INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

DELAWARE ARMY NATIONAL GUARD
RIVER ROAD TRAINING SITE
NEW CASTLE, DELAWARE

UPDATED 2020

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ACRONYMS

AR	Army Regulations
ARNG	Army National Guard
ARNG-TRS	Director of Operations, Training, and Readiness
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSDGM	Content Standard for Digital Geospatial Metadata
CSMS	Combined Support Maintenance Shop
CZMA	Coastal Zone Management Act
DA	Department of the Army
DCMP	Delaware Coastal Management Program
DEARNG	Delaware Army National Guard
DEOS	Delaware Environmental Observing System
DFAS-IN	Defense Finance and Accounting Service- Indianapolis Center
DNREC	Delaware Department of Natural Resources and Environmental Control
DoD	Department of Defense
DoDI	Department of Defense Instruction
DRBC	Delaware River Basin Commission
EMS	Environmental Management System
EO	Environmental Office
EQCC	Environmental Quality Control Committee
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute, Inc.
FEMA	Federal Emergency Management Agency
FGDC	Federal Geographic Data Committee
FMS	Field Maintenance Shop
GIS	Geographic Information System
I&E	Installations & Environment
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IPMP	Integrated Pest Management Program
KD	Known Distance
MSL	Mean Sea Level
MWR	Morale, Welfare, and Recreation
NDWRP	Northern Delaware Wetlands Rehabilitation Program
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
NGP	National Guard Pamphlet
NHI	Delaware Natural Heritage Inventory
NHP	Delaware Natural Heritage Program
NMFS	National Marine Fisheries Service

NRCS	Natural Resources Conservation Service
NWR	National Wildlife Refuge
ORV	Off-Road Vehicle
PLS	Planning Level Survey
PPT	Parts per Thousand
REC	Record of Environmental Consideration
ROI	Return on Investment
RRTS	River Road Training Site
SAIA	Sikes Act Improvement Act
SAMP	Special Area Management Plan
STEP	Status Tool for Environmental Program
SWP3	Stormwater Pollution Prevention Plan
T&E	Threatened and Endangered Species
TAG	The Adjutant General
TMDL	Total Maximum Daily Load
TSSDS	Tri-services Spatial Data Standards
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USGS	United States Geologic Survey
USPFO	United States Property and Fiscal Office
WES	Waterways Experiment Station
WRA	Wetlands Research Associates, Inc.

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CHAPTER 1 - EXECUTIVE SUMMARY

1.1 PURPOSE

1.1.1 Purpose and Scope

The purpose of this Integrated Natural Resources Management Plan (INRMP) is to guide the natural resources management program at the Delaware Army National Guard's (DEARNG) River Road Training Site (RRTS) from 2020 and on, and to provide a solid foundation on which to build the program beyond the year 2020.

1.1.2 Support of Army Mission

Maintaining optimal environmental conditions on the military lands is essential for the success of the military mission at the RRTS. The management measures were developed based on the current conditions of the resources, and the military mission and activities as they are anticipated.

1.1.3 Benefits

The INRMP provides the DEARNG and the installation with a single document that describes the state of natural resources and describes natural resources management on the installation. Formerly, individual species management was the norm, and each managed species had a management plan. These plans often contained redundant information, and did not address the larger context of ecosystem-level natural resources management goals and objectives. The INRMP, on the other hand, provides a concise analysis of all levels of the ecosystem, from the interaction of terrestrial and aquatic habitats with each other, to the management methods and goals for individual species. This larger picture provides a broader basis of understanding for planning and budgeting purposes.

1.2 IMPLEMENTATION

1.2.1 Natural Resources Management Goals

The natural resources program structure was developed based on installation-specific management situations and is designed to facilitate issue identification and prioritization, as well as project funding, implementation, and tracking. The resource-specific management programs addressed in this INRMP include the following:

- Geographic Information System (GIS).
- Fish and Wildlife Management Program.
- Threatened and Endangered Species Program.
- Wetlands Management Program.
- Grounds Maintenance Program.
- Forest Management Program.
- Honey Bee and Pollinator Program.
- Environmental Awareness Program.

Management issues for each of these programs have been identified and are discussed in the INRMP and provide the basis for the INRMP goals and objectives.

Goals and objectives have been established for each of the resource-specific programs to address the identified issues. Goals are defined as project-level results that the DEARNG intends to achieve during the current five-year planning period. The objectives developed for each goal represent the specific steps that will be taken to achieve the goals. Staffing, funding, and scheduling requirements for achieving the goals have also been established. Objectives and projects are presented in Appendix G of this INRMP.

1.2.2 Changes in Existing Management Practices

No changes in existing management practices are proposed under this INRMP. However, it is recommended that the DEARNG participate in cooperative agreements with environmental resource agencies and/or educational institutions in order to more broadly monitor natural resources at the RRTS. This administrative enhancement may lead to additional information that could improve existing management at the site in the future.

1.2.3 Environmental Impacts of INRMP Implementation

No significant environmental impacts are anticipated as a result of INRMP implementation. Project consists of updating the INRMP for the RRTS. The INRMP was updated with current and future projects, agreements with US Fish and Wildlife Service (USFWS) and the state wildlife

agency, and other partners in implementing natural resources conservation. An Environmental Assessment (EA) was completed for the original INRMP. DEARNG scrutinized the existing EA, per 32 Code of Federal Regulations (CFR) 651.5.g.2, to ascertain the adequacy of the previous EA and see if it is still relevant. After examining the goals, existing conditions, projects, and environmental consequences of the original EA, DEARNG determined there is no significant change since the original EA. Therefore, the updated INRMP can be treated as a tiering action and documented in a Record of Environmental Consideration (REC). Implementation of the projects in this INRMP will help facilitate natural processes, and create direct, minor benefits for specific species and habitats.

CHAPTER 2 - GENERAL INFORMATION

2.1 PURPOSE

2.1.1 Use of the INRMP to Guide Natural Resources Management

The purpose of this INRMP is to document the policies and future direction of natural resource programs at the DEARNG RRTS in New Castle County, Delaware. Specific expectations of the plan include the following:

- To provide a comprehensive planning document that allows the RRTS to carry out its mission, promote ecosystem health, and maximize biodiversity at the installation and in the surrounding region.
- To document specific natural resources management goals, objectives, policies and the desired future direction of natural resources programs.
- To establish the framework for the implementation of natural resources programs and ecosystem management.
- To provide a centralized source of information regarding the status of natural resources programs.
- To delineate physical and legal environmental constraints to land use.
- To serve as a baseline for defensible EAs and Environmental Impact Statements.
- To assist installation compliance with environmental regulations.
- To identify, prioritize, and schedule long-term budget requirements.

2.1.2 Scope of the INRMP

This INRMP is designed to address natural resources and their management throughout the installation. This INRMP does not address the management of natural resources on properties that lie outside the property boundaries and adjacent waters, but strives to capture all those activities occurring within the property boundaries that may benefit or degrade natural resources.

2.1.3 Function of the INRMP

This INRMP is an update of the previous RRTS INRMP, dated 2012. This document presents a review of the natural resources activities undertaken at the RRTS over the past 8 years, and proposes a range of new projects and initiatives for implementation in the years 2020 and beyond.

This INRMP is not intended to be a stand-alone document. Instead, it is designed to not only document the health and extent of existing natural resource assets and their management, but also assist in the full integration of natural resources management, other installation plans, and activities across the RRTS. Of particular interest is the integration of natural resources management into the larger Environmental Management System (EMS) at DEARNG facilities, including the RRTS. The structure of this INRMP is meant to facilitate inclusion of the proposed natural resources goals, objectives, and projects into the larger EMS.

This INRMP is intended to be used in conjunction with installation master plans, range plans, training plans, Integrated Cultural Resources Management Plans (ICRMPs), pest management plans, installation restoration plans that address contaminants covered by Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and related provisions, and other appropriate plans and offices. It is not intended this INRMP function as a comprehensive compilation of detailed information on all these related topics. Rather, the INRMP briefly summarizes the key inter-relationships with these plans, references where the plans may be obtained, and describes where detailed information can be found.

2.2 AUTHORITY

2.2.1 The Sikes Act (16 U.S.C. 670 *et. Seq.*)

Per 16 U.S.C. § 670a(b) of the Sikes Act Improvement Act (SAIA) of 1997, to the extent appropriate and applicable, this INRMP provides for the following:

- Fish and wildlife management, land management, forest management, and fish- and wildlife-oriented recreation.
- Fish and wildlife habitat enhancement or modifications.
- Wetland protection, enhancement, and restoration, where necessary for support of fish, wildlife, or plants.

- Integration of, and consistency among, the various activities conducted under the plan.
- Establishment of specific natural resource management goals and objectives and time frames for proposed action.
- Sustainable use by the public of natural resources to the extent that the use is not inconsistent with the needs of fish and wildlife resources.
- Public access to the military installation that is necessary or appropriate for the use described above, subject to requirements necessary to ensure safety, military security, and fulfillment of the military mission.
- Enforcement of applicable natural resource laws (including regulations).
- No net loss in the capability of military installation lands to support the military mission of the installation.
- Such other activities as the Secretary of the military department determines appropriate.

2.2.2 Department of Defense (DOD) Instruction 4715.03: Natural Resources Conservation Program, March 18, 2011

This revised INRMP was prepared in accordance with the SAIA, DOD Instruction (DoDI) 4715.03 (Environmental Conservation Program). The SAIA states that "the Secretary of each military department shall prepare and implement an INRMP 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." DODI 4715.03 prescribes procedures for integrated management of natural and cultural resources, including preparing an INRMP as required by the SAIA. DODI 4715.03 also states that "INRMPs shall be prepared, maintained, and implemented for all lands and waters under DOD control that have suitable habitat for conserving and managing natural resources."

2.2.3 National Environmental Policy Act (NEPA)

NEPA is the basic national charter for the protection of the environment and it mandates that Federal agencies use a systematic, interdisciplinary approach to ensure that the impacts of Federal actions on the environment are considered during the decision-making process (NEPA, 1969). Under NEPA, Federal agencies that fund, support, permit, or implement major programs and

activities are required to assess the environmental impact of implementing their actions early in the planning process. While the NEPA process is not intended to fulfill the specific requirements of other environmental statutes and regulations, the process is designed to provide the decision-maker with an overview of the major environmental resources to be affected, the interrelationship of these components, and potential conflicts. As such, the NEPA process begins in the early stages of the decision-making process to ensure that planning decisions reflect environmental values, avoid delays later in the process, and head off potential conflicts (Council on Environmental Quality (CEQ), 1978).

2.2.4 Army Regulation (AR) 200-1: Environmental Protection and Enhancement

The Army's AR 200-1 covers environmental protection and enhancement and provides the framework for the Army Environmental Management System. This regulation implements Federal, State, and local environmental laws and DOD policies for preserving, protecting, conserving, and restoring the quality of the environment. Policy, responsibilities, and procedures for integrating environmental considerations into Army planning and decision making are also addressed in AR 200-1.

Chapter 4 part 3 of AR 200-1 identifies an INRMP as a land resources program requirement. INRMPs are defined as 'the installations commander's adaptive plan for managing natural resources to support and be consistent with the military mission while protecting and enhancing those resources for multiple use, stained yield, and biological integrity.'

2.2.5 Other Requirements

Additional requirements that authorize the development and implementation of this INRMP include:

- 32 CFR 190, Natural Resources Management Program.
- Endangered Species Act (16 USC 1531-1542; last amended 2004).
- Coastal Zone Management Act (CZMA, 1972; last amended 2004).
- Clean Water Act (33 USC 1251 et seq.; last amended 1987).
- Delaware Wetlands Act (7 Del. C. 1953, § 6601; 59 Del. Laws, c.213 § 1).

- Delaware Coastal Zone Act (7 Del. C. 1953, § 7001; 58 Del. Laws, c. 175) and Coastal Zone Conversion Permit Act (2017).
- Bald and Golden Eagle Protection Act (16 U.S.C 668a-d).
- Migratory Bird Treaty Act (16 U.S.C. 703-712).

2.3 RESPONSIBILITIES

The success of the management of the natural resources located on the grounds of RRTS requires a cooperative effort among the parties directly responsible for implementing this INRMP. The level of success can be enhanced by developing partnerships among the parties that have a vested interest in the responsible management of the natural resources at RRTS. Outside parties and their roles and responsibilities are described in Chapter 7. Brief descriptions of the parties directly responsible for the implementation of this INRMP are provided below.

2.3.1 DEARNG Commander (The Adjutant General (TAG))

The DEARNG Commander is directly responsible for operating and maintaining all DEARNG installations, including the implementation and enforcement of this INRMP. The Commander is responsible for outdoor recreation activities at DEARNG installations, and has the authority to delegate all or portions of the management of environmental resources to members of his command.

2.3.2 DEARNG Environmental Office (EO)

The EO is responsible for natural resource management, cultural resources management, and other environmental programs at all DEARNG installations. In addition, EO coordinates all cooperation and correspondence with agencies outside the DEARNG.

Specific requirements for administrative responsibilities will be governed by directives provided in AR 200-1. The responsibility for developing and implementing the INRMP is with the DEARNG.

2.3.3 RRTS Facilities Management Office

The RRTS Facilities Management Office is responsible for maintenance of the buildings and grounds at the RRTS. The staff identifies maintenance needs and the appropriate measures to meet

those needs within the guidance provided by the EO. The RRTS Facilities Management Office is responsible for mowing, pest management, and wildlife management.

2.3.4 RRTS Groundskeeper

The RRTS Groundskeeper is a specific staff person within the RRTS Facilities Management Office. The Groundskeeper is specifically responsible for implementation of grounds management practices, including pest and nuisance species control, mowing, and trimming.

2.3.5 Army National Guard (ARNG) Installations & Environment (I&E)

National Guard Bureau (NGB) is the higher headquarters for the DEARNG. Two Directorates are involved in the management of natural resources: the Director of Installations & Environment and the Director of Operations, Training, and Readiness (ARNG-TRS). ARNG I&E ensures operational readiness by sustaining environmental quality by tracking projects, providing technical assistance, quality assurance, and execution of funds. ARNG-I&E provides policy guidance and resources to create, sustain, and operate facilities that support the ARNG. ARNG-TRS is responsible for training and training site support to include sustainable range management.

2.4 MANAGEMENT PHILOSOPHY

2.4.1 How This INRMP Supports the Army Military Mission

In order to achieve the missions of the DEARNG and maintain readiness standards, DEARNG lands must support training and other functions indefinitely into the future. Consequently, training lands are some of the most valuable assets of the DEARNG. Sustainable use of these lands can be achieved through management programs that integrate training uses, as well as other land uses required by the mission, with sound natural resources management.

The management measures contained in this INRMP have been developed based on the current conditions of the resources, and the military mission and activities as they are anticipated. This INRMP will guide natural resources management at the RRTS for the following years (FY 2020) and provide a solid foundation from which to build the program beyond the year 2020.

2.4.2 How This INRMP Supports Environmental Management System (EMS)

An EMS is the part of an organization's overall management system that integrates environmental concerns and issues in the organizations management processes. An EMS addresses

organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing achieving, reviewing, and maintaining environmental policy. An EMS enables an organization of any size or type to control the impact of its activities, products, or services on the natural environment, allowing it to not only achieve and maintain compliance with current environmental requirements, but to recognize and proactively manage future issues that might impact mission sustainability.

The EMS follows a "Plan, Do, Check, Act" model. This model leads to continual improvement of the environment by the following:

- Planning, including identifying environmental aspects and establishing goals [plan].
- Implementing, including training and operational controls [do].
- Checking, including monitoring and corrective action [check].
- Reviewing, including progress reviews and acting to make needed changes to the EMS [act].

This INRMP supports the DEARNG EMS by providing information on the organizational structure, responsibilities, practices, procedures, and processes already in place for managing natural resources, and providing guidance for the Plan, Do, Check, Act model as it regards natural resources management, in order to meet the EMS goal of continual improvement.

2.4.3 How This INRMP Implements the Army Principles for Ecosystem Management

Protecting and enhancing biodiversity is an overall goal of the DEARNG. Biodiversity consists of many elements of the natural environment including indigenous ecological communities, native species, and their associations, as well as ecosystem functions such as predation, grazing, nutrient cycling, and fire. Biodiversity is best measured or defined in terms of the variety of natural communities or ecosystems and the various natural functions that occur within and among these communities or ecosystems, rather than simply by the numbers of species present. Management for maximum biodiversity helps to ensure ecosystem health, which in turn ensures sustainable use of training lands to accomplish military missions.

Ecosystem management is a tool for the DEARNG to use not only in its efforts to protect and enhance biodiversity, but also to sustain the use of its military training lands. This tool encourages

management decisions to focus on natural resources at a community or ecosystem level rather than at a single species level. By maintaining or improving the quality, integrity, and connectivity of the ecosystem, individual species should prosper. However, individual rare species are not neglected by this management approach. Consideration must be given to rare species during project planning because these species contribute to ecosystem health and to biodiversity, and, in many instances, are provided legal protection.

This INRMP uses an ecosystem management approach to natural resources management. Each element of the ecosystem is studied and managed in relationship to other parts of the ecosystem, so that natural biological integrity is maintained to the extent feasible. Stewardship of natural resources on an ecosystem scale addresses requirements of water quality, soil productivity, biological diversity of native flora and fauna, and compliance concerns. This INRMP therefore emphasizes protection and management of soil and water resources and lower levels of the food chain, which will, in turn, support the sustainability of biological resources and mission activities. In accordance with NGB guidance, the major components of the INRMP include natural resources inventories and monitoring, land restoration, and natural resources awareness. Each of these components is essential to the success of an ecosystem management plan that aims to achieve sustainable land use and promote biodiversity.

2.4.4 How This INRMP Supports the Installation Planning Process

This INRMP supports the DEARNG's planning process by identifying and prioritizing natural resources management goals, identifying projects to support those goals, and identifying the schedule and resources (manpower and funding) required for performing those projects. These functions, then, help guide the larger planning process, including budgeting, hiring, and acquisition.

2.5 CONDITIONS FOR IMPLEMENTATION AND REVISION

2.5.1 Implementation

The DEARNG EO is responsible for the implementation of this INRMP. The INRMP will be reviewed annually by the EO along with USFWS and the Delaware Department of Natural Resources and Environmental Control (DNREC).

2.5.2 Revisions

The Sikes Act and AR 200-1 require annual review and update of the INRMP to keep the plan current. At a minimum, the INRMP Project Implementation Table must be updated annually to reflect completed projects and newly proposed projects. Periodic evaluations and revisions will be conducted under the management of the DEARNG EO with input from the Environmental Quality Control Committee (EQCC) and internal and external stakeholders, as appropriate. The RRTS INRMP is effective for up to five years from the date of signature by all parties.

CHAPTER 3 - INSTALLATION OVERVIEW

3.1 LOCATION AND AREA

The RRTS is located on the western shore of the Delaware River in New Castle County (Figure 3-1). The New Jersey shore is approximately 2 miles across the River. River Road (State Route 9) borders the western boundary of the RRTS. The City of New Castle is located approximately 2.5 miles northeast of the RRTS.

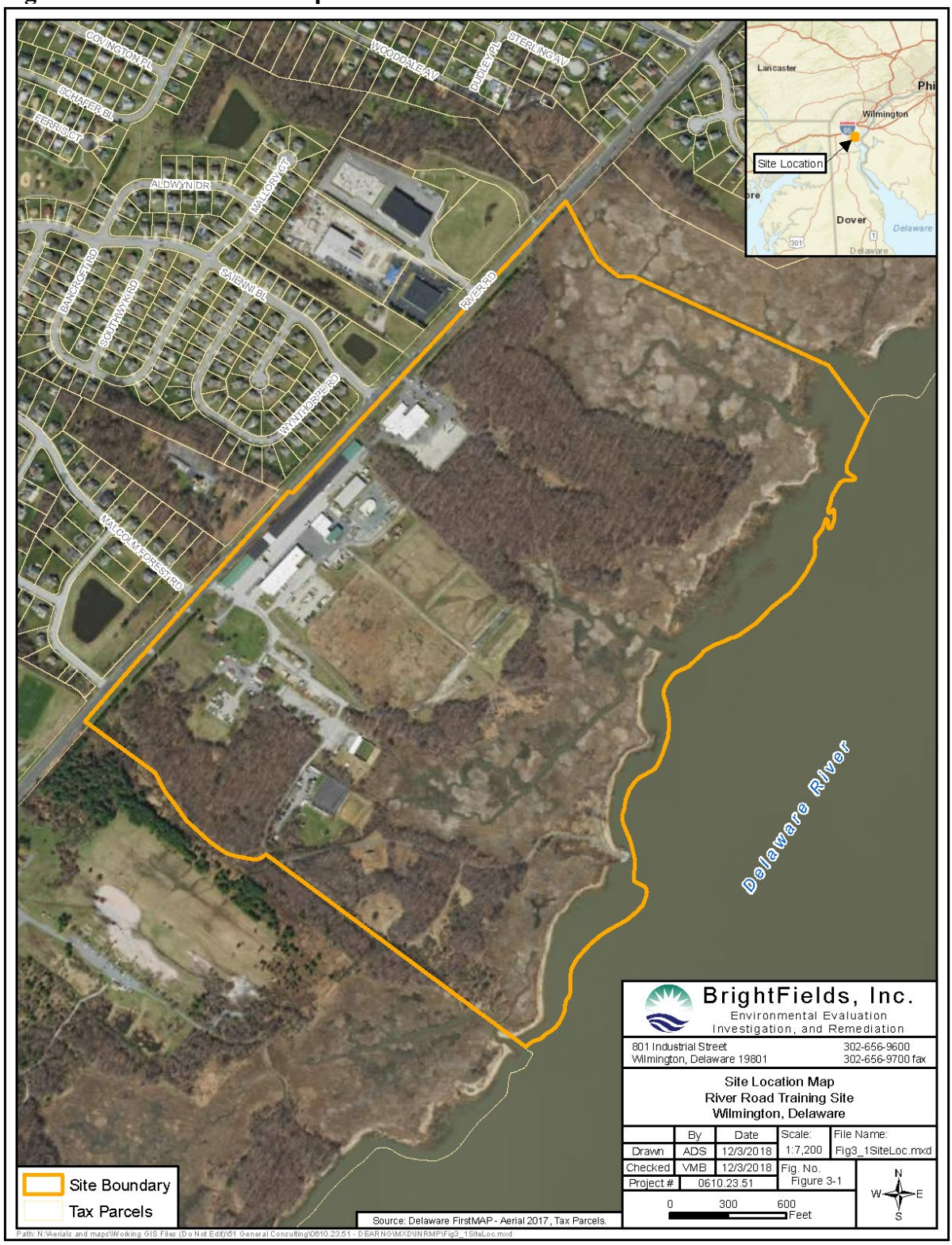
Use of the property by the state of Delaware is licensed from the Department of the Army. Although the license states that the property consists of 227 acres, a property survey conducted by Vandemark and Lynch, Inc. indicates that the installation occupies approximately 191 acres. The surveyed boundary has been incorporated into the DEARNG GIS, so that all acreage calculations in this INRMP are based on a total area of 191 acres.

3.2 INSTALLATION HISTORY

The RRTS was originally established around 1908, as a result of the 1903 Dick Act. The Dick Act stated that within five years, a Guard unit had to conduct at least 24 drills or target practice periods a year, in order to retain its status. Federal funds were also provided by the Act to aid in the establishment of training facilities in each state. The RRTS has served as a statewide Guard facility to conduct training encampments, field exercises, and armament training from its inception (Jones, 1995).

The early history of the RRTS is difficult to determine because records of the construction of major site features do not exist. The first permanent feature of the site is believed to be a rifle range, constructed during World War I. Also during this period, a semi-permanent encampment was built due south of the present multi-use administrative building and the caretaker's house. The grounds in this area still retain fragments of concrete sills, latrine remains, and scattered depressions, which indicate this occupation. In the early years of the RRTS, the southwest corner of the property was the preferred site for the encampment. This area was due south of a farm complex that served as the house of the site caretaker. A new caretaker's house was built in the mid-1970s to replace the older farmstead that had been destroyed by a fire. Many additional changes to the physical appearance of the installation have been made since 1970 (Jones, 1995).

Figure 3-1: Site Location Map



3.3 MILITARY MISSION

The RRTS has continuously served as a facility for field exercises and weapons training of the DEARNG since around 1908. Presently, the installation is used for individual weapons training, as well as for providing maneuver areas for individual soldier skills training. The RRTS is federally-owned and currently operates four small arms ranges. Vehicle maintenance facilities, the Facilities Maintenance Workshop for the DEARNG, and facilities for the United States Property and Fiscal Office (USPFO) for Delaware are also located on the property. An armory houses the 249th Engineer Detachment (Utilities). Local law enforcement agencies use the RRTS for marksmanship training when such use does not interfere with military activities.

3.4 SURROUNDING COMMUNITIES

The northeastern boundary of the RRTS is bounded by an area of wetlands within the Gambles Gut embayment of the Delaware River forming the general northern boundary of the installation. River's Edge, a small community of single-family homes, is located approximately one half-mile north of Gambles Gut, and the larger community of Llangollen Estates is located approximately one half-mile northwest of Gambles Gut. New Castle County Airport lies approximately 5 miles north of the facility with the city of New Castle approximately 2 miles to the northeast. The Delaware River forms the eastern boundary to the RRTS running northeast to southeast. The Delaware River is heavily populated with commercial, industrial, and recreational boat traffic. The New Jersey shore is approximately 2 miles across the river. The Supawna Meadows National Wildlife Refuge (NWR) is located approximately 3.5 miles to the east of the RRTS and Pea Patch Island Heronry is approximately 2.5 miles to the south, both providing protected habitat areas for a variety of wildlife species. Ommelanden Range, a public skeet range, is adjacent to the southern portion of the facility. A large industrial area occupied by several large refineries is a few miles farther to the south and west. River Road (State Route 9) forms the western boundary of the RRTS. Bayview Manor, a residential community, is located on the western side of River Road across from the RRTS. The Kirkwood Soccer Club is located south of Bayview Manor, southwest of the RRTS. Several large refineries are located a few miles south and west. Rural, agricultural, and open space areas dominate the landscape further south and west of the installation (USACE, 2007).

3.5 REGIONAL LAND USE

3.5.1 Population

To illustrate trends, population data for the State of Delaware, New Castle County, and New Castle City are provided in Table 3-1 for 1990, 2000, and 2010. As shown in the table, in 2010 the County population totaled 538,479, an increase of 7.6 percent since 2000. In comparison, the population of New Castle City increased by 6.3 percent since 2000, growing from 4,972 to 5,285 between 2000 and 2010.

New Castle County is a growing area of Delaware. This is evident at the RRTS, as residential communities have expanded, and several new residential communities have been constructed since initial construction of the RRTS. This expansion, and the attendant change in land use, has made the relatively undeveloped RRTS a haven for plants and animals that are quickly being forced out of the surrounding area. Natural resources management at the RRTS, then, must account for these external pressures and the increasing importance of the ecological communities at the installation to native plants and wildlife.

Table 3-1: Population Trends

	Population 1990	Population 2000	Population 2010
Delaware State	666,168	783,600	897,934
New Castle County	441,946	500,265	538,479
New Castle City	4,837	4,972	5,285

SOURCE: U.S. Census Bureau (1990, 2000, 2010)

3.6 LOCAL AND REGIONAL NATURAL AREAS

The RRTS is located within the Delaware River watershed, which is recognized as an estuary of national significance for its unique water quality and habitat resources. The Delaware Bay and Estuary support significant tidal freshwater and tidal salt water wetlands, which in turn support a myriad of fish and wildlife populations.

Pea Patch Island, a 312-acre island located to the south of the RRTS, is the site of the largest wading bird nesting colony north of Florida on the East Coast. Colonial wading birds such as great blue heron (*Ardea herodias*), black-crowned night heron (*Nycticorax nycticorax*), little blue heron (*Egretta caerulea*), great egret (*Casmerodius albus*), snowy egret (*Egretta thula*), yellow-crowned

night heron (*Nycticorax violaceus*), cattle egret (*Bubulcusibis*), tri-colored heron (*Egretta tricolor*), and glossy ibis (*Plegadis falcinellus*) are particularly dependent on habitat available at Pea Patch Island. The RRTS lies within the 9.3 miles diameter focus area of the Pea Patch Island Heronry Special Area Management Plan (SAMP), established under the Federal Coastal Zone Management Act (Stephenson, 1998).

The Supawna Meadows NWR is located across the river to the east of the RRTS, in Salem County, New Jersey. It provides approximately 2,800 acres of protected habitat areas for migratory birds, white-tailed deer, and a variety of other species.

CHAPTER 4 - PHYSICAL ENVIRONMENT

4.1 CLIMATE

The climate at the RRTS is humid and seasonally variable, with a continental influence. Winds generally move from west to east, although wind directions are also dictated by high and low pressure systems and are seasonally variable. Warm, moist air from the south and southwest hangs over the area in the summer, while alternating high and low pressure systems determine the climate during the winter months. Extreme temperatures ranged from approximately 97ºF to 1ºF in 2015 through 2017, and the mean annual temperature in New Castle, Delaware was about 56ºF (Delaware Environmental Observing System (DEOS), 2017). The growing season lasts between 170 and 200 days (DEARNG, 2018).

Precipitation is distributed fairly uniformly throughout the year, with an average annual precipitation of about 45 inches (DEARNG, 2018). Drought poses the greatest threat in summer, although it may occur at any time during the year. Snow typically falls between December and March, with mean snowfall of about 21 inches (USDA Soil Conservation Service, 1970). The average frost penetration is about 5 inches (DEARNG, 1995).

Table 4-1: Climate at the RRTS (2015 – 2017)

Average Temp.	56° F
Maximum Temp.	97° F
Minimum Temp.	1° F
Precipitation	45 inches
Snowfall	21 inches
Growing Season	170 to 200 days

SOURCE: DEOS, 2017; DEARNG, 2018

4.2 LANDFORMS

The terrain at the RRTS undulates between elevations of 10 feet and 30 feet above mean sea level (MSL) over the majority of the property, decreasing eastward to elevations of less than 5 feet above MSL. Runoff from the installation flows into brackish marshes to the north and south, and into the Delaware River to the east, with the majority of the building area draining east through ditches.

4.3 GEOLOGY AND SOILS

4.3.1 Geology

The RRTS is located in the Atlantic Coastal Plain geologic province, which consists of a seaward-thickening wedge of semi-consolidated to unconsolidated sediments above a crystalline basement. However, the dominant geological unit at the installation is the Potomac Formation. This formation is fluvial in origin, and is composed predominantly of clays and silts with some interbedded sands. It is approximately 500 feet thick at the RRTS, thickening towards the southeast to approximately 1,300 feet in southern New Castle County. The top of the formation is about 10 feet below the land surface at the site, deepening gradually toward the southeast. Piedmont crystalline bedrock underlies the Potomac Formation at a depth of approximately 500 feet below MSL. The sediments of the Columbia Formation cover much of the Potomac Formation, consisting of poorly sorted fluvial sands with some inter-bedded gravels, silts, and clays. The Columbia Formation is of relatively consistent thickness throughout the region. The continuity of clayey layers above the water table is not known (DEARNG, 1995).

4.3.2 Soils

The Natural Resources Conservation Service conducted soil surveys and mapping at the RRTS in 2000. Descriptions of soils found at the installation are provided in the Soils Planning Level Survey (PLS) in Appendix B. The PLS, prepared in 2011, provides a breakdown of the soils with regard to acreage, drainage class, hydric or non-hydric class, erodibility, and prime farmland soil classification.

As shown in Figure 4-1, the following soil types are found at the RRTS:

- Broadkill mucky peat, very frequently flooded, tidal.
- Keyport silt loam, 0 to 2 percent slopes.
- Lenni silt loam, 0 to 2 percent slopes.
- Mattapex silt loam, 2 to 5 percent slopes.
- Nassawango silt loam, 2 to 5 percent slopes.
- Sunken mucky silt loam, 0 to 2 percent slopes, occasionally flooded, tidal.

Figure 4-1: Site Soils Map

- Udorthents, 0 to 10 percent slopes.
- Woodstown loam, 0 to 2 percent slopes.
- Woodstown loam, 2 to 5 percent slopes.

4.4 HYDROLOGY

4.4.1 Groundwater

Groundwater is ample in Delaware due to the presence of permeable marine deposits atop crystalline bedrock. Water bearing zones in the Potomac and Columbia formations are used as a source of public and private drinking water in this area. The Columbia Formation contains a shallow water table which is believed to roughly parallel the topographic surface and is important in maintaining stream base flows. During a 1992 wetlands delineation survey, depth to water in the upland areas of the RRTS was between 15 and 30 inches below surface, with depth to free water or soil saturation near the surface (0-12 inches) at the wetland boundary line. The delineation was performed following an intense rainstorm and a particularly wet summer (WRA, Inc., 1995a). Depth to groundwater may actually be several inches further from the surface under normal conditions (DEARNG, 1995).

4.4.2 Surface Water

The RRTS is located in the Army Creek watershed, in the Delaware Bay drainage basin, as defined by the DNREC Division of Water Resources (DNREC, 1998). The larger scale watershed definition used by the US Environmental Protection Agency (USEPA) considers the same region to be in the Delaware Bay watershed (USGS Cataloging Unit: 02040204), which includes the Delaware River and 18 other major surface waters in Delaware, New Jersey, and Pennsylvania (Figure 4-2) (USEPA, 1998). The Delaware River forms the eastern boundary of the RRTS and is the site's most significant surface water feature (Figure 4-2). Delaware's second most significant surface water feature, the Chesapeake and Delaware Canal, is located approximately six and a half miles south of the RRTS. Surface water runoff at the RRTS drains to the salt marshes to the north and south and the river to the east through drainage ditches. After heavy rainfalls, ponding of surface water tends to occur in several low-lying mowed areas (WRA, Inc., 1995a). The Surface Water PLS is provided in Appendix B. DEARNG manages a Stormwater Management Program in coordination with its facilities.

4.4.2.1 Delaware River

The Delaware River forms the eastern boundary of the RRTS and is approximately 2 miles wide at this location. The depth of the river reaches about 40 feet in the shipping channel near the RRTS (DRKN, 1999). Originating in the Catskill Mountains of New York, the Delaware River flows for a total of 375 miles until it reaches the Atlantic Ocean at Cape May, New Jersey and Cape Henlopen, Delaware. The RRTS is located along the river's tidal segment, where salinity ranges from fresh to slightly brackish. The Delaware River watershed encompasses 12,765 square miles of land in New York, New Jersey, Pennsylvania, and Delaware (DRKN, 1999).

Water quality problems in the Delaware River are the result of both historical and current pressures from industry, agriculture, and population. The Delaware River Basin Commission (DRBC) monitors water quality from the headwaters to the estuary and has divided the River and Bay into six segments. The tidal segment that includes the RRTS is designated as Zone 5, which along with Zone 6 constitutes the Delaware Estuary and Bay.

Designated uses for Zone 5 include aquatic life, primary recreation (which includes all water-contact sports), and fish consumption. DRBC has adopted numeric toxics criteria that are protective of aquatic life in Zone 5. In the 2018 Delaware River and Bay Water Quality Assessment, dissolved oxygen, turbidity, temperature, and toxic pollutants (including copper and polychlorinated biphenyls (PCBs)) did not meet the aquatic life water quality criteria for Zone 5 and, therefore, aquatic life use is not supported. For primary recreation, DRBC evaluates fecal coliform and enterococcus bacteria, both which met the water quality criteria for recreation in the 2018 report. For fish consumption, DRBC evaluates the presence of fish consumption advisories. Based on the presence of fish advisories in Zone 5, fish consumption use is not supported (DRBC, 2018).

The DRBC has addressed toxic pollutants in the tidal Delaware River by adopting water quality criteria and implementation procedures for a Total Maximum Daily Load (TMDL), focusing on point source pollutant discharges. Nonpoint source discharges will be addressed by Phase 2 of this two-phased approach. Surface water quality in the Delaware Estuary is monitored through the Delaware River Boat Run Monitoring Program, which is a joint effort between DNREC and DRBC (DRBC, 2018).

4.4.2.2 Tidal Creeks

The RRTS is located in the upper estuary of the Delaware River, and is highly influenced by the dynamics of the estuarine system. Tidal creeks, such as Gambles Gut on the northern perimeter of the installation, are significant surface features that connect the property to the Delaware River. The ecological communities associated with these creeks are discussed in Section 5.1

4.4.3 Wetlands

In conjunction with this INRMP, the U.S. Army Corps of Engineers (USACE) updated the wetland survey conducted by Wetlands Research Associates, Inc. (WRA) in 1992, and a Planning Level Wetlands Survey conducted by the USACE, Waterways Experiment Station (WES) in 2000. The 2005 survey identified approximately 77 wetland acres, comprising both palustrine (14 acres) and estuarine (63 acres) wetland types. In 2010 the USACE conducted additional surveys to update the previous delineations and identified approximately 76 wetland acres, comprising of both palustrine (13 acres) and estuarine (63 acres) wetland types. Figure 4-2 shows these updated wetland boundaries at the installation. In 2017, LandmarkJCM, Inc. performed an additional wetland survey. The report had not been finalized at the time of the 2020 INRMP revision.

DEARNG activities are not presently conducted in these wetland areas, nor do they plan to be in the future. The ecological communities associated with wetlands at the RRTS are discussed in Sections 5.2.2.2 and 5.2.2.3. Additional information on wetlands is located within the Wetlands PLS in Appendix B.

4.4.4 Floodplains

The 100-year floodplain covers approximately 76 acres of the installation, which are generally concentrated on the eastern portion of the installation (FEMA, 2015). None of the buildings at the RRTS are located in the 100-year floodplain, although part of the roadway that leads to the shore of the Delaware River is included in the floodplain area. Additionally, the 500-year floodplain encompasses approximately 8 acres of the property, and the greater than 500-year floodplain includes approximately 107 acres of the RRTS. The floodplains are shown in Figure 4-3.

Figure 4-2: Site Wetlands Map

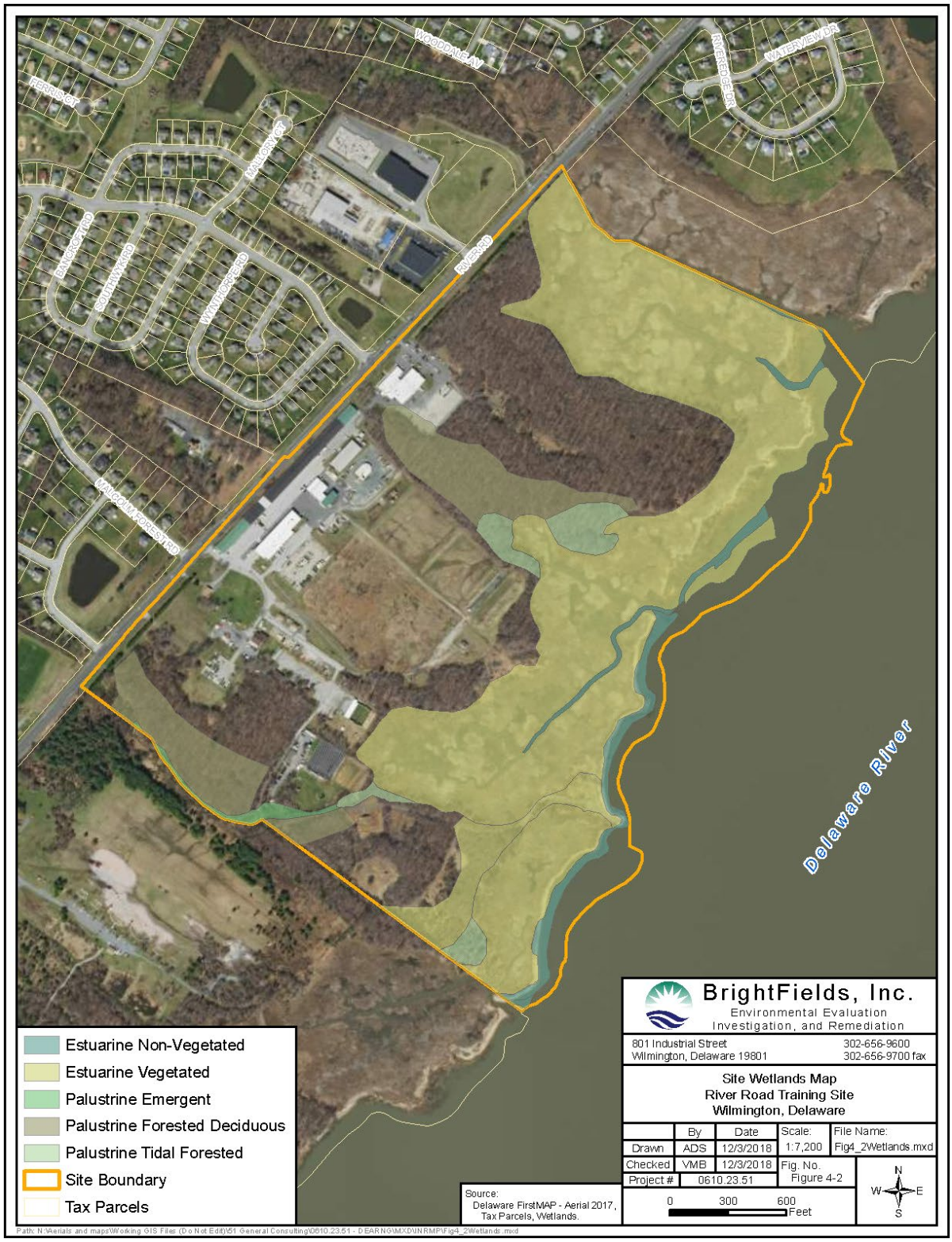
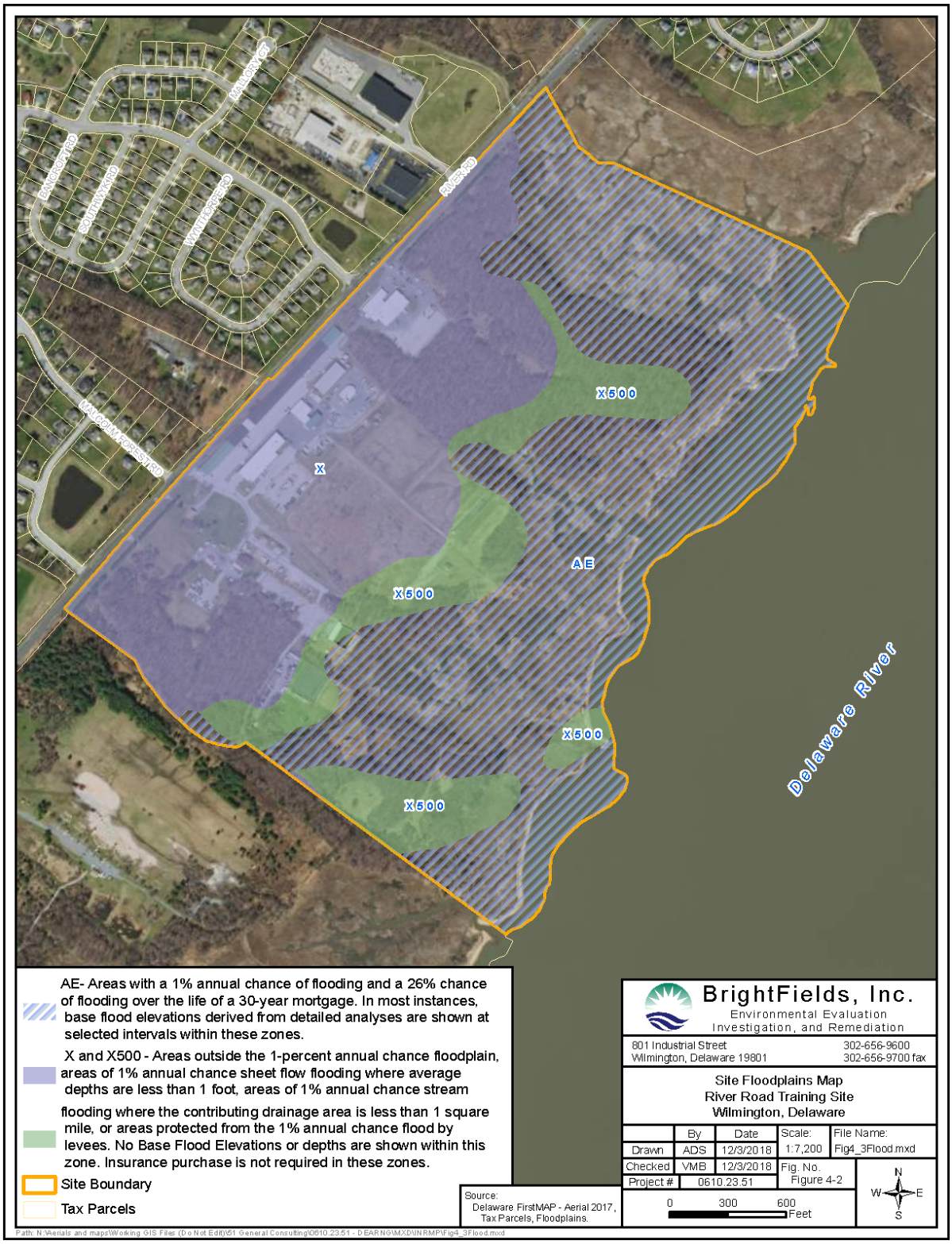


Figure 4-3: Site Floodplains Map



4.4.5 Natural and Artificial Drainages

Drainage from the developed portions of the RRTS is accomplished by use of ditches which run southeast toward the Delaware River. The westernmost of these ditches is riprap-lined, and carries stormwater from the western access road, Combined Support Maintenance Shop (CSMS), and the western portion of the warehouse building. The eastern ditches run along the sides of the eastern access road, and carry stormwater from the rifle range, Field Maintenance Shop (FMS), and western portion of the warehouse building.

CHAPTER 5 - ECOSYSTEMS AND THE BIOTIC ENVIRONMENT

5.1 ECOSYSTEM CLASSIFICATION

According to the U.S. Forest Service (USDA, 1994), the RRTS lies within the Eastern Broadleaf Forest (Oceanic) Province (221). This Ecoregion lies within the Hot Continental Division of the Humid Temperate Domain, and occupies approximately 104,500 square miles. No Subregions or lower classifications have yet been devised for this area.

5.2 VEGETATION

5.2.1 Historic Vegetation

Prior to human disturbance, the wetland areas of the RRTS would have supported a diverse plant community typical of brackish tidal marshes of the Mid-Atlantic Coastal Plain. The dominant plants in undisturbed communities of this type are narrow-leaved cattail (*Typha angustifolia*), big cordgrass (*Spartina cynosuroides*), common reed (*Phragmites australis*), and Olney three-square (*Scirpus americanus*). Associated species vary with the soil type and salinity of the tidal marsh (Sneddon et al., 1995). Transition areas between tidal wetlands and uplands would have consisted of non-tidal, forested wetlands, which would have been dominated by red maple (*Acer rubrum*) and blackgum (*Nyssa sylvatica*). Non-wetland areas at the RRTS are likely to have supported upland deciduous forests prior to clearing for agriculture. The RRTS is located in the transitional area between the eastern deciduous forest and southeastern mixed forest provinces (DEARNG, 1995). Although the specific composition of these forests is difficult to assess, they are likely to have included many oak (*Quercus*) and hickory (*Carya*) species, in addition to red maple, sugar maple (*Acer saccharum*), and a variety of other hardwood species.

Human disturbances have altered the vegetative communities for over a century. Prior to occupation by the DEARNG in 1908, the RRTS was a cultivated agricultural site. By the early 1800s, most brackish tidal marshes along the Delaware River had been diked and converted to agricultural land for crops or grazing. Dike failures allowed tidal marshes to become restored in some areas, while the deposition of dredge spoil from road construction in many areas encouraged the expansion of the common reed (*Phragmites australis*) (Sneddon et al., 1995).

5.2.2 Current Vegetative Cover

The existing vegetative cover at the RRTS was mapped and classified into ecological communities using the Cowardin system (Cowardin et al., 1979). These communities are primarily defined by the type of vegetation present or the absence of vegetation altogether. Topography, soils, hydrology, and tidal regime also influence community classification. Analysis of vegetation was initially conducted in 2005 and subsequently assessed in 2010/2011. The following three ecological systems are present at the installation: Terrestrial, Palustrine, and Estuarine. The Vegetation Communities PLS in Appendix B provides the details of mapping process and findings. Ecological systems at the RRTS are identified in Figure 5-1. Plant species found therein are further discussed in the Flora PLS in Appendix B which summarizes the results of the floral surveys conducted in September 2010, November – December 2010, and April 2011. The USACE identified a total of 153 plant species during the 2010-2011 surveys. The following subsections present a general description of vegetative cover, divided by terrestrial, palustrine, and estuarine subsystems and community types.

Table 5-1: Ecological Systems at RRTS

Ecological System	Calculated Area[(1)]		Percent of Installation
	Acres	Hectares	
Terrestrial	111	44.9	58
Palustrine	8	3.2	1
Estuarine	71	28.7	41
TOTALS	**190**	**76.8**	**100**

[(1)] Area calculations are based on the land cover mapping found in this report. The percent area calculations are based on a total area for RRTS of approximately 191 acres.

5.2.2.1 Terrestrial Vegetation

The terrestrial system consists of uplands habitats that have well-drained, dry to mesic (never hydric) soils. Vegetative cover in this system is never predominantly hydrophytic, even if the soil surface is occasionally or seasonally flooded or saturated (Reschke, 1990). Ecological communities in the terrestrial system occupy approximately 111 acres of the installation. These communities include disturbed forest/edge, mixed hardwood forest, successional grassland, mowed grass/landscaping, and roads and buildings. The mowed grass/landscaping community and buildings and roads terrestrial habitats are addressed separately in Section 5.2.3.

Figure 5-1: Vegetative Habitats at RRTS

Disturbed Forest/Edge: This community consists of species such as red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), Japanese honeysuckle (*Lonicera japonica*), pokeweed (*Phytolacca americana*), and multiflora rose (*Rosa multiflora*). Located primarily along the northern and western boundary of the RRTS, these invasive species have become established as a result of disturbance.

Mixed Hardwood Forest: This forest community occupies a large portion of the installation. The dominant species of this community are red maple (*Acer rubrum*), American holly (*Ilex opaca*), Japanese honesuckle, and willow oak (*Quercus phellos*).

Successional Grassland: Successional grassland habitat occurs throughout the RRTS, with one large area in the center of the installation and other small pockets throughout the installation. Many young trees and herbaceous species are found in this community, including flowering dogwood

(*Cornus florida*), sweetgum (*Liquidambar styraciflua)*, goldenrod species (*Solidago* sp.), and clover species (*Trifolium* sp.).

5.2.2.2 Palustrine Vegetation

The palustrine system includes all non-tidal wetlands dominated by trees, shrubs, emergent plants, or emergent mosses or lichens, and all wetlands of these types that occur in tidal areas where salinity from ocean derived salts is below 0.5 parts per thousand (ppt) (Mitsch and Gosselink, 1993).

Scrub/Shrub Wetland: This community is generally found along the eastern edge of the mixed hardwood forest community. These edges represent a transition between the upland and wetland systems and are predominantly vegetated by highbush blueberry (*Vaccinium corymbosom*) and southern arrowwood (*Viburnum dentatum*).

5.2.2.3 Estuarine Vegetation

The estuarine system consists of deepwater tidal habitats and adjacent tidal wetlands that are saline, but where salinity is less than 30 ppt. These areas have access to ocean water, although access is typically restricted by surrounding land and salinity is somewhat diluted by freshwater from upland areas (Mitsch and Gosselink, 1993). At RRTS, the communities of the estuarine system include the following: brackish tidal marsh, intertidal unconsolidated shore, and tidal creek.

Estuarine Emergent Brackish Tidal Marsh: This vegetation community is dominated by wax myrtle (*Morella cerifera*) and cattail species (*Typha* sp.), and represents the largest vegetative community at the RRTS. This vegetation community includes species which grow along the shore of the Delaware River, and are partially submerged.

Intertidal Unconsolidated Shore: A narrow shoreline is present along the eastern perimeter of the installation, between the brackish tidal marsh and the Delaware River. Species in this community include, sweetgum and common reed (*Phragmites australes*).

Tidal Creek: The tidal creek community serves as the primary hydrologic link between inland marsh communities and the Delaware River. These narrow waterways are generally bordered on either side by Estuarine Emergent Brackish Tidal Marsh and unvegetated Intertidal Mudflats.

5.2.3 Turf and Landscaped Areas

Areas dominated by mowed grass are located primarily in the central and southeastern portions of the property. The predominant species of the mowed community are field garlic (*Allium canadense*), crabgrass (*Digitaria serotina*), fescues (*Festuca spp.*), and plantain species (*Plantago sp.*). The remaining area in the terrestrial system is occupied by roads and buildings, which are concentrated on the northern portion of the RRTS. Roads and buildings are classified along with ecological communities at the installation for mapping purposes, although they do not actually constitute a recognized ecological community.

5.3 FISH AND WILDLIFE

5.3.1 Fish and Macroinvertebrates

Surveys of aquatic habitat have not been conducted for the RRTS. However, the species characteristic of estuarine environments should be found in the aquatic habitat at the RRTS and in the surrounding areas of the Delaware River and its tidal creeks. The brackish water tidal creeks on and adjacent to the property provide habitat for killifish species such as mummichog (*Fundulus heteroclitus*) and striped killifish (*Cyprinodon variegatus*) (Smith, 1995). The salt marsh macro-invertebrate community may include fiddler crab (*Uca* spp.), mud snail (*Illyanassa obsoleta*), saltmarsh snail (*Melampus bidentatus*), ribbed mussel (*Geukensia demissa*), and grass shrimp (*Palaemonetes* species) (Kreamer, 1995).

5.3.2 Wildlife

Wildlife surveys were conducted at the RRTS between November 1993 and December 1994, in conjunction with surveys for protected species. Additional wildlife surveys were conducted by the USACE quarterly in 2005. The latest fauna survey was conducted by the USACE in September 2010, November/December 2010, and April 2011. A Phase I Bog Turtle Investigation was performed by LandmarkJCM, Inc. in July 2012, which did not identify the presence of bog turtles or potential bog turtle habitat in the wetlands on the property. A Northern Long-eared Bat survey was performed in October 2019, which did not identify the presence of Northern Long-eared bats on the property. The Fauna PLS in Appendix B presents a complete list of the 22 species of bird, four species of mammal, one species of herptile (reptile and amphibian), seven insects, and three species of invertebrate observed at the installation during the 2010/2011 surveys.

Common mammals identified at the RRTS include groundhog *(Marmota monax)*, white-tailed deer (*Odocoileus virginianus*), muskrat (*Ondatra zibethicus*), and eastern cottontail (*Sylvilagus floridanus*). Bird species common at the RRTS include Canada geese (*Branta candensis*), northern cardinal (*Cardinalis cardinalis*), house finch (*Carpodacus mexicanus*), black crow (*Corvus brachyrhynchos*), killdeer (*Charadrius vociferous*), and blue jay (*Cyanocitta cristata*). In addition, the installation is located in the Atlantic migratory bird flyway, where the marshes of Delaware Bay serve as refuges for migrating and resident birds, including geese, ducks, and shorebirds. Many species of ducks and wading birds are found in aquatic and marsh habitats throughout the area. During the 2005 wildlife surveys, the American Bald Eagle was also observed as a flyover, as presented in Table 5-2 and discussed in Section 5.4.2.

The wood frog (*Rana sylcatica*) was the only herpetological species observed during the 2010-2011 surveys. However, it should be noted that due to the prevalence of forested wetland and vernal pool type habitats there is a strong likelihood that rare or unique herptile may be found on the installation. In addition, the spotted turtle and common snapping turtle are common in aquatic marsh habitats throughout the area.

A variety of aquatic species were identified at the RRTS during the 2010-2011 surveys. The intertidal consolidated shore provides habitat for blue crab (*Callinectes sapidus*), clam species, and mussel species.

5.4 THREATENED AND ENDANGERED SPECIES

5.4.1 Endangered Species Act and Related State Regulations

The Endangered Species Act (ESA) of 1973 (as amended 1982 and 1987), is intended to prevent the further decline of federally-listed endangered and threatened plants and wildlife and to help restore populations of these species and their habitats. The ESA, jointly administered by the Department of Commerce and the Department of the Interior, requires that each federal agency consult with the USFWS or the National Marine Fisheries Service (NMFS) to determine whether endangered or threatened species are known to exist, or have critical habitats, at or in the vicinity of the site of a proposed action. To date, no federally listed species have been documented at the RRTS.

The Department of Army and DEARNG must comply with several aspects of the ESA. The ESA requirements imposed on the Department and DEARNG are presented in detail in AR 200-1 and are summarized below:

- To carry out programs for the conservation of listed species.
- To ensure that any actions taken do not jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat.
- To formally consult and confer with USFWS and NMFS to determine if any action may affect, beneficially or adversely, a listed species or critical habitat. Formal consultation is only necessary if an action is determined by the DEARNG and USFWS and/or NMFS to adversely affect a listed species or critical habitat.
- To not "take" listed fish and wildlife species, or remove and/or destroy listed plants. Take, as defined by the ESA, means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Habitat modification can be considered a "take" if death or injury of wildlife occurs from removing essential habitat components or impairing essential behavior patterns, such as breeding feeding, or sheltering.

The state of Delaware regulates activities related to the importation, transportation, possession, or sale of any endangered species of fish or wildlife (7 Del. C. 1953, § 601; 58 Del. Laws, c. 65.). The DNREC Division of Fish and Wildlife administers permits and licenses for such activities.

5.4.2 Threatened and Endangered Species at the RRTS

In 1993, the DEARNG contracted WRA to conduct protected species surveys at the RRTS from November 1993 to December 1994. These seasonal surveys included birds, mammals, reptiles, amphibians, and invertebrates, with particular emphasis on bird species. Although no state- or federally-listed threatened or endangered species were found, several bird species and one reptile species of special concern in the state were observed on the property. Spotted turtles were observed in temporary pools at the north end of the site and may breed on site (WRA, Inc., 1995b).

In 2005, the USACE identified 16 species of state-listed rare bird species during its quarterly wildlife surveys. Table 5-2 identifies the rare species present at the RRTS during the 2005 wildlife surveys. At the time of the survey, each species had a Delaware Natural Heritage Inventory (NHI)

ranking of S1, S2, or S3 (see table notes for reference). Since the survey, some of the birds have been removed from the state list, and therefore have been removed from Table 5-2. During the 2010/2011 surveys, the USACE identified only two bird species of state-listed threatened and endangered status: Cooper's hawk and the red-headed woodpecker. Descriptions of each rare species are provided in the Rare, Threatened and Endangered Species PLS in Appendix B.

In July 2012, LandmarkJCM, Inc. performed a Phase I Bog Turtle Investigation in the wetlands at the installation. Bog turtles or potential bog turtle habitat were not observed during the investigation.

5.5 WETLANDS

As stated in Chapter 4, three wetland surveys have previously been conducted at the RRTS: a wetland delineation was conducted by WRA in 1992, and a Planning Level Wetlands Survey was conducted by the USACE, WES in 2000. The USACE updated the wetland survey in 2005 and remapped wetland boundaries at the RRTS. This was further updated as result of wetland surveys conducted by the USACE in November/December 2010. Figure 4-2 shows these updated wetland boundaries at the installation. An additional wetland survey was completed by LandmarkJCM, Inc. in December 2017. DEARNG activities are not presently conducted in these areas, nor do they plan to be in the future. The ecological communities associated with wetlands at the RRTS are discussed in Section 5.2.2.2 and 5.2.2.3. The Wetland PLS in Appendix B provides additional information.

5.6 OTHER NATURAL RESOURCES INFORMATION

The Delaware Natural Heritage Program (NHP) maintains an ongoing, systematic, scientific inventory with the goal of compiling and maintaining data on rare plants and animals native to Delaware, and significant ecological communities. None of the ecological communities tracked by the Delaware NHP exists at the RRTS. However, the RRTS lies within the Upper Delaware River State Natural Resource Area, which is defined by the Open Space Program of Delaware. As an agency of DNREC, the program has been acquiring land along the Delaware River since 1990. The acquisition of lands represents a voluntary effort to identify and protect significant state natural resources through conservation easement (Line, 1999). The Pea Patch Island Heronry and the Supawna Meadows NWR are located in close proximity to the installation and the RRTS is located within the SAMP for the Pea Patch Island Heronry.

Table 5-2: Rare, Threatened, and Endangered Wildlife Observed at the RRTS

				Ecological Community								
Scientific Name	**Common Name**	**NHI Status [1]**	**Flyover**	**Disturbed forest edge**	**Mixed Hardwood-Oak Forest**	**Mixed Successional Forest (formerly Shrubland)**	**Successional Grassland (Includes reforested area)**	**Red Maple/Sweet Gum Successional hardwood forest**	**Red Maple/Sweet Gum Swamp**	**Scrub/Shrub Wetland**	**Brackish Tidal Marsh (formerly phragmites BTM)**	**Brackish Tidal Low Marsh Points (formerly Spartina brackish tidal marsh)**
Ardea albus	Great Egret	S1B	x								x	
Ardea herodias	Great Blue Heron	S3B	x								x	
Buteo lineatus	Red-shouldered Hawk	S3B/ S3N	x		x					x		
Catharus fuscescens	Veery[2]	S2B			x							
Certhia americana	Brown Creeper	S1B, S4N			x							
Haliaeetus leucocephalus	American Bald Eagle	S3B, S4N	x									
Melospiza georgiana	Swamp Sparrow	S3B								x	x	
Phalacrocorax auritus	Double-crested Cormorant	S1B, S5N	x									
Plegadis falcinellus	Glossy Ibis	S1B									x	
Riparia riparia	Bank Swallow	S1B	x							x	x	
Vireo gilvus	Warbling Vireo	S2B						x				

Source: Avian observations from October 2004 through July 2005. Natural Heritage Indicator (NHI) Status from Delaware Natural Heritage Program.

[1] NHI Status

S1 = Extremely rare within the state (typically 5 or fewer occurrences) or because some factor immediately threatens the future existence within the state.

S2 = Very rare within the state (typically 6 to 20 known occurrences). Species is susceptible to becoming extirpated.

S3 = Rare to uncommon (typically 21 to 100 known occurrences). S3 species are not immediately threatened with extirpation, but may be if additional populations are destroyed.

S4 = Apparently secure in the state, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

S5 = Secure within the state due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

The suffix "N" refers to occurrence as a nonbreeder; "B" refers to occurrence during breeding season. "Z" indicates regularly migrating through, but not breeding or wintering in DE.

[2] Forest-Interior Neotropical Migrant Bird Species afforded special consideration by the Delaware Natural Heritage Program.

CHAPTER 6 - MISSION IMPACTS ON NATURAL RESOURCES

6.1 LAND USE

In order to maintain readiness standards and achieve the mission of the RRTS, the DEARNG must have lands that are capable of supporting mission objectives and other functions indefinitely into the future. Sustainable use of these lands can be achieved through management programs that integrate mission requirements for land use with sound natural resources management. Natural resources stewardship is the management of natural resources with the goal of maintaining or increasing the resource's value indefinitely into the future. Biodiversity consists of all living elements of the natural environment and ecosystem management is the tool that the DEARNG will use to protect biodiversity and achieve sustained use of lands for military training. This approach favors management that considers natural resources at a community or ecosystem level rather than at the single species level. The quality, integrity, and connectivity of the ecosystem are the overall goal in this approach, and it is expected that within this broader scheme, individual species will prosper.

6.1.1 Military Land Use

The various land uses at the RRTS are designated according to areas of unimproved, semi-improved, or improved areas. The improved areas in the western portion of the property contain the majority of military facilities, and occupy approximately 13 acres of the installation. Construction is actively underway at the time of preparation of the INRMP. Current facilities include the following:

- One administrative building (Building 9).
- One supply building (Building 14).
- One 86,000 square foot combined support maintenance shop with a total of 13 bays.
- 2,500 square yards of vehicle hardstand, a single vehicle wash rack, a 38 inches high vehicle loading/unloading ramp.
- Four bunkers used for ammunition storage and property issue.

In the coming years, a 58,000 square foot National Guard Readiness Center is anticipated to be constructed. There are no buildings available for billeting and dining. Unimproved lands occupy

approximately 136 acres to the north and east, including forested areas and tidal wetlands along the Delaware River. Approximately 42 acres of semi-improved lands are located in the central and western portion of the RRTS, including the installation's small arms ranges. The down-range fans extend to the east, and field-training exercises are conducted in northern and southern regions of the installation. One company sized unit (200± soldiers) conducting non-live fire exercises, can be accommodated at one time.

The major operational activity at the RRTS is small weapons training of the DEARNG personnel. The site has four ranges which include the following: a Known Distance (KD) Range (1,000 feet), a 25-Meter Baffle Range, a 25-Meter Pistol Range, and a Police Pistol Range. DEARNG personnel use the first three ranges primarily on the weekends for small arms training, including mandatory and periodic qualification. The Wilmington Police Department leases the latter from the DEARNG for new recruit training during the week. The installation is utilized by approximately 2,450 DEARNG personnel each year and employs approximately 100 full-time personnel throughout the training site. Future construction will increase the capacity to accommodate personnel.

6.1.2 Non-Military Land Use

The only non-military use of the installation is small arms training by local law enforcement agencies. Non-military land-use by the general public, such as outdoor recreation and education, is incompatible with the military mission of the RRTS. The property is fenced on its north, west, and south sides, and is relatively inaccessible from the east along the Delaware River in order to reduce safety hazards from range activities. In addition, guards are posted during weapons firing at strategic points along the Delaware River to warn boaters of potential danger.

6.2 NATURAL RESOURCES NEEDED TO SUPPORT THE MILITARY MISSION

At the RRTS, natural resources support the mission by controlling erosion, providing diverse training terrains, and providing adequate buffer zones around military activities. The natural resources of the RRTS also indirectly support the mission by providing an environment conducive to improved morale for installation personnel. The following natural resources support the military mission at the RRTS.

6.2.1 Forested Land

Forests and woodlands support diverse military training activities at the RRTS, as well as providing visual, water quality, and noise buffers for military activities throughout the installation. Trees in these areas provide cover, and the ground in the forested areas provides a diversity of footing and textures, from soft duff to wetlands. These features aid soldiers by simulating potential combat conditions.

6.2.2 Non-Forested Land

Non-forested, non-paved land at the RRTS primarily supports firearms training. The firing ranges are dependent on the availability of soil and vegetation to absorb the impact of the firing activity. Open habitat within the forested area of the RRTS provides terrain diversity for training exercises.

6.2.3 Wetlands and Waterways

Wetlands and waterways at the RRTS provide surface water control and quality functions. Two main ditches direct stormwater from paved areas of the RRTS toward the Delaware River, allowing most of the water to infiltrate into the ground. Natural waterways also perform the surface water drainage function for the installation. Wetlands surrounding the installation filter surface water and provide physical, visual, noise, and ecological buffer between the developed portion of the RRTS and the Delaware River.

6.2.4 Undeveloped Land

Undeveloped and semi-developed lands at the RRTS provide a high-quality setting and environmental infrastructure for those missions that take place on developed land. These missions include training, storage and supply activities, vehicle maintenance activities, and administrative functions. This environmental infrastructure provides services that contribute to the DEARNG's efforts to manage stormwater, conserve soil, maintain and enhance air and water quality, provide comfortable indoor and outdoor temperatures, and maintain an aesthetically pleasing place to work. Installation natural resources also contribute to improving the quality of life for military and civilian personnel who work on-post and those individuals who reside nearby.

6.3 NATURAL RESOURCES CONSTRAINTS TO MISSIONS AND MISSION PLANNING

6.3.1 Floodplain

As discussed in Section 4.4.4, approximately 76 acres of the RRTS is located within the 100-year floodplain. This affects the type of construction and mission suitable at the site. The ultimate growth and development of the installation is constrained to the non-flood prone portions of the property.

6.3.2 Sea Level Rise and Climate Change

The State of Delaware developed an extensive Climate Projections Portal to provide data visualization, data downloads, and general information resulting from climate model runs.[1] In the future, temperatures are forecasted to increase, precipitation patterns are anticipated to shift, and sea levels expected to rise. Increasing temperatures may alter the timing and availability of food sources, abundance of pests and diseases, and other stressors related to changes in temperature. Shifts in precipitation may result with an increase of extreme rain, which has flooding implications for the eastern/southeastern undeveloped portion of the RRTS. Similarly, rising sea levels may cause more frequent and extensive flooding. It is estimated that sea levels will rise up to 5 feet in Delaware.[2] Protection and preservation of the wetlands and forest of the RRTS will help mitigate the impacts of sea level rise and flooding. In addition to this, the projects outlined in Appendix G will help reduce RRTS vulnerabilities to sea level rise and climate change.

6.3.3 Critical Habitat for Rare, Threatened, and Endangered Species

The property does not contain any threatened, endangered, proposed, or candidate specified listed on the Endangered Species Act nor does the property support any proposed or designated critical habitat for federally listed species, with the exception of occasional transient individuals that may occur (DEARNG, 2018). As identified in Section 5.4 and Table 5-2, viable habitat areas have been identified on the RRTS for 15 Delaware State Species of Concern. Because the potential exists that one or more of these species resides at the RRTS, or could move onto the RRTS at any time, these identified habitat areas create a constraint to missions that would otherwise use these areas. Specifically, DNREC consultation and site-specific survey work is encouraged before

[1] http://climate.udel.edu/declimateprojections/about/
[2] http://www.dnrec.delaware.gov/coastal/Documents/SeaLevelRise/AssesmentForWeb.pdf

conducting missions impacting Mixed Hardwood Forests (Red Shouldered Hawk, Veery, Brown Creeper, Wood Thrush, Hairy Woodpecker, Ovenbird), Successional Grassland (Chipping Sparrow), Successional Hardwood Forest (Coopers Hawk, Warbling Vireo), Shrub/Scrub Wetland (Red Shouldered Hawk, Swamp Sparrow, Bank Swallow, Chipping Sparrow), or Estuarine Emergent Brackish Marsh (Great Egret, Great Blue Heron, Swamp Sparrow, Glossy Ibis, Bank Swallow).

6.3.4 Wetlands

Wetland areas comprise over one-third of the land area at the RRTS. These areas range from the wet, like the estuarine marshes, to the less conspicuous palustrine emergent wetlands and wetland ditches near the center of the site. These wetlands and waters are regulated by the USACE under Section 404 of the Clean Water Act. As such, any construction within or manipulation of (including ditching and filling) these areas requires a permit from the USACE.

6.3.5 Highly Erodible Soils

One soil at the RRTS, the Mattapex Silt Loam, Highly Eroded, has been identified as a highly erodible soil by the United States Department of Agriculture (USDA) Natural Resources Conservation Service. This soil is located in the southwest corner of the installation, adjacent to a natural intermittent stream. Erodibility makes the area unsuited for many activities, including any activities that would involve intense or repeated use of the erodible area (e.g. footpaths, unpaved roads, earthmoving).

CHAPTER 7 - NATURAL RESOURCES PROGRAM MANAGEMENT

This section presents the natural resources program structure at RRTS and discusses management issues and concerns. The program structure was developed based on an installation-specific management situation and is designed to facilitate issue identification and prioritization, as well as project funding, implementation, and tracking. Management programs have been developed for this INRMP to target resource-specific needs at the RRTS. Program-specific goals are presented in Chapter 8.

7.1 NATURAL RESOURCES PROGRAM MANAGEMENT

7.1.1 Delaware Army National Guard

As presented in Chapter 2, the DEARNG is ultimately responsible for implementation of this INRMP at the RRTS. The roles of the organizations at the DEARNG that are directly responsible for providing assistance in the implementation of this INRMP are described below.

The Natural Resources Planning Committee responsibilities for the RRTS have been incorporated into the role of the EQCC, which consists of key staff from the DEARNG. The Environmental Program Manager, DEARNG, currently serves as the lead representative for natural resources-related issues. The RRTS Site Manager represents the specific interests of the installation. EQCC membership will change as individuals are reassigned; however, it is important to note that the duty titles/positions are permanent. It is DEARNG policy that the person serving in the designated duty position will also serve as a member of the EQCC. Specific responsibilities of the EQCC regarding the RRTS INRMP include the following:

- To provide policy, guidance, and oversight to the development of goals and objectives in the RRTS INRMP.
- To monitor and control environmental projects and environmental activities presented in the RRTS INRMP.
- To foster understanding and environmental awareness at the RRTS.
- To oversee the development, implementation, and revision of the RRTS INRMP.

The EQCC is a multidisciplinary group that represents military land use needs and provides natural resources subject matter expertise. The council meets to discuss management issues and concerns

on a quarterly basis at the DEARNG. Agendas and meeting minutes are disseminated to committee members to keep them informed of the latest changes and current thinking.

7.1.2 Other Federal Agencies

7.1.2.1 U.S. Department of the Interior, USFWS

The USFWS is a signatory to the INRMP, and has a vested interest in the conservation, protection, and management of the fish and wildlife resources present at the RRTS. USFWS is the primary Federal agency for issues regarding fish and wildlife management, as well as the regulatory authority for the ESA of 1973 and the Migratory Bird Treaty Act (16U.S.C. 703-711).

7.1.2.2 NMFS

The NMFS is a signatory to the INRMP, and has a vested interest in the conservation, protection, and management of the living marine resources, including fish and their habitat, present at the RRTS. One of the goals of the NMFS is to recover protected marine species under the ESA of 1973 and the Marine Mammal Protection Act, which provides economic and recreational opportunities.

7.1.2.3 USDA, Natural Resources Conservation Service (NRCS)

The NRCS has provided technical assistance to the DEARNG by providing a soil delineation at the RRTS. The NRCS is also available to the DEARNG to provide assistance with specific issues such as soil erosion, runoff, and restoration.

7.1.2.4 The USACE

The USACE Baltimore District Office has provided technical and planning assistance to the DEARNG for several projects. In particular, the Baltimore District has prepared habitat assessments, NEPA analysis and documentation, natural resource inventories, spill prevention plans, and environmental baseline studies.

The USACE Philadelphia District Office is the regulatory office for the RRTS. This office has regulatory authority over wetlands and waterways under Section 404 of the Clean Water Act. Any modification or impingement of jurisdictional wetlands or Waters of the United States must be approved and permitted through this office.

7.1.3 Delaware DNREC

DNREC is a signatory to this INRMP. DNREC has a vested interest in the conservation, protection, and management of wildlife and plants at the RRTS. DNREC is the primary state agency in Delaware for issues regarding wildlife management, invasive species control, and State Species of Concern.

7.1.4 Contractors

Contractors provide the DEARNG with technical support for natural resources and environmental management projects at DEARNG facilities, including the RRTS. This technical support includes preparation of the INRMP, NEPA analyses and documentation, and cultural and biological resource surveys.

7.1.5 Partnership for the Delaware Estuary

The Partnership for the Delaware Estuary is a National Estuary Program with a mission to preserve, protect, and restore the natural resources of the Delaware River watershed. The Partnership operates under a Comprehensive Conservation and Management Plan that outlines specific mission-related goals. The RRTS is located within the Delaware River watershed.

7.1.6 Other Interested Parties

External stakeholders include the general public and the local law enforcement agencies that use the RRTS facilities. These stakeholders have a vested interest in how the natural resources at the RRTS are managed. As such, stakeholders are included in the natural resources planning process and have the opportunity to provide technical input.

7.2 GIS

Information management is an important part of the natural resources planning process. A GIS is a tool that allows the DEARNG to organize, evaluate, and present natural resources information for the RRTS.

Development of the DEARNG GIS was initiated in 1998. DEARNG uses ArcInfo, which is a GIS software system produced by Environmental Systems Research Institute, Inc. (ESRI) that allows for the creation, storage, analysis, and display of geographic data. Development of GIS for natural resources management represents the first use of this technology at the DEARNG. As a result,

overall GIS proficiency within the DEARNG is relatively low and resources for overall system management are quite limited. An overall goal for GIS is to expand the system to include other DEARNG programs and installations. Expansion of the system will facilitate overall environmental program management in accordance with current NGB policy.

7.3 FISH AND WILDLIFE MANAGEMENT

The Fish and Wildlife Program addresses issues related to the management of game and non-game species and their habitats, as well as biodiversity. The primary issues addressed under this program include biodiversity, wildlife habitat management, recreational fishing, recreational hunting, and pest wildlife control.

7.3.1 Fish and Wildlife Program Management

The issues of the Fish and Wildlife Program at the RRTS are largely related to the proximity of Pea Patch Island Heronry and Supawna Meadows National Wildlife Refuge (NWR). Refer to Section 5.3.1 for a brief description of these areas and their locations with respect to the RRTS. Many species of wading birds and ducks have been observed at the RRTS and are likely to use Pea Patch Island or Supawna Meadows NWR as nesting areas or as resting areas during migration. Colonial wading birds such as great blue heron (*Ardea herodias*), black-crowned night heron (*Nycticorax nycticorax*), little blue heron (*Egretta caerulea*), great egret (*Casmerodius albus*), snowy egret (*Egretta thula*), yellow-crowned night heron (*Nycticorax violaceus*), cattle egret (*Bubulcus ibis*), tri-colored heron (*Egretta tricolor*), and glossy ibis (*Plegadis falcinellus*) are particularly dependent on habitat available at Pea Patch Island.

The DEARNG is cooperating with the DNREC Division of Parks and Recreation, which manages the heronry as a nature preserve, and the USFWS, which manages Supawna Meadows NWR. These agencies were consulted during the development of the RRTS INRMP and will have the opportunity to review the plan. The DEARNG will continue to share information with these agencies and will pursue opportunities to establish cooperative agreements for future wildlife and habitat monitoring.

In conjunction with the Northern Delaware Wetlands Rehabilitation Program (NDWRP), wildlife habitat at the RRTS has also been improved by the installation of wood duck nesting boxes in the open marsh areas at the installation. Over the past five years, wood duck nesting boxes have been installed in the tidal marshes at the RRTS. Since wood ducks are cavity nesters, these nesting

boxes provide essential nesting sites where natural alternatives are lacking and protect the nests from predators. Strategic placement of additional boxes throughout the marsh could continue to significantly enhance the wetland habitat quality at the RRTS. Note that constraints associated with historic and current range fans must be considered for all wildlife enhancement activities at the installation.

7.3.2 Enforcement of Fish and Wildlife Laws

The RRTS has no public fishing program, so no fish law enforcement is necessary. Wildlife laws associated with hunting are addressed in the Deer Management Program, which is discussed in Section 7.3.3. The RRTS Site Manager is responsible to address any fish or wildlife issues that arise on the site due to trespassing or other illegal access to the site.

7.3.3 Hunting, Fishing, and Trapping

With regard to game species and recreational hunting, the Fish and Wildlife Program has developed a limited-access bow-hunting program for white-tailed deer at the installation. The Deer Management Program was enacted to minimize deer damage in order to maintain healthy forests at the installation and preserve real property (such as fences and trees at the installation). It also provides recreational opportunities for DEARNG personnel (including current and former DEARNG Soldiers and Airmen, and Disabled Veterans) and their families. The Deer Management Program is maintained in the DEARNG EO and electronically on the Environmental server. Note that the current Program does not include hunting of any game, birds, varmints, foxes, squirrels, or animals other than deer and turkeys.

Opportunities for recreational fishing from the installation's Delaware River shoreline are limited, because the entire shoreline is located within range safety fans. Therefore, this INRMP does not address recreational fishing.

7.3.4 Demand for Hunting, Fishing, and Nonconsumptive Resource Uses

Current Force Protection Provisions and range fan restrictions do not allow public access to the RRTS for any purpose.

7.3.5 Wildlife Pest Problems and Control of Wildlife and Feral Animals

Wildlife pests and dangerous or destructive feral animals are controlled under the Integrated Pest Management Program (IPMP).

7.3.6 Diseases Affecting Fish, Wildlife, and Domestic Animals

In accordance with AR200-1, the DEARNG Environmental Program Manager consults with appropriate State agency regarding fish, wildlife, and domestic animal dieoffs and un-natural behavior occurring on any of the DEARNG facilities, including the RRTS.

7.4 MANAGEMENT OF THREATENED AND ENDANGERED SPECIES AND HABITATS

7.4.1 The Status of Threatened and Endangered (T&E) Inventories

The T&E Program has been developed based on rare species surveys conducted at the RRTS between 1993 and 1995, and in 2005 (refer to Section 5.4 for more information about rare species surveys). No federally-listed species were observed at the RRTS during that period, but 11 state-listed rare birds and one state-listed rare reptile were observed. The majority of these rare species utilize the open marsh and shoreline habitats at the RRTS, while a few depend on deciduous forest habitats. Currently, no mission-related impacts to these species have been identified and habitat for these species is not routinely used for training or other purposes.

7.4.2 Ongoing T&E Monitoring Programs

The T&E Program focuses on protection and management of Federal and state protected species. These include state- and federally-listed endangered and threatened species and state species of special concern, with particular emphasis on species with state heritage ranks of S1 (extremely rare – 5 or fewer state occurrences) and S2 (very rare – 6 to 20 state occurrences). In addition, this program addresses species proposed for Federal or state protection. For discussion purposes, these species are referred to collectively as “rare species.”

Potential impacts of future actions will be evaluated early in the planning process using a habitat/ecological community approach and GIS. Continued management and protection of rare species and their habitat will require current rare species inventory data. Changes in species status and habitat conditions over time make it necessary to periodically update rare species inventories.

7.4.3 Habitats of Concern

No Habitats of Concern have been identified at the RRTS.

7.5 WATER RESOURCES PROTECTION

7.5.1 Regional Programs

Water quality problems in the Delaware River are the result of both historical and current pressures from industry, agriculture, and population. The Delaware River Basin Commission (DRBC) monitors water quality from the headwaters to the estuary and has divided the river and bay into six segments. The tidal segment that includes the RRTS is designated as Zone 5, which along with Zone 6 constitutes the Delaware Estuary and Bay. These zones have been impaired by low dissolved oxygen and chronic toxicity, as a result of pollution from point sources. The DRBC has addressed toxic pollutants in the tidal Delaware River by adopting water quality criteria and implementation procedures for a TMDL, focusing on point source pollutant discharges. DNREC works with the Nutrient Management Commission to work with non-point agricultural sources of nutrients to manage nutrient inputs to Delaware's waterways. Water quality in the Delaware Estuary is one component of the Comprehensive Conservation Management Plan of the Delaware Estuary Program. However, impaired water quality continues to plague the Delaware River.

7.5.2 Stormwater Management

The DEARNG is in the process of re-engineering the stormwater channel on the western side of the RRTS to contain stormwater runoff from increased on-site and offsite development as well as the planned construction of a turning lane. This work is planned to be completed within the next ten years.

7.5.3 Nonpoint Source Pollution Issues

The RRTS has no point source discharges to the Delaware River. Artesian Water provides sanitary sewer service to New Castle County. RRTS is currently served by a municipal 8-inch sanitary sewer collection point at the north edge of the installation that eventually conveys the sanitary flow to the City municipal treatment system. Vehicle wash rack water is recycled.

The RRTS is located within the Coastal Zone (as mentioned in Section 3.6), and development activities at the site are therefore regulated by the laws of the Coastal Zone Act. Section 7.14 provides more information about the Delaware Coastal Zone Act.

Other water quality issues at the RRTS are indirectly addressed in the Wetlands Management Program, as discussed in Section 7.6 below. Although no major water quality issues have been identified at the RRTS, water quality benefits are expected to result from the ongoing wetland rehabilitation efforts. Ongoing range berm inspections and maintenance, as discussed in Section 7.6, also help to protect water quality.

7.5.4 Water Quality Monitoring Programs and Sampling Points

Currently, there is no Water Quality Monitoring Program for the RRTS.

7.6 WETLAND PROTECTION

7.6.1 The Status of Wetland Inventories and Delineations

The focus of the Wetlands Management Program is to protect and enhance wetlands and to ensure compliance with Federal and state wetland regulations. This program has been developed based on the results of the preliminary wetland delineation conducted in 1992. This data was used as the basis for the wetland inventory performed in 2005 by the USACE Baltimore Division as part of the vegetative community study. The 2005 survey provided updated data on the location, areal extent, and dominant vegetation of wetlands at the RRTS. The results of this survey have been incorporated into GIS and will be used for future planning efforts. In December 2017, LandmarkJCM, Inc. performed an additional wetland survey.

It should be noted that the 2005 and 2017 surveys were not legal Jurisdictional Determinations, but rather a planning tool. Given the dynamic nature of ecosystems in the RRTS area, a jurisdictional determination will be necessary if future actions have the potential to impact wetlands.

7.6.2 Health of Existing Wetlands

Previous wetland investigations had indicated a large problem with *Phragmites* intrusion in the marshlands at the RRTS. Participation in the DNREC *Phragmites* control program in the past

reduced the *Phragmites* community at the RRTS to less than an acre as of the 2005 survey. The 2005 survey indicated that the wetlands at the RRTS are healthy, diverse, and thriving.

Coastal wetlands are threatened by erosion, sea level rise, and an increasing severity of storms. Living shorelines provide stabilization to protect against erosion while also preserving or enhancing the environmental habitat. In addition, living shorelines can "promote a higher abundance and diversity of organisms, keep pace with sea level rise, filter pollutants from the water, maintain critical spawning and foraging areas for fish and wildlife, allow for natural sand and soil movement, [and] reduce the potential for downstream erosion issues" (DNREC, Delaware National Estuarine Research Reserve, Partnership for the Delaware Estuary, and Sunoco, 2012). DEARNG intends to implement a living shoreline at the RRTS in the future.

7.6.3 Programs for Long-Term Monitoring of Wetlands

Currently, the DEARNG has an informal program of monitoring the wetland areas at the RRTS every five years, in conjunction with the INRMP update. The information gathered as part of the vegetation community survey is as a PLS for INRMP purposes.

7.6.4 Current Programs and Plans for Wetland Restoration and Enhancement

Wetland restoration and enhancement activities have been limited to participation in the DNREC *Phragmites* control program in the past as needed. DEARNG is open to the future use of controlled burns at the installation to minimize the spread of *Phragmites*.

7.7 GROUNDS MAINTENANCE

7.7.1 General

The Grounds Maintenance Program covers maintained areas of the installation. The primary focus of this program is to minimize the use of energy, water, fertilizer, pesticides, and herbicides for grounds maintenance activities. This program emphasizes the use of low maintenance, native species for any landscaping at the installation.

Maintained lawns and landscaped areas occupy approximately 20 percent of the RRTS. Lawns are mowed during the growing season only as needed, so that maintenance costs are minimized. The Morale, Welfare, and Recreation (MWR) areas with high usage are mowed on a more frequent basis. Areas with less usage are mowed a few times per year to control invasive species. No

fertilizers are applied to these areas, and herbicides and pesticides are not used on a routine basis (Conway, 1999).

The following guidelines have been established to minimize the use of energy and labor associated with lawn maintenance at the RRTS:

- Increase mowing heights to reduce frequency of mowing, and labor and fuel required for lawn maintenance.
- Keep mowing heights between 2½ '' and 4'' to shade the soil, reduce weed competition, and slow evaporation of water from the soil (MacCaskey, 1982).
- Do not remove more than 1/3 of the length of the grass blade in any one mowing, so that clippings decompose on the ground and return nutrients to the soil.
- Reduce mowing, where possible, to encourage meadows. Meadows provide buffers, attract wildlife, and provide a pollen source for bees.

Landscaping at the RRTS is minimal, but given the relatively rural location and use of the installation, landscaping is not a high priority. Although no current plans exist for additional landscaping at the installation, any future landscaping will emphasize the use of low-maintenance, native plants. Information on sources of native plants for landscaping can be obtained through the Delaware Nature Society.

7.7.2 Pest Management

The DEARNG has an IPMP. This plan is discussed in more detail in Section 7.11 below and is maintained in the DEARNG EO and electronically on the Environmental server.

Additionally, the DEARNG has implemented a Pest Management Self-Help Program for minor pest issues that can be controlled in house by onsite facility personnel. This program encourages alternative pest management strategies to pesticides and herbicides, in an effort to minimize the use of toxic pesticides. Alternative pest management controls include maintaining facilities to reduce food sources that attract pests, repairing water leaks and holes, installing barriers, introducing plant species and animal species to repel pests, utilizing naturally resilient vegetation in landscaping decisions, and using physical barriers and traps. If pesticides are used as a part of

the Self-Help Program, the type and quantity of pesticides used at the installation is recorded in the annual Hazardous Materials Inventory and provided to DEARNG-ENV as required by AR 200-1. The Self-Help Program also includes a list of approved pesticide products, safe storage requirements of pesticides, resources to obtain pest management information, and information sheets for managing specific pests.

7.7.3 Nonpoint Source Pollution Issues Associated with Landscape Pesticides and Fertilizers

There are no known nonpoint source pollution issues at the RRTS. The DEARNG strives to minimize the amount of chemicals used to effectively control pests on the site. This minimization reduces the risk of runoff.

7.7.4 Solid Wastes Associated With Grounds Maintenance Activities

Lawn clippings and leaves are allowed to lie in place in order to recycle nutrients into the soil. No solid waste handling is associated with grounds maintenance activities.

7.8 FOREST MANAGEMENT

7.8.1 Current Forest Management Program and Initiatives

The Forest Management Program addresses military training needs, forest protection, invasive species, reforestation, wildfire prevention and damage control, and forest pest control.

7.8.2 Forest Types at the RRTS

Current forest resources at the RRTS include the Mixed Hardwood Forest community discussed in Section 5.2.2.1. Forest communities at the installation provide many beneficial functions including an environment for training, visual/noise buffer, riparian buffer, and wildlife habitat.

7.8.3 The Current Status and Scope of Commercial Forestry Operations

The Forest Management Program at the RRTS does not include the management of commercial timber resources, since none are present at the installation. The size of the installation and its mission preclude the growth of timber for harvesting.

7.8.4 Forest Management Issues and Concerns

The forest communities at the RRTS are generally healthy, but are impacted by invasive plants in certain areas. Encroachment of *Phragmites* has been, historically, a significant problem along most forest/tidal marsh edges at the installation. These areas are important ecotones and will continue to be managed as needed to prevent further invasion by *Phragmites*.

Forest edges along the western property boundary (Route 9) were historically heavily invaded by a variety of species including Japanese honeysuckle (*Lonicera japonica*), multiflora rose (*Rosa multiflora*), and oriental bittersweet (*Celastrus orbiculatus*). These were no longer identified as an issue as of the 2020 revision of the INRMP.

7.8.5 How Forest Management Practices Can Be Used to Achieve INRMP Goals

The Forest Management Program also addresses the use of forest resources at the RRTS for military training. Currently, there are no specific areas designated for field training or other activities. Information included in this INRMP and GIS will be used to aid in future management decisions regarding such uses.

7.9 FIRE MANAGEMENT

There is no history of wildfire at the RRTS. No controlled burns or other fire management activities area have been performed at the RRTS, with the exception of the prescribed burning of *Phragmites* performed by DNREC.

7.10 AGRICULTURAL OUTLEASING

There is currently no agricultural outleasing at the RRTS.

7.11 IPMP

The DEARNG currently has an IPMP. The IPMP provides guidance for operating and maintaining an effective pest management program. It is maintained in the DEARNG EO and electronically on the Environmental server. Principles of integrated pest management (IPM) are stressed in the plan. IPM consists of the judicious use of both chemical and non-chemical control techniques to achieve effective pest management with minimal environmental contamination. The IPMP is designed to ensure effective, economical, and environmentally acceptable pest management, in compliance with pertinent laws and regulations.

Pests included in the plan include cockroaches and other crawling insects (e.g., crickets, earwigs, and ants), medically important pests such as ticks and mosquitoes, rodents and other vertebrate pests, and weeds and other unwanted vegetation. Without control, these pests could interfere with the military mission, damage real property, damage natural resources, increase maintenance costs, and expose installation personnel to diseases. The DEARNG uses a DOD-certified pest management technician to control these pests.

7.11.1 Invasive Species and Ongoing Control Initiatives

Invasive species occurring at the RRTS include *Phragmites* (*Phragmites australis*), Japanese honeysuckle (*Lonicera japonica*), multiflora rose (*Rosa multiflora*), and oriental bittersweet (*Celastrus orbiculatus*). The *Phragmites* control plan implemented in the past significantly reduced the infestation of *Phragmites* on the RRTS. Control of other invasive species, including physical removal and chemical control is performed as time and budget allow. The spread of invasive species at the RRTS may be addressed as needed through Planned Projects, included as Appendix G.

7.11.2 Noxious Weeds

There are currently six plant species that have been designated as noxious weeds in Delaware: johnsongrass (*Sorghum halepense*), Canada thistle (*Cirsium arvense*), burcucumber (*Sicyos angulatus),* giant ragweed (*Ambrosia trifida)*, Texas panicum (*Panicum texanum*), and Palmer amaranth (*Amaranthus palmeri*).[3] The following noxious weeds have been identified at the RRTS: Johnsongrass, Canada thistle, burcucumber, and giant ragweed. Delaware law requires that these weeds not be allowed to exceed 24 inches in height or be allowed to produce seed. Noxious weeds are managed at the RRTS through regular mowing and occasional spraying prior to the plants going to seed. None of the 112 species appearing on the Federal list of Noxious Plants have been identified at the RRTS.[4]

7.11.3 How This INRMP Supports IPMP Objectives

The goal of the IPMP is to protect human health and suppress or prevent damage to real estate and natural resources caused by pests. Use of IPM techniques to eliminate, suppress, and control pests, with the judicious use of both chemical (when necessary) and non-chemical control techniques, is

[3] https://agriculture.delaware.gov/ plant-industries/noxious-weeds/
[4] https://plants.usda.gov/java/noxious

encouraged. This INRMP supports that goal by providing a framework for the improvement of plant and wildlife diversity and health on the installation. Strong, healthy ecosystems are able to more readily resist disease, insects, rodents, and invasive plant species.

7.12 HONEY BEE AND POLLINATOR PROGRAM

In June 2014, a presidential memorandum was released on creating a federal strategy to promote the health of honey bees and other pollinators. It established the Pollinator Health Task Force, which includes the head of the DOD, among other departments, agencies, and offices. In response to the memorandum, the *National Strategy to Promote the Health of Honey Bees and Other Pollinators* was issued by the Pollinator Health Task Force in May 2015. As a part of this document, the DOD agreed to "support habitat restoration projects for pollinators, and... direct military service installations to use, when possible, pollinator-friendly native landscaping and minimize use of pesticides harmful to pollinators through integrated vegetation and pest management practices." In addition to these practices, the RRTS maintains apiaries at the installation to support honey bee colonies, offer opportunities for pollinator education, and provide honey. The Honey Bee and Pollinator Program is maintained electronically on the Environmental server.

7.13 OUTDOOR RECREATION

Currently, a formal Outdoor Recreation Program does not exist for the RRTS. As described in Section 6, outdoor recreation and public access at the RRTS is restricted due to the limited size of the installation and small arms safety issues. Note that current Force Protection Provisions preclude public access to the RRTS.

Off-Road Vehicles (ORVs) are not permitted for outdoor recreation use at the RRTS. The only approved use for ORVs is work-related (i.e., "gator" vehicle use for grounds maintenance).

7.14 COASTAL ZONE MANAGEMENT

The RRTS lies within the coastal zone area (as defined by the Delaware Coastal Zone Act 7 Del code chapter 70) which determines the focus area for the Delaware Coastal Management Program. The CZMA was enacted in 1972 to preserve, protect, or enhance the coastal resources of the U.S. for the use and enjoyment of present and future generations (CZMA, 1972). Under its authority, coastal states and territories were encouraged to develop Coastal Zone Management Programs in a partnership with the Federal government. As a coastal state with 381 miles of coastline and a

coastal population of 666,168, Delaware developed, through DNREC, the Delaware Coastal Management Program (DCMP), which was approved in 1979. In addition to the CZMA, the key legislation that governs coastal management and industrial development in Delaware includes the state's the Coastal Zone Act of 1971 (7 Del. C. 1953, § 7001; 58 Del. Laws, c. 175.) and the Beach Preservation Act (7 Del. C. 1953, § 6801; 58 Del. Laws, c. 566, § 2; 64 Del. Laws, c. 361, § 1.). Funds may be available for activities that address coastal management issues in Delaware through the state's own Beach Preservation Fund or through the Coastal Zone Management Fund (Section 308 of the CZMA).

The Wetland Act of Delaware (7 Del. C. 1953, § 6601; 59 Del. Laws, c.213 § 1.) was established in 1973 to provide a legal basis for the preservation and protection of the state's coastal wetlands, as defined in § 6603. The Wetlands Act requires permits for activities such as dredging, filling, bulkheading, and construction of any kind in those wetlands, which are issued by DNREC.

The RRTS is operated in a way that is consistent with the Delaware Coastal Zone Management Program. The DEARNG obtains consistency statements as necessary for proposed projects at the installation. The expansion of the RRTS is limited by coastal zone regulations and future planning must comply with these regulations. Construction is currently underway for a large building and road with infrastructure on the property. The project is in compliance with all Coastal Zone regulations. On November 3, 2017, correspondence was sent to Delaware Coastal Management Program with a copy of the draft EA and an analysis of the project's consistency with the management policies (DEARNG, 2018). The RRTS does not plan to undertake additional development projects other than routine renovations or small-scale improvements which will affect the overall efficiency of the installation.

7.15 ENFORCEMENT

There is currently no staff for the enforcement of wildlife, fishing, or other natural resources laws at the RRTS. There is no fishing program at the facility. The hunting program that was established for deer management is limited and prohibits hunting during Military Operations. All hunters are required to coordinate with the EO and adhere to the Program in accordance with local regulations.

7.16 PUBLIC OUTREACH (ENVIRONMENTAL AWARENESS)

No public outreach program is currently in place at the RRTS.

Units using the site for training must complete an awareness course. This Environmental Awareness Program is designed to improve the land user's understanding of the impacts of his/her mission, mission training, and other activities on the environment. The program targets tactical units, leaders, soldiers, installation staff, and other installation users. Environmental awareness topics are currently covered during general site orientation activities. Due to the limited scope of field training activities that occur at the installation, no specific natural resources-related environmental awareness issues have been identified.

CHAPTER 8 - MANAGEMENT GOALS AND OBJECTIVES

The emphasis of an INRMP is the achievement of certain goals for the maintenance and improvement of the natural environment at the installation. This chapter lists the goals and objectives for future natural resources management on the installation, and, in cases where adjacent land uses may jeopardize Army missions, specific goals and objectives aimed at eliminating, reducing, or mitigating the effects of encroachment on military missions. The preparation of these goals and objectives involved the review and analysis of past natural resource management practices as detailed in Chapter 7, ongoing programs, and the current conditions of the existing resources as detailed in Chapter 5. The review process included interviewing RRTS personnel, as well as key persons from State and Federal agencies; conducting written correspondence with State and Federal agencies; collecting existing environmental documentation; and conducting field reconnaissance of the installation.

Consecutively numbered goals are accompanied by supporting objectives and projects in a tiered format. The relationship between goals, objectives, and projects is described in the sections that follow.

8.1 GOALS

Goals are the primary focal points for the implementation of the INRMP over the five years covered by the plan. A goal reflects the values of the installation by expressing a vision of a desired condition for the installation's natural resources in the foreseeable future. Each goal is supported by one or more objectives. The Goals in this section are presented in the order the programs were presented in Chapter 7, not in order of importance. Objectives and Projects for each program are presented Appendix G.

The overarching goal established by the DEARNG for the natural resources management program at the RRTS is to maintain ecosystem viability and ensure the sustainability of desired military mission activities. The specific, five-year goals are presented below.

Geographic Information System (GIS)

- Utilize GIS to Aid in the Natural Resources Planning Process
- Expand the Program to other DEARNG Programs and Installations

Fish and Wildlife Management Program

- Maintain and Improve Wildlife Habitat
- Work Alongside Agencies to Promote Fish and Wildlife Goals

Threatened and Endangered Species Program

- Maintain Fish and Wildlife Diversity
- Monitor and Protect Threatened and Endangered Species as Necessary

Wetlands Management Program

- Preserve, Protect, and Enhance Wetlands
- Maintain and Improve Vegetation Health and Diversity
- Maintain and Improve Wildlife Habitat

Grounds Maintenance Program

- Maintain and Improve Vegetation Health and Diversity
- Minimize Use of Labor, Equipment, and Materials

Forest Management Program

- Preserve the Forest Habitat
- Maintain and Improve Vegetation Health and Diversity

Honey Bee and Pollinator Program

- Support Pollinators (Honey Bees) through Habitat Enhancement

Environmental Awareness Program

- Expand Environmental Awareness through Education

8.2 OBJECTIVES

Each goal is supported by objectives which indicate a management initiative or strategy that will be used to achieve the stated goal. An objective specifically states what will be done and how it will be done. An objective must be time-bound and measurable. Each objective statement,

therefore, includes timelines for completion and quantifiable units for measuring results (e.g., acres treated), so that one is able to determine exactly when the objective is completed.

8.3 PROJECTS

Projects are the individual component actions required to achieve an objective. Project statements describe the specific methods and procedures that will be used to achieve the objective supported. Projects are actions that become line items in the proposed budgets for INRMP implementation. All projects set forth are anticipated to be achievable within the five-year period covered by this INRMP.

CHAPTER 9 - IMPLEMENTATION

The purpose of this section is to present the framework for natural resources planning and INRMP development and implementation at RRTS. The key steps to developing an effective INRMP include forming a natural resources planning committee, assessing current natural resources programs, identifying management issues and concerns, and developing general and specific natural resources goals and objectives. Each of these steps, and how they relate to the RRTS INRMP, is discussed in this plan.

9.1 NATURAL RESOURCES MANAGEMENT STAFFING

Primary staffing for developing and implementing the INRMP has come from the DEARNG Environmental Program Manager. Possible staffing sources for natural resources programs at the RRTS include:

- Permanent staff of the DEARNG and the RRTS:
  - the DEARNG Environmental Management Branch (full-time staff and part-time).
  - Environmental Protection Specialist.
  - Environmental Program Manager.
  - Site Manager, RRTS.
  - The RRTS Pest Management Specialist.
  - Various DEARNG units.
- Temporary staff of the RRTS:
  - Military Man-days.
  - Students/Interns.
- DNREC representatives in cooperation with the DEARNG.
- Contractors and consultants.

9.2 FUNDING

Funding for DEARNG environmental projects is provided through the Status Tool for Environmental Program (STEP). This program allows the DEARNG to plan, program, budget and execute environmental funds in accordance with AR 200-1; NGR 5-1; National Guard Pamphlet (NGP) 37-1 (Financial Management Guide for National Guard Executives); Defense Finance and Accounting Service- Indianapolis Center (DFAS-IN) Manual 37-100-XX, DA environmental guidance and the guidance contained in the ARNG I&E Program Guidance Annual Coordination Requirements.

9.3 ANNUAL COORDINATION REQUIREMENTS

The Sikes Act and AR 200-1 require annual review of the INRMP to keep the plan current. Section 101(a)(2) of the Sikes Act states that the INRMP shall reflect the "mutual agreement" of the USFWS and State "concerning conservation, protection, and management of fish and wildlife resources." To ensure mutual agreement, the DEARNG is required to review and update the INRMP annually. The USFWS and DNREC are required to be invited to the annual review.

The purpose of this coordination is to facilitate annual review by the USFWS and the DNREC. In accordance with DOD guidance, these annual reviews shall verify that:

- Current information on all conservation programs are accurate.
- All "must fund" projects and activities have been budgeted for and implementation is on schedule.
- All required trained natural resources positions are filled or are in the process of being filled.
- Projects and activities for the upcoming year have been identified and included in the INRMP. An updated project list does not necessitate revising the INRMP.
- All required coordination has occurred.
- All significant changes to the installation's mission requirements or its natural resources have been identified.

In addition to the annual revisions, the Sikes Act stipulates that major revisions must be made no less often than every five years (typically three to five years). Page revisions can be made when major revisions are unnecessary. Information such as that relating to the soils, natural vegetation and environmental data, not requiring revision, should be retained in the plan. Periodic evaluations and revisions will be conducted under the management of the DEARNG EO with input from the EQCC and internal and external stakeholders, as appropriate. The RRTS INRMP is effective for five years from the date of signature by all parties.

9.4 MONITORING INRMP IMPLEMENTATION

9.4.1 Assessing Natural Resources Programs

Periodic assessment is a necessary part of the natural resources planning process that evaluates program status, measures progress, and identifies new management issues, concerns, goals, and objectives. The natural resources planning framework, programs, issues, concerns, goals and objectives presented in this INRMP are based on an assessment of previous programs. The development and implementation of this plan represents the initiation of the formal natural resources planning process at the installation. A description of current programs is provided in Section 7, and the formal INRMP review and revision process is described in Section 9.3.

9.4.2 Identifying Natural Resources Issues and Concerns

Natural resources issues and concerns, which are discussed in detail in Section 7, are defined as any action, process, activity, program, etc. that might present constraints to training, readiness, and future planning at the RRTS. The EQCC is responsible for identifying issues and concerns by assessing current programs and evaluating the status and trends of natural resources. The council prioritizes the issues, with technical and regulatory input from internal and external stakeholders. Issues are prioritized in the following ways:

- High Priority – Issues required to sustain or improve training and readiness or issues driven by legislation that must be addressed to ensure compliance or to prevent potential situations relating to compliance.

- Medium Priority – Issues that are not compliance driven and will not impede the military mission of the RRTS, but will significantly enhance ecosystem health, quality of life, and environmental awareness,

- Low Priority – Issues that are not compliance driven and may interfere with the military mission of the RRTS, thus requiring significant coordination.

9.4.3 Developing Natural Resources Goals and Objectives

Goals and objectives that can help resolve management conflicts are established for each management issue and concern to provide a clear direction and concrete approach to natural resources planning. As with the management issues and concerns, the EQCC is responsible for developing management goals and objectives. The general goals of the RRTS INRMP, as outlined in AR 200-1, include managing installation natural resources to provide the optimum environment that sustains the military mission; developing, initiating, and maintaining progressive programs for land management and utilization; and maintaining, protecting, and improving environmental quality, aesthetic values, and ecological relationships. Specific goals and objectives for the RRTS are defined as project-level results that the DEARNG intends to achieve in an effort to fulfill the general goals. Such long-range planning includes implementing specific projects each year in annual work plans. These projects include special projects and high priority issues and concerns; all major recurring work and revisions necessitated by operational changes at the installation; and required repairs caused by unpredictable weather, fire, or other factors. Specific management goals and objectives are presented in Appendix G.

9.4.4 Implementation Metrics

According to DOD guidance, implementation anticipates the execution of all must fund projects and activities in accordance with specific timeframes identified in the INRMP.

An INRMP is considered to be implemented if an installation does the following:

- Actively requests, receives, and uses funds for "must fund" projects and activities.
- Ensures that sufficient numbers of professionally trained natural resources management personnel are available to perform the tasks required by the INRMP.
- Coordinates annually with all cooperating offices.
- Documents specific INRMP action accomplishments undertaken each year.

CHAPTER 10 - RECORD OF ENVIRONMENTAL CONSIDERATION

FINDING OF NO SIGNIFICANT IMPACT

Implementation of Integrated Natural Resources Management Plans
For Bethany Beach Training Site and New Castle Rifle Range, Delaware
Delaware Army National Guard

The Delaware Army National Guard (DEARNG) prepared an Environmental Assessment (EA) to identify and evaluate the potential environmental impacts of implementing Integrated Natural Resources Management Plans (INRMPs) for Bethany Beach Training Site, located in Sussex County, Delaware and New Castle Rifle Range, located in New Castle County, Delaware.

A. Description of Proposed Action and Alternatives.

Proposed Action

The DEARNG proposes to adopt and implement the INRMPs to provide an integrated and comprehensive method for managing natural resources at Bethany Beach Training Site and New Castle Rifle Range in order to maximize capability of military training lands and to meet natural resource legal requirements. The INRMPs define roles and responsibilities for natural resource management at all levels within the DEARNG. It provides a rational, tiered, and uniform basis for addressing all applicable legal requirements and best management practices consistent with achievement of the needs, goals, and objectives of the DEARNG's military and environmental missions. Preparation and full implementation of the INRMP for New Castle Rifle Range is required by the Sikes Act (16 U.S.C. § 670a *et seq.*). The Department of Army regulations and policies (AR 200-3 and others) require preparation and full implementation of the INRMP for Bethany Beach Training Site.

Alternatives Considered

The No Action Alternative was considered in addition to the Preferred Alternative (i.e., the proposed action). Under the No Action Alternative, the INRMPs would not be implemented and natural resources would continue to be managed in accordance with existing directives and procedures. Natural resources decision-making would not be formally integrated with other mission activities and there would be no consistent framework or approach for implementing natural resources programs. Therefore, this alternative was not a viable alternative for the DEARNG.

Two additional alternatives were considered but were dismissed as infeasible. One alternative required extensive funding and would not take into consideration impacts to the military mission on the installations. The second alternative was limited to meeting federal and state regulations, and would not include goals to maintain sustainable use of land for the military mission.

B. Environmental Analysis

The analysis of the potential environmental impacts of the proposed action is documented in the

Environmental Assessment (EA) for Proposed Implementation of Integrated Natural Resources Management Plans at Bethany Beach Training Site and New Castle Rifle Range. Implementation of the INRMPs would set up a formal mechanism for the DEARNG to manage and monitor natural resources at these two facilities.

Evaluation indicates that implementation of the INRMP would result in beneficial effects or no-effects in all instances for the following resources: Land use; soils; surface water; biological resources; threatened, endangered, and special status species; cultural resources; air quality; noise management; hazardous materials and waste management; integrated pest management; environmental justice; protection of children; public use; outdoor recreation; and public safety. Continuation of existing management procedures, the No Action alternative, has the potential to result in either adverse impacts or no-effects for each of these resource areas.

C. Mitigation Measures

No mitigation measures will be required as a result of implementing the INRMPs for Bethany Beach Training Site and New Castle Rifle Range. General and project-specific actions identified in the INRMPs and the EA will effectively avoid or significantly reduce potential impacts to various resources. Furthermore, the EA has not identified any significant impacts that would result from the implementation of the INRMPs, thereby eliminating the need to establish mitigation measures.

D. Regulations

There are no indications that implementation of this action will violate any federal, state, or local environmental laws or regulations. The proposed action would not violate the National Environmental Policy Act (42 USC § 4321 to 4370e), its regulations as promulgated by the Council on Environmental Quality (40 CFR Parts 1500-1508), Army Regulation 200-2 "Environmental Effects of Army Actions" or any other federal, state, or local environmental laws or regulations. The EA documents the status of project compliance with applicable federal environmental statutes and executive orders.

E. Public Review and Comment

Scoping letters were sent to federal, state, and local agencies requesting input on the proposed action. Responses were incorporated into the draft EA. In May 2000, a notice of availability and legal advertisement for the draft EA was placed in two local newspapers. Letters and draft INRMPs and EAs were also mailed to Federal, state, and local agencies. No issues significant to natural resources management were identified or left unresolved. Comments received from the state and federal wildlife management agencies were addressed in the final INRMPs as appropriate.

The final INRMPs and EA are available for review and comments for a period of 30 days at the following locations:

Delaware National Guard Headquarters
Facilities Management Office (Room 6)
First Regiment Road
Wilmington, Delaware

South Coastal Library and Culture Center
43 Kent Avenue (1 block west of Highway 1 and Route 26)
Bethany Beach, Delaware

Bear Public Library
Governor's Square Shopping Center
U.S. Route 40 and Old Route 7
Bear, Delaware

Interested parties are invited to review the EA and INRMPs and submit written comments before close of the public review period. Written comments should be sent to Headquarters, Delaware Army National Guard, ATTN: Captain Scott D. Ralph, First Regiment Road, Wilmington, DE 19808-2191. Comments may be send by email to Scott.Ralph@de.ngb.army.mil. Questions or requests for more information should be directed to Captain Scott D. Ralph at (302) 326-7132.

F. Finding of No Significant Impact

A careful review of the Environmental Assessment has concluded that the implementation of INRMPs at Bethany Beach Training Site and New Castle Rifle Range will not have any significant adverse impacts on the quality of the existing natural or human environment. The requirements of the National Environmental Policy Act and the Council on Environmental Quality regulations have been satisfied and an Environmental Impact Statement will not be prepared.

28 August 2001
Date

RICHARD O. MURPHY
Colonel, Chief of Environmental Programs
National Guard Bureau