Plan (INRMP) projects and tasks at Joint Base Langley-Eustis - Eustis (JBLE-Eustis) in Newport News, Virginia (Proposed Action). The INRMP is the guiding document that addresses the management and mission goals of the Natural Resources office on the installation. It is required per the Sikes Act (SA) (*16 USC 670(a))* and AFMAN 32-7003.
2. The purpose of the Proposed Action is to meet statutory requirements under the Sikes Act (16 US Code [USC] § 670a et seq.) and manage natural resources in a sustainable manner. This includes recent identification of mature loblolly pine stands requiring short-term alteration to remove hazard trees and transform into more viable natural habitats, implement other forest management actions (based on a new forest inventory completed December 2021), and reintroduce prescription fires as a viable habitat management technique. Natural resource management projects and tasks also supports the Air Force Pollinator Action Plan and Total Maximum Daily Load goals for the installation. Natural resource projects and tasks are executed as articulated in the INRMP.
3. The EA will analyze the potential range of environmental impacts that would result from the Proposed Action. The US Air Force is considering three proposed alternatives (Alternatives 1-2, and the No Action Alternative) towards meeting the objectives and goals of the Proposed Action. Alternative 1 would implement actions and programs currently articulated in the INRMP using Natural Resource funds and equipment as well as contract funds. Alternative 2 would implement minimal tasks and projects required by AF regulation or federal law, or that support the training mission and mitigate hazardous trees and would be completed solely by contract funding mechanism. The No Action Alternative, would include only those actions that are required by federal law, AF regulation, and the implementation of the hunting, fishing, and boating programs, will also be considered as a benchmark against which effects of the Proposed Action can be evaluated.
4. The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force Environmental Impact Analysis Process (32 CFR 989). As part of this EA, we request your assistance in identifying any potential areas of environmental impact to be assessed in this analysis.
5. If you have any specific items of interest about this proposal, please contact Ms. Joanna Bateman, Civil Engineer Squadron, Environmental Element (CES-CEIE), 1407 Washington Blvd, Fort Eustis, VA 23604, by email to Joanna.g.bateman.civ@mail.mil, or by phone at (757)878-7378 within 30 days of receipt of this letter.

Sincerely,

Miguel Capellan
Director
733 Civil Engineer Division

Enclosure

APPENDIX B

Early Public Notice

EARLY PUBLIC NOTICE OF A PROPOSED ACTIVITY WITH IMPACTS TO WETLANDS JOINT BASE LANGLEY-EUSTIS, FORT EUSTIS, VIRGINIA.

An Environmental Assessment (EA) is being prepared to analyze the impacts of implementing the Integrated Natural Resources Management Plan (INRMP) Activities at Joint Base Langley-Eustis (JBLE), Fort Eustis. The purpose of these activities are to revitalize forest and wetland habitats on the installation so that they may be utilized for training and operations, recreation, and to increase ecological richness in the region. Activities and Projects described in the INRMP (*16 USC 670a et seq*.) and the preferred alternative within the EA draft are necessary to improve both the training mission and ecosystems encompassed with the installation. The Proposed Action would include forest stand improvement, limited timber harvest, prescription fire application, invasive species control and native vegetation management and restoration. The Proposed Action would include invasive species removal and wetland restoration projects within wetlands and therefore is subject to the Clean Water Act Sections 401, 404, and 404(b)(1) guidelines and the requirements and objectives of Executive Order (EO) 11990 Section 2(a), "Protection of Wetlands."

This notice is to comply with Section 2(b) of EO 11990, which requires early notice for actions that could potentially affect wetlands. The Air Force has also been in contact with special expertise regarding the Proposed Action, including, but not limited to: the United States Environmental Protection Agency, United States Army Corps of Engineers, Virginia Department of Environmental Quality, Virginia Marine Resources Commission, and Virginia Department of Wildlife Resources.

The Air Force is preparing an EA in accordance with the National Environmental Policy Act (NEPA) to analyze the potential impacts of the Proposed Action. The public will have the opportunity to comment on any concerns during a 30-day comment period that will begin when the draft EA is released during summer of 2022.

Please submit requests for information by email to 733MSG.733CES.CEIEAdmin@us.af.mil or by mail at 733d Civil Engineering Squadron, Environmental Element (CES/CEIE), 1407 Washington Blvd, Fort Eustis, VA 23604 within 30 days of this notice.

APPENDIX C

Notice of Availability

PUBLIC NOTICE OF AVAILABILITY
DRAFT ENVIRONMENTAL ASSESSMENT AND
PROPOSED FINDING OF NO SIGNIFICANT IMPACT
FOR INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN ACTIVITIES AT JOINT BASE LANGLEY-EUSTIS (JBLE), FORT EUSTIS

Joint Base Langley-Eustis, Fort Eustis (JBLE-Eustis) has prepared a draft Environmental Assessment (EA) to analyze the impacts of the Integrated Natural Resources Management Plan Activities at. The purpose of these activities are to revitalize forest and wetland habitats on the installation so that they may be utilized for training and operating missions, recreation, and to increase ecological richness in the region. Some of the proposed actions described in the EA include invasive species removal and wetland restoration projects within wetlands and therefore is subject to the Clean Water Act Sections 401, 404, and 404(b)(1) guidelines and the requirements and objectives of Executive Order (EO) 11990 Section 2(a), "Protection of Wetlands."

The EA, prepared in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations, and Air Force instructions implementing NEPA; evaluates potential impacts of the alternative actions on the environment including the No-action Alternative. Based on this analysis, the Air Force has prepared a proposed Finding of No Significant Impact (FONSI) with a Finding of No Practicable Alternative (FONPA).

The Draft EA and proposed FONSI with FONPA, dated July 2022, documents are available for review in the Public Notices section of the JBLE-Eustis Environmental Web Page at: https://www.jble.af.mil/Units/Army/Eustis-Enviromental/.

You are encouraged to submit written comments by email at 733MSG.733CES.CEIEAdmin@us.af.mil, or by mail at 733 CES, Attention: NEPA Review, 1407 Washington Boulevard, JBLE–Eustis, Virginia 23604. Comments must be received by email or postmarked by 24 August 2022 to receive consideration.

PRIVACY ADVISORY NOTICE

Public comments on this Draft EA are requested pursuant to NEPA, 42 United States Code 4321, et seq. All written comments received during the comment period will be made available to the public and considered during the final EA preparation. Providing private address information with your comment is voluntary and such personal information will be kept confidential unless release is required by law. However, address information will be used to compile the project mailing list and failure to provide it will result in your name not being included on the mailing list.

APPENDIX D

List of Surveys and Inventories of Vertebrate Wildlife, Invertebrate Fauna, and Botanical Species

Wildlife and Other Fauna:

1. A Natural Heritage Zoological Inventory of Ft Eustis VA, Oct 1997.

2. Report of Bat Survey Results at Ft Story, Ft Eustis and Ft Lee, Sep 1998.

3. Breeding Bird Survey Results on US Army Garrisons Ft Eustis and Ft Story, VA, Jul 1999.

4. Spring Migration Bird Survey Results on U.S. Army Garrisons FE and Fort Story (Waterways Experiment Station, July 2000).

5. Breeding Bird Survey Results on the U.S Army Garrisons FE and Fort Story, VA (Waterways Experiment Station, July 2000).

6. Assessment of Fishery Resources for Enhanced Management of Eustis Lake, Ft Eustis VA (U.S. Fish and Wildlife Service, June 2004).

7. Planning Level Surveys for Amphibians, Reptiles, Mammals, Birds, Fish, Pest Insects, and Invasive Plants at Fort Eustis, 2004_2005 (Versar, August 2006).

8. Turtle Diversity of US Army Installation, Fort Eustis 2007.

9. Final Fort Eustis Faunal Survey Report 2015.

10. Final Fort Eustis Forest Insect Survey Report Dec 2015.

11. Bat Survey for the Ft Eustis, Sling Load-Aviation Complex, Newport News, Virginia 2016.

12. 2017 Mosquito Species Inventory.

13. U.S. Air Force Bat Acoustic Survey, Natural Resources Program, Multiple Installations, 2018.

14. Insects, Other Arthropods, & Other Invertebrates Observed on Fort Eustis: Understanding the Significance of Invertebrate Taxa on Military Missions 2018.

15. Bat (Chiroptera) Surveys for Midwest AFCEC Installations 2019.

16. Insects, Other Arthropods, & Other Invertebrates Observed on Fort Eustis: Understanding the Significance of Invertebrate Taxa on Military Missions, Update #1, 2020.

17. 2020 Bat Survey at Building 1610 Joint Base Langley-Eustis, Fort Eustis, VA.

18. CIRE Final Report JBLE-JBA FY 19-20 Natural Resources Support 2021.

19. Bat Mist-Netting Survey Report Joint Base Langley-Eustis, Fort Eustis, Virginia 2021.

20. Insects, Other Arthropods, & Other Invertebrates Observed on Fort Eustis: Understanding the Significance of Invertebrate Taxa on Military Missions, Update #2, 2021.

Botanical/Habitat Surveys:

1. Forest Inventory and Vegetative Assessment of Fort Eustis, August 1997 (Terwilliger Consulting, Inc.).

2. Plant Survey & Herbarium Collection Final Report for Fort Eustis and Fort Story, USA Transportation School, Virginia, June 2001 (Terwilliger Consulting, Inc.).

3. Mapping, Characterization, and Field Verification of Existing Vernal Pools Eustis-Story Aug 2006 (Versar, August 2006).

4. Timber Inventory & Forest Management Plan 2007.

5. Assessment of Vernal Pools on Fort Eustis, 2008-2009.

7. Field Survey for Sensitive Joint Vetch (*Aeschynomere virginica*), Felker Army Airfield Wetland Restoration Area at Joint Base Langley-Eustis, Fort Eustis, Virginia, October 2013 (Resource International, LTD.).

8. Evaluation of Forest Health, Fort Eustis, Virginia, December 2013 (Resource Management Associates, Inc.).

9. USACE-Norfolk District wetland delineation (Preliminary Jurisdiction Determination, 18 December 2014).

10. Environmental Compliance Consolidation Efforts at Joint Base Langley-Eustis, Virginia, 24 July 2015 (Resource Management Associates, Inc.) includes tasks of management of invasive species and botanical survey on 1,225 acres of natural resources.

11. Environmental Support for Wetland Management at Felker Army Airfield and Taylor Avenue Marsh, Joint Base Langley-Eustis, Virginia, 28 August 2015 includes tasks of invasive species identification and botanical review.

12. Timber Inventory & Forest Management Plan 2021.

APPENDIX E

Federal Coastal Consistency Determination

Enforceable Policies under Federal Consistency

Project description. JBLE-E is required by the Sikes Act to prepare and implement an Integrated Natural Resources Management Plan (INRMP). The INRMP represents the installation commander's policy and procedures on managing natural resources. Natural resources include wildlife (game and non-game), other fauna (such as invertebrates), habitats (including upland forests, wetlands, shorelines, aquatic systems, and early successional areas), forestry products/standing timber, and soils. The intent of natural resources projects and tasks is to enhance, improve, and sustain such resources. Such projects and tasks are not related to nor involve construction projects or military training activities.

I. Tidal and Non-Tidal Wetlands.

The Commonwealth of Virginia policies protect and preserve tidal and non-wetlands. Natural resource projects and tasks at JBLE-E that involve wetlands are also focused on enhancement and preservation. Such projects and tasks are not involved with elimination, fill, or otherwise conversion to non-wetland conditions. Wetlands at JBLE-E are critical in mitigating flooding and erosion as well as perpetuating biodiversity.

Natural resource projects and tasks are considered consistent with tidal and non-tidal wetland with the Virginia Coastal Zone Management Program.

II. Subaqueous Lands.

Subaqueous lands include all the bottomlands of the James and Warwick Rivers, tidal creeks and the coastal shorelines surrounding JBLE-E which are under the jurisdiction and property of the Commonwealth. No specific natural resource project or task occurs in subaqueous land with the exception of recreational fishing or migratory waterfowl hunting, or execution of flora and fauna surveys. Recreational waterfowl hunting and fishing in subaqueous land is conducted in accordance with Virginia's laws and regulations. Surveys in subaqueous lands are accomplished under Commonwealth permits. Natural resource projects and tasks do not involve filling, dredging aquaculture, removal of bottomland, or installment of wharves, bulkheads, boat ramps, or marinas.

Natural resource projects and tasks are considered consistent with sustainment of subaqueous lands under the Virginia Coastal Zone Management Program.

III. Dunes and Beaches.

JBLE-E contains very little beach or dune habitat which is restricted predominantly to the vicinity of Training Area 18 along the James River. No natural resource projects or tasks occur in the beach/dune area.

Natural resource projects and tasks are considered consistent with sustainment of beach and dune habitats under the Virginia Coastal Zone Management Program.

IV. Chesapeake Bay Preservation Areas.

Chesapeake Bay Preservation Areas (CBPAs) include Resource Protection Areas (RPA), Resource Management Areas (RMA), and Intensely Developed Areas (IDA). The JBLE-E Integrated Natural Resources Management Plan (INRMP) defines RPAs as a 100-ft buffer of wetlands and surface waters, and retains these areas as natural areas or vegetated to the extent practical. Natural resource projects and tasks treat RPAs as such and would not involve any development. Natural resource projects and tasks are intended to improve, enhance, or preserve habitats and their respective natural resources. These projects and tasks are not construction projects, and subsequently, do not involve development or conversion of natural areas into disturbed areas. Consequently, these projects and tasks may actually enhance RMAs and IDAs.

Natural resource projects and tasks are considered consistent with sustainment of Chesapeake Bay Preservation Areas under the Virginia Coastal Zone Management Program.

V. Marine Fisheries.

JBLE-E natural resource projects and tasks are not performed in the James River, Warwick River, Skiffes Creek, or any marine habitat. Consequently, there would be no encroachment on oyster beds. Recreational fishing from selected locations along installation shoreline of the James River, Warwick River, and Skiffes Creek is authorized and operated in accordance with the Commonwealth of Virginia fishing laws and regulations. No shellfish harvesting occurs at JBLE. There are no projects to propagate oysters.

VI. Wildlife and Inland Fisheries.

The JBLE-E INRMP prohibits the following wildlife and inland fisheries activities:

Allowing domestic pets such as dogs and cats to run loose.

Intentionally or voluntarily releasing any sort of wild animal onto the installation.

Intentionally or voluntarily releasing or liberating insects, other arthropods, or other invertebrate animals onto the installation.

Intentionally or voluntarily releasing captive-raised frogs, toads, insects or other organisms associated with school forums or any other activities.

Intentionally or voluntarily releasing or abandoning domestic dogs or cats onto the Installation.

Intentionally or voluntarily removing any wildlife, other fauna (including but not limited to, insects [such as honey bees, other pollinators, caterpillars, or any insect species],
crayfish, etc.), or animal parts (such as but not limited to skulls, feathers, turtle carapaces/plastrons, carcasses, tails, claws, talons, fur, etc) from the installation except as authorized by hunting and fishing regulations.

Utilize crayfish, frogs (adults or tadpoles), or salamanders as fishing bait.

Harvest any frog species on the installation (such as frog gigging).
Capture, collect, or remove any native wild animal from the installation.

Kill, injure, capture, or harass any wildlife except where permitted by installation recreational hunting and, fishing policy and in accordance with respective state laws.

Any reintroduction of native wildlife onto the installation must be approved by the installation natural resources program manager, an approved INRMP project, executed by trained biologists, and in coordination with the Virginia Department of Wildlife Resources.

All inland fisheries (Eustis Lake, Browns Lake, and Memorial Park Pond are catch and release only.

VII. Plant Pests and Noxious Weeds.

Timber harvesting represents the only potential natural resource action that may relate to plant/plant pest quarantines. In this case, JBLE-E complies with the quarantine set forth by USDA/VDACS regarding red imported fire ants. Natural resource projects and tasks do not involve the importation of invasive or pest plants to the installation.

VIII. Commonwealth Lands.

JBLE-E natural resource projects and tasks are performed within the boundaries of the installation. No such work occurs in state/county/city parks, conservation areas, state forests, or wildlife management areas. Goose Island is a natural area owned by the Commonwealth immediately adjacent to the JBLE-E. JBLE-E does not allow access nor do any natural resource projects or tasks occur on that property.

IX. Point Source Air Pollution.

Natural resource projects and tasks involve wildlife & plant species surveys, other wildlife management, timber/forest management, invasive vegetation control, and planting of native vegetation that are in locations and done in manners that would not generate fugitive dust emissions. These projects and tasks do not involve asphalt paving operations. The only open burning related to natural resource projects and tasks would be prescription fires to reduce forest fuels in order to minimize wild fire risks, control undesirable sweet gum, and red maple overgrowth, preparation of land area for forest planting and create favorable habitat for wildlife. This type of open burring is permissible throughout the Commonwealth.

Natural resource projects and tasks are considered consistent with sustainment of beach and dune habitats under the Virginia Coastal Zone Management Program.

X. Point Source Water Pollution.

Natural resource projects and tasks do not typically function with a point source for release of pollutants into State waters. Hazardous materials used to accomplish these projects and tasks include fuel in tractors or vehicles, automotive fluids in tractors and vehicles, and pesticides. Fuels and automotive fluids remain within the equipment/vehicles and are not discharged into the environment. Pesticides are applied in accordance with their respective label and by certified applicators. None of these equate to a point source of pollution.

Natural resource projects and tasks are considered consistent with avoiding point source pollution under the Virginia Coastal Zone Management Program.

XI. Nonpoint Source Water Pollution.

Natural resource projects and tasks do not typically involve nonpoint sources for release of pollutants into State waters. Hazardous materials used to accomplish these projects and tasks include fuel in tractors or vehicles, automotive fluids in tractors and vehicles, and pesticides. Fuels and automotive fluids remain within the equipment/vehicles and are not discharged into the environment. Pesticides are applied in

accordance with their respective label and by certified applicators. None of these equate to a point source of pollution. Natural resource projects and tasks do not involve alteration of stream beds or shorelines which the exception of controlling invasive vegetation. Timber harvesting and conversions of loblolly overgrowth to early successional or quail habitat is performed with sedimentation and erosion control.

Natural resource projects and tasks are considered consistent with avoiding nonpoint source pollution under the Virginia Coastal Zone Management Program.

XII. Shoreline Sanitation.

Natural resource projects and tasks do not involve use of or impacts to any sewage system. No discharge of sewage would be involved.

Natural resource projects and tasks are considered consistent with shoreline sanitation under the Virginia Coastal Zone Management Program.

APPENDIX F

Common Reed Locations at Fort Eustis (2014)


09.03.2014
Habitat Assessment of Common Reed
Joint Base Langley Eustis, Newport News, Va
Exhibit 1
(Extent)
Legend
Ft. Eustis Boundary
Common Reed Extent, 434.3 Ac.
N
0
0.25
0.5 Miles
Resource
Management
Associates
(757) 787-2637