INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

DELAWARE ARMY NATIONAL GUARD
BETHANY BEACH TRAINING SITE
BETHANY BEACH, DELAWARE

UPDATED 2020

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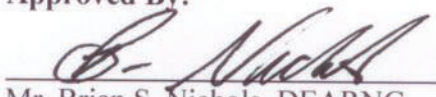

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ACRONYMS

AR	Army Regulations
ARNG	Army National Guard
ARNG-TRS	Army National Guard Training, and Readiness
AT	Annual Training
BASH	Bird Air Strike Hazard
BBTS	Bethany Beach Training Site
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CZMA	Coastal Zone Management Act
DA	Department of the Army
DCMP	Delaware Coastal Management Program
DEARNG	Delaware Army National Guard
DelDOT	Delaware Department of Transportation
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
EA	Environmental Assessment
EEM	Phragmites-Dominated Brackish Tidal
EMS	Environmental Management System
EO	Environmental Office
EQCC	Environmental Quality Control Committee
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute, Inc.
ESS	Estuarine Shrub-Scrub
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
I&E	Installations & Environment
ICRMP	Integrated Cultural Resources Management Plan
IDT	Inactive Duty Training
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IPMP	Integrated Pest Management Program
MSL	Mean Sea Level
MWR	Morale, Welfare, and Recreation
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
NGP	National Guard Pamphlet
NHI	Natural Heritage Indicator
NHP	Delaware Natural Heritage Program

NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
PEM	Palustrine Emergent
PFO	Palustrine Forested
PLS	Planning Level Survey
ppt	parts per thousand
PSS	Palustrine Shrub-Scrub
REC	Record of Environmental Consideration
ROPES	Rugged Outdoor Pursuit Education System
SAIA	Sikes Act Improvement Act
STEP	Status Tool for Environmental Program
SWP3	Stormwater Pollution Prevention Plan
T&E	Threatened and Endangered Species
TAG	The Adjutant General
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
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) Bethany Beach Training Site (BBTS) from 2020, and to provide a foundation on which to build the program beyond the years of 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 BBTS. 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 practice, 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. This information provides 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 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 F of this INRMP.

1.2.2 Changes in Existing Management Practices

Changes in existing management practices are proposed in Appendix F of this INRMP. 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 BBTS. This administrative enhancement may lead to additional information that can 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, as well as the current Record of Environmental Consideration (REC) and Finding of No Significant Impact (FONSI). 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 reviewed the existing EA, per 32 Code of Federal Regulations (CFR) 651.5.g.2, to ascertain the adequacy of the previous EA and determine the relevancy. 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 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 BBTS in Sussex County, Delaware. Specific expectations of the plan include the following:

- To provide a comprehensive planning document that allows the BBTS 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 BBTS INRMP, dated August 2012. This document presents a review of the natural resources activities undertaken at BBTS over the past 8 years, and proposes a range of new projects for implementation in the year 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 BBTS. Of particular interest is the integration of natural resources management into the larger Environmental Management System (EMS) at DEARNG facilities, including BBTS. 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 the 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 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 BBTS 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 BBTS. 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 BBTS Facilities Management Office

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

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

2.3.4 BBTS Groundskeeper

The BBTS Groundskeeper is a specific staff person within the BBTS 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 I&E 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 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 BBTS for the following years 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 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 USFWS and 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 BBTS INRMP is effective for five years or more from the date of signature by all parties.

CHAPTER 3 - INSTALLATION OVERVIEW

3.1 LOCATION AND AREA

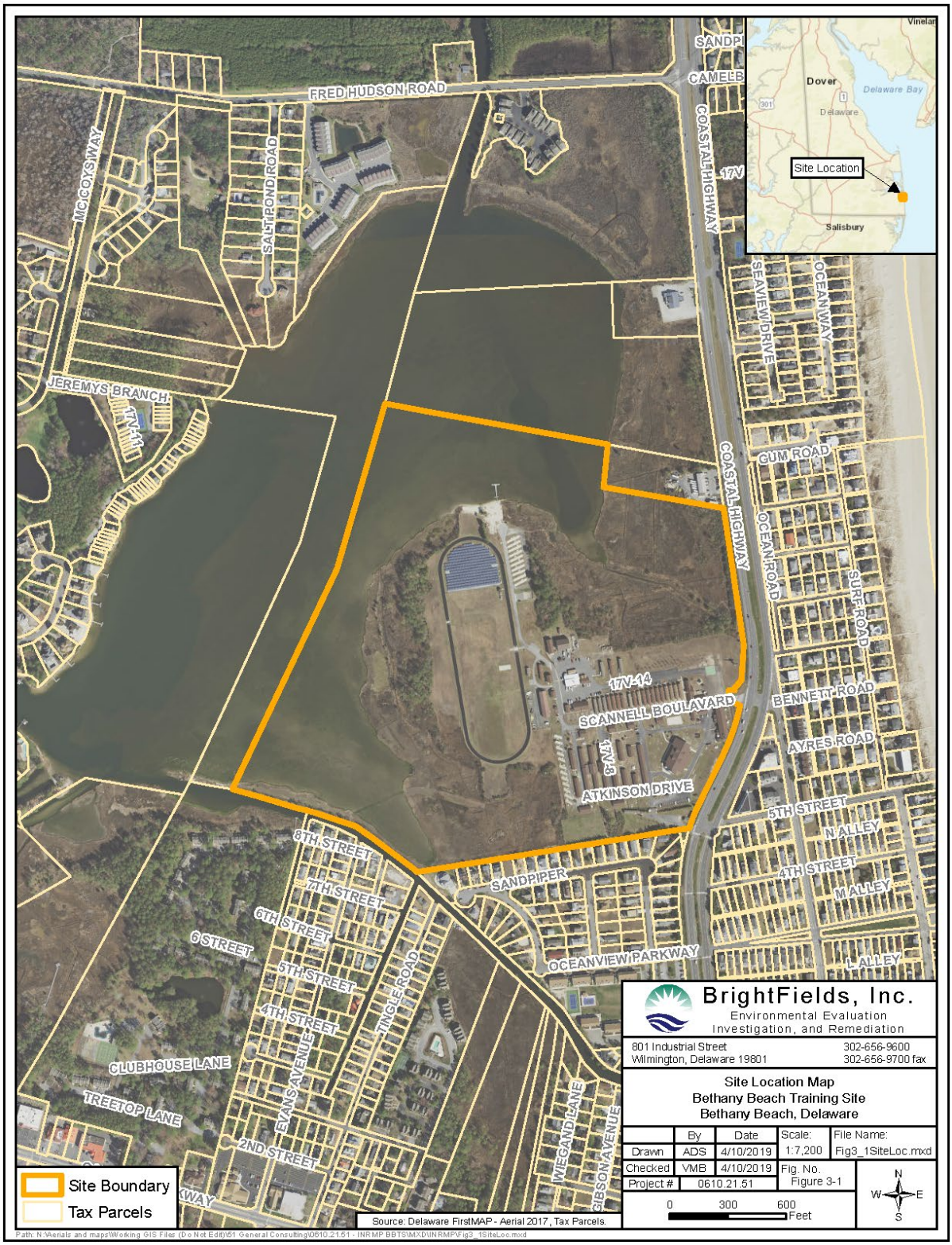
The BBTS consists of approximately 101 acres and is located in the Atlantic Coastal Plain in Sussex County, in the southeastern-most part of Delaware (Figure 3-1). Note that the 2013 EA identifies the BBTS as a 96-acre facility. The Atlantic Ocean is located less than 0.25 mile to the east, and the Indian River Bay is located approximately 2.5 miles to the north. The closest urban areas are the cities of Rehoboth Beach, Delaware, and Ocean City, Maryland. Rehoboth Beach is located approximately 12 miles north of the BBTS, while Ocean City lies approximately 11 miles south.

3.2 INSTALLATION HISTORY

The State of Delaware acquired the BBTS from William P. Short on April 29, 1927, as part of the DEARNG's efforts to establish a network of coastal defense. Additional land was purchased on June 5, 1934, resulting in approximately 101 acres of DEARNG land in the southeast area of the Salt Pond. The BBTS served as a location for many training and infield activities from its inception. By 1931, the military encampment at Bethany Beach consisted of an administration building, two storehouses, an officers' mess hall, a sheet metal water tower, and 12 mess halls. A 1,500-foot-long landing field for aircraft was added in 1934 and remains today. In the years before World War II, the BBTS became a major training facility focused on the mission of coastal artillery defense (Jones, 1995).

The BBTS became a fully active military facility for DEARNG during the early years of World War II. The facility expanded throughout wartime, and by 1944, a full septic and water supply system was installed. Thirteen one-story barracks were also added at this time. It has been reported that the BBTS housed many of the 6,500 German Prisoners of War contained in the state during World War II. Between the years after the war and the 1970s, no physical changes were made to the BBTS. However, several structures were added in the 1970s and into the early 1990s (Jones, 1995). In 2015, the Regional Training Institute building was constructed, which involved demolition of ten existing buildings in its footprint.

Figure 3-1: Site Location Map



3.3 MILITARY MISSION

The mission of BBTS is to provide a garrison training environment, small unit maneuver training areas, and quarters to support the training of National Guard units (Army and Air), the DEARNG Military Academy, the Army Reserve, the Active Army, and other DOD personnel. The 101-acre installation is used for housing and training DEARNG units during Annual Training (AT) and Inactive Duty Training (IDT), as well as for students enrolled in the DEARNG Military Academy. The BBTS also provides a State Facilities Maintenance Shop, an Army Helicopter Landing Field, and a facility for vacation use by active and retired guard members, as well as DEARNG, NGB, DA, and DOD employees, and their families. The landing field is active only during IDT and AT and does not operate on a full-time basis.

Additionally, law enforcement personnel from the Delaware State Police and the Town of Bethany police force use the Engagement Skills Trainer facilities in Building #151 for pistol and assault weapons familiarization. In addition, a mock-up of the front of a building is stored on site for the purpose of allowing local law enforcement officials to train on urban assault tactics.

Altogether, between 14,000 and 36,000 military personnel, and approximately 875 civilians, use the BBTS each year.

3.4 SURROUNDING COMMUNITIES

The BBTS is located within the beach resort town of Bethany Beach. It is bordered immediately to the north and west by Salt Pond, to the east by Route 1 and commercial properties, and to the south by residences and the Bethany Beach Canal (Figure 3-1). Surrounding these features are areas of predominantly rental properties. From mid-spring into the fall, this coastal community draws beach vacationers from around the Mid-Atlantic region.

Also, to the north of the installation is a municipal solid waste collection facility, and due south is a wastewater treatment facility. The Atlantic Ocean is approximately 0.25 mile to the east of BBTS.

3.5 REGIONAL LAND USE

3.5.1 Population

To illustrate trends, population data for the State of Delaware, Sussex County, and Bethany Beach Town are provided in Table 3-1 for 1990, 2000, and 2010. As shown in the table, in 2010 the County population totaled 197,145, an increase of 25.9 percent since 2000. In comparison, the population of Bethany Beach only increased 17.4 percent, from 903 to 1,060 permanent residents, between 2000 and 2010.

Table 3-1: Population Trends

	Population 1990	Population 2000	Population 2010
Delaware State	666,168	783,600	897,934
Sussex County	113,229	156,638	197,145
Bethany Beach Town	326	903	1,060

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

3.6 LOCAL AND REGIONAL NATURAL AREAS

The BBTS is located within the Inland Bays watershed, which is recognized as an estuary of national significance for its unique water quality and habitat resources. The Inland Bays watershed covers 292 square miles of land which drain to 35 square miles of bays and tributaries where the freshwater meets the ocean. The Inland Bays support significant tidal freshwater and tidal salt water wetlands, which in turn support a myriad of fish and wildlife populations. Most iconic to the watershed is the Diamondback Terrapin, known as the only species to live solely in brackish water. In addition, portions of the Inland Bays are designated as Waters of Exceptional Recreational of Ecological Significance for the high quality of water.

Also within the watershed is the Delaware Seashore State Park that lies along the coast to the north of Bethany Beach. This 2,825-acre park is managed primarily for recreation, including camping, swimming, hunting, fishing and clamming, boating, and sunbathing. The Thompson Island on Rehoboth Bay is associated with the Delaware Seashore State Park. Located northwest of the Inlet, Thompson Island Preserve is a good example of the productive salt marsh habitat once common around the Inland Bays. Due to its importance to local wildlife, human activities on the island are limited, and there is no motor vehicle access or parking available at this time.[1]

[1] http://www.destateparks.com/dssp/dssp.asp

The 344-acre Fenwick Island State Park is located south of Bethany Beach. This park has property on both the Atlantic Ocean and Little Assawoman Bay sides of Route 1. The park is managed for recreation, including sunbathing, swimming, hunting, and surf fishing.[2]

Lastly, within the area is the James Farm Preserve. The James Farm Ecological Preserve is an oasis of wild land on Indian River Bay, located west of Bethany Beach in Ocean View. The 150-acre James Farm property was a gift to Sussex County from the late Mary Lighthipe, a descendant of the James family who had farmed the land for generations. She gave it in memory of her son, Harold, who died in an automobile accident. She gave it with the condition that the property be used for environmental education and recreational activities. The Preserve is now managed by the Delaware Center for the Inland Bays.

[2] http://www.destateparks.com/fenwick/fisp.asp

CHAPTER 4 - PHYSICAL ENVIRONMENT

4.1 CLIMATE

The BBTS has a continental climate and four distinct seasons, although the Atlantic Ocean has a moderating effect on extreme temperatures (United States Department of Agriculture (USDA) Soil Conservation Service, 1974). Extreme temperatures ranged from approximately 99.3ºF to 1ºF in 2015 through 2018, and the mean annual temperature was about 58ºF (Delaware Environmental Observing System (DEOS), 2018). In the winter months, the area is influenced by winds from the west, whereas the prevailing winds come from the southwest in the summer months (DEARNG, 1995). The growing season averages 182 days at Bridgeville and 196 days at Lewes, based on minimum daily temperatures above 32ºF (USDA Soil Conservation Service, 1974). Climate data is summarized in Table 4-1.

Precipitation is distributed fairly uniformly throughout the year, with the maximum in August. The average annual precipitation is approximately 51 inches (DEOS, 2018). Flooding occurs infrequently, usually as a result of tides pushed by strong easterly winds, which are typical of a Nor'easter storm. The threat of floods is the most severe during the passage of tropical storms in the late summer or fall (DEARNG, 1995). Snow typically falls between December and March, with mean snowfall of about 16 inches (USDA Soil Conservation Service, 1974). The average frost penetration is about 5 inches (DEARNG, 1995).

Table 4-1: Climate at BBTS

Average Temp.	58° F
Maximum Temp.	99.3° F
Minimum Temp.	1° F
Precipitation	51 inches
Snowfall	16 inches
Growing Season	182 to 196 days

SOURCE: DEOS, 2018; USDA, 1974

4.2 LANDFORMS

The BBTS is located on the Delaware coastal plain, behind the Atlantic dunes. For this reason, the terrain at the BBTS is relatively flat and has an average elevation of 8 feet above Mean Sea Level (MSL). From the entrance on Delaware Route 1, the elevation decreases in the north and

west directions, where Salt Pond is located. The areas surrounding Salt Pond are at less than 5 feet above MSL and are characterized by tidal marsh communities.

4.3 GEOLOGY AND SOILS

4.3.1 Geology

The BBTS lies within the Atlantic Coastal Plain geologic province, which consists of a seaward-thickening wedge of semi-consolidated to unconsolidated sediments above a crystalline basement. Surficial deposits at the site consist of Holocene sand, silt, and clayey silt, which compromise the marshes and modern barrier island system. These sediments are underlain by deposits of the Columbia Group of Quaternary age, which consist of fine to coarse sand and gravel with variable amounts of silt and clayey silt, usually occurring as lenses. Deposits of the Bethany Formation of Tertiary (upper-Miocene) age are found intermittently beneath the Columbia sediments. The Bethany deposits typically lie 100 feet below the subsurface, and consist of gray to bluish-gray, fine to coarse sand and gravel. The remainder of the Tertiary section is comprised of the Manokin Formation, the Saint Mary's Formation, and the Choptank Formation (DEARNG, 1995).

4.3.2 Soils

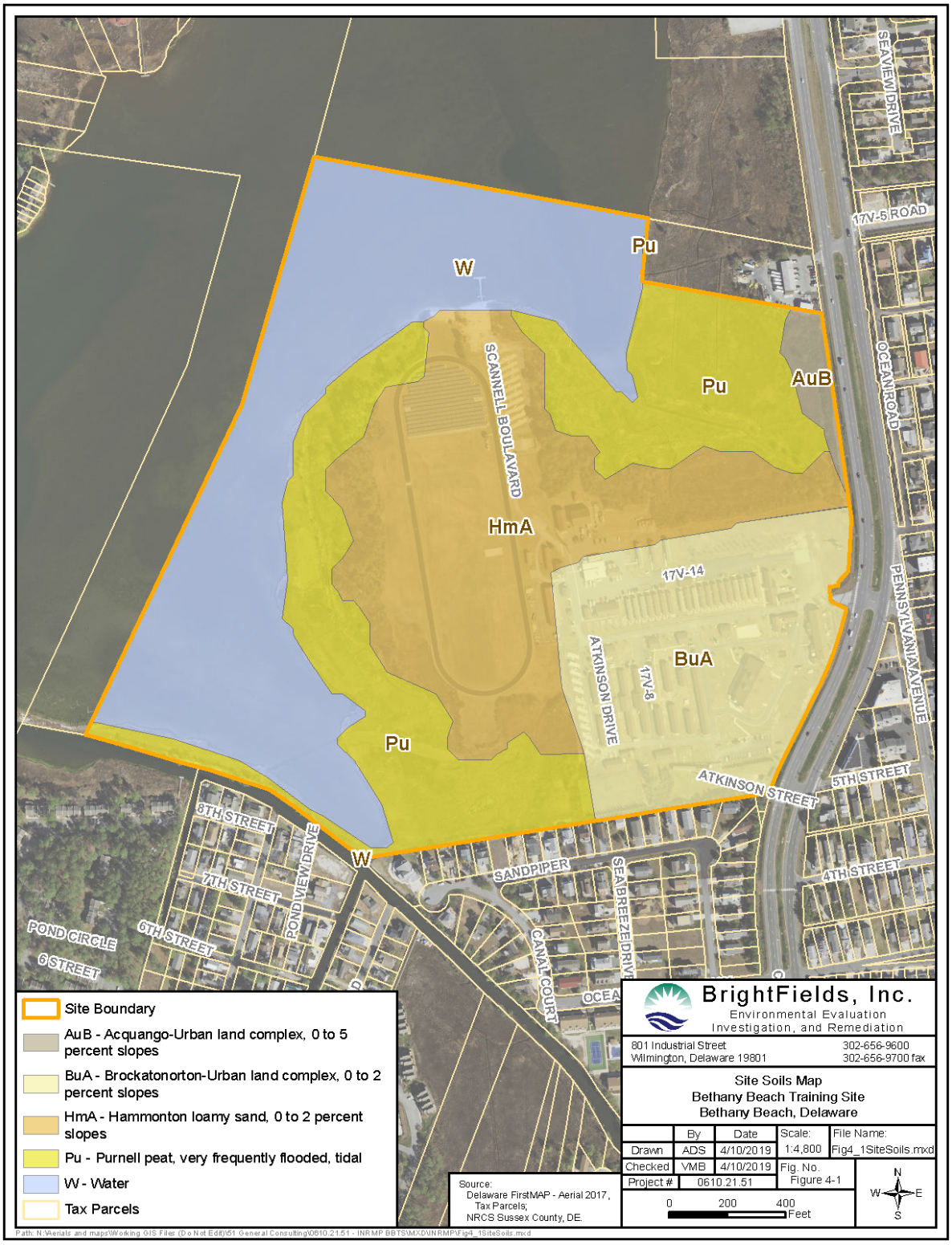
The Natural Resources Conservation Service conducted soil surveys and mapping at BBTS in 1995. The site has been filled and graded over the site's history for construction of the existing structures.

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

- Acquango-Urban Land Complex, 0 to 5 percent slopes.
- Brockatonorton-Urban Land Complex, 0 to 2 percent slopes.
- Hammonton loamy sand, 0 to 2 percent slopes.
- Purnell peat, very frequently flooded, tidal.

Additional soils information, including official soils series descriptions, is located in the Soils Planning Level Survey (PLS) in Appendix B.

Figure 4-1: Site Soils Map



4.4 HYDROLOGY

4.4.1 Groundwater

Groundwater is abundant in the sandy strata in the vicinity of the BBTS. The shallow Holocene sands typically contain brackish water with a high content of salts and organic matter. The water table is generally encountered at less than four feet below MSL in the sands and gravel of the Pleistocene Age Colombia Formation. Although this unconfined aquifer has high water yields, the natural ion content of the water, the threat of contamination from surficial sources, and the intrusion of saltwater diminish the quality of this water source. Therefore, it is not used for potable water supply in the vicinity of the BBTS. Public water is provided to Sussex County by Sussex Shore Water Company.

Beneath the Colombia Formation and within the Bethany Formation, a shallow confined aquifer called the Pocomoke Aquifer is found at depths of approximately 180 feet below the surface. The Manokin Aquifer is an even deeper confined aquifer, which occurs within the underlying Manokin Formation at depths greater than 300 feet. Both the Pocomoke and the Manokin Aquifers are separated from overlying units by several thick sections (approximately 30 feet each) of clay and silt. These aquifers provide the water supply for the local Bethany Beach area.

4.4.2 Surface Water

The BBTS lies within the Indian River Bay watershed, in the Inland Bays/Atlantic Ocean drainage basin, as defined by the DNREC Division of Water Resources (DNREC, 1998a). The larger scale watershed definition used by the US Environmental Protection Agency (USEPA) considers the same region to be in the Chincoteague watershed (United States Geologic Survey (USGS) cataloging unit 02060010), which includes the Indian River Bay and ten other major surface waters along the Delaware and Maryland coasts (USEPA, 1998). Salt Pond forms the western and most of the northern boundary of the BBTS and is the site's most significant surface water feature (Figure 3-1). Additional information can be found in the Surface Water PLS in Appendix B.

The surface waters at and in the vicinity of the BBTS include the 230-acre saltwater pond, known as Salt Pond, the unnamed tidal creeks feeding the pond, and the salt marsh at the pond’s perimeter (Figure 3-1).

4.4.2.1 Salt Pond

The Salt Pond receives restricted flow through Bethany Beach and Assawoman Canals to the west. Surface water on the southwest portion of the facility typically drains into the intertidal wetlands adjacent to Salt Pond. Surface water on the remainder of the facility drains either directly into Salt Pond or into an unnamed tributary that feeds into Salt Pond.

4.4.2.2 Tidal Creeks

The BBTS is highly influenced by the dynamics of the estuarine system. Tidal creeks are significant surface features that connect the property to the Indian River Bay and Atlantic Ocean. The ecological communities associated with these creeks are discussed in Section 5.0.

4.4.3 Wetlands

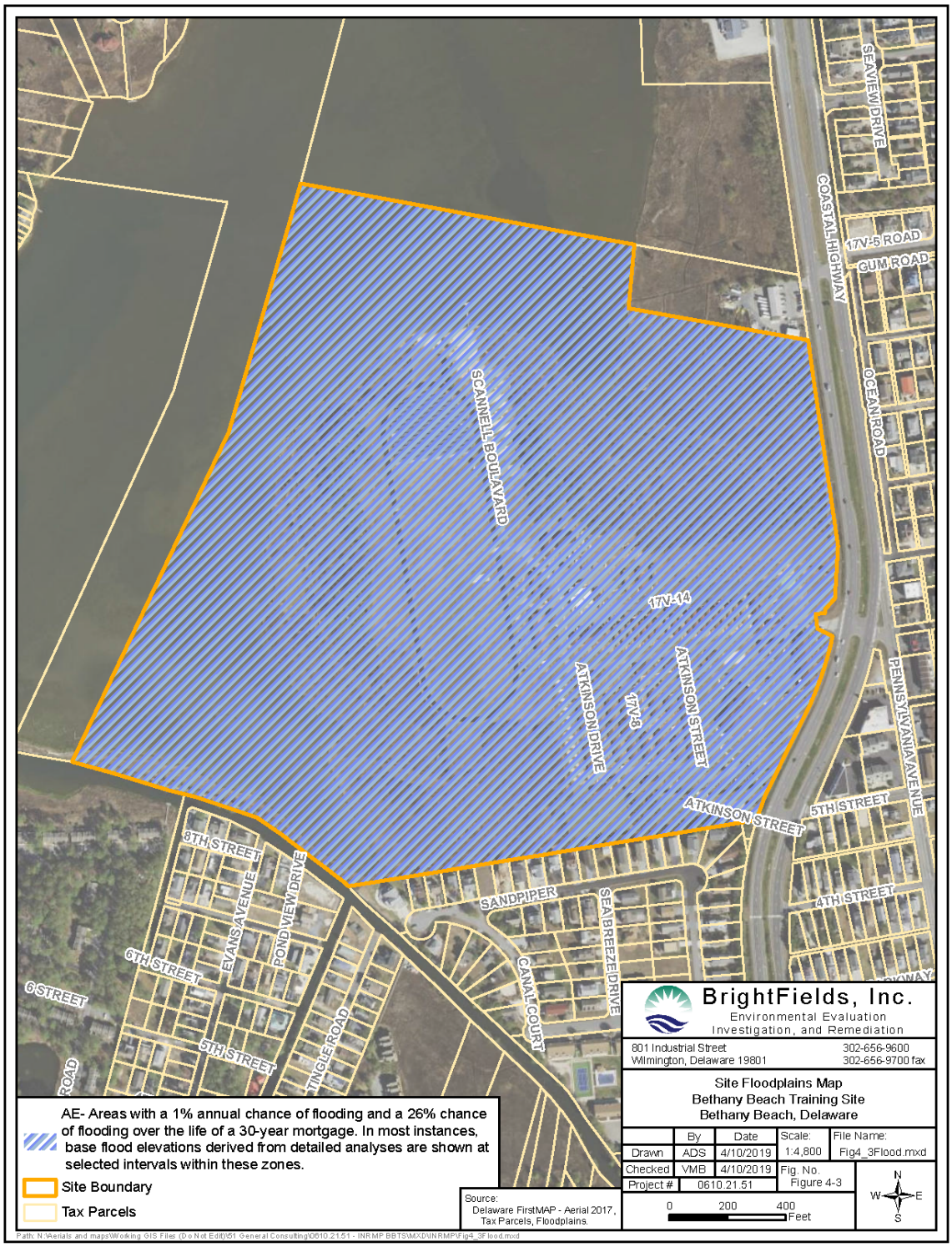
Two wetland surveys have previously been conducted at the BBTS: a wetland delineation was conducted by Wetlands Research Associates, Inc. (WRA) in 1992, and a Planning Level Wetlands Survey was conducted by the U.S. Army Corps of Engineers (USACE), Waterways Experiment Station (WES) in 2000. In conjunction with this INRMP, the USACE updated the wetland survey in 2005, and remapped wetland boundaries at the BBTS. In 2010, the USACE updated previous delineations. The Wetlands PLS can be found in Appendix B. Wetlands are found on the northern and western portions of the property. Figure 4-2 shows these wetland boundaries at the installation. 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 BBTS are discussed in Section 5.2.

4.4.4 Floodplains

The BBTS is located entirely within the 100-yr floodplain. Therefore, all structures and natural areas are vulnerable to major flood events (Federal Emergency Management Agency (FEMA), 2019). Many buildings at the BBTS were flooded during the last major flood in the area, in the spring of 1962 (DEARNG, 1998). The flood zone designation is a Zone AE, with a base flood elevation of 6.0 feet. Based on site history, location, and FEMA data, the site is subject to flooding as a result of coastal systems and/or storm surge. 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

Two tidal creeks are located on the north side of the BBTS (Figure 4-2). These creeks provide drainage from the installation into Salt Pond. Artificial drainage consists of a stormwater system comprised of surface grates, catch basins, culverts, and French drains to more adequately direct water from the paved portions of BBTS.

CHAPTER 5 - ECOSYSTEMS AND THE BIOTIC ENVIRONMENT

5.1 ECOSYSTEM CLASSIFICATION

According to the U.S. Forest Service (USDA, 1994), BBTS lies within the Outer Coastal Plain Mixed Forest Province (232). This Ecoregion lies within the Subtropical Division of the Humid Temperate Domain and occupies approximately 173,800 square miles. No Subregions or lower classifications have yet been devised for this area.

5.2 VEGETATION

5.2.1 Historic Vegetation

Information on the historic vegetation at the BBTS is limited. However, some early reports indicate that the area was characterized by sandy and marsh-like conditions prior to agricultural development in the late 1800s (Jones, 1995). Given these conditions, the vegetation of the area probably consisted of plants in either of two major community types: salt marsh or coastal dune woodland. In low-lying, tidally-influenced areas on the installation, a salt marsh community would have thrived, dominated by smooth cordgrass (*Spartina alterniflora*), saltmeadow cordgrass (*Spartina patens*), and including other species such as groundsel tree (*Baccharis halimifolia*), marsh elder (*Iva frutescens*), and swamp rose mallow (*Hibiscus moscheutos*). The overall area of marsh may have also been larger than it is today, since fill material has been added to the many areas of the installation east of Salt Pond.

The areas of higher elevation would have supported the type of coastal dune woodland species typical of the outer coastal plain region. Species such as eastern red cedar (*Juniperus virginiana*), American holly (*Ilex opaca*), loblolly pine (*Pinus taeda*), black cherry (*Prunus serotina*), and sassafras (*Sassafras albidum*) would have dominated the canopy. A diverse understory community may also have included bayberry (*Morella cerifera*), beach plum (*Prunus maritima*), Virginia creeper (*Parthenocissus quinquefolia*), and poison ivy (*Toxicodendron radicans*). Although these communities may have been influenced by human activities over many centuries, the greatest impact to the land was clearing and draining it for agricultural cultivation. The popularity of the area in the late 1800s eventually led to the development of land that had been previously considered unsuitable for farming. Prior to DEARNG occupation in 1927, agriculture was the major land use at the installation (Jones, 1995).

5.2.2 Current Vegetative Cover

The existing vegetative cover at the BBTS has been mapped and classified into ecological communities using the Cowardin system (Cowardin et al., 1979). Vegetation communities were initially assessed in 2005 and subsequently assessed in August 2010, November 2010, and April 2011. 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. Three ecological systems are present at the installation: terrestrial, palustrine, and estuarine. The calculated areas covered by each ecological system is presented in Table 5-1. Community types at the BBTS are identified in Figure 5-1, and are discussed in more detail in the Vegetation Communities PLS in Appendix B. In addition, the plant species found therein are further discussed in the Flora PLS in Appendix B. The following subsections present a general description of vegetative cover, divided by terrestrial, palustrine, and estuarine subsystems and community types.

Table 5-1: Ecological System Coverage at the BBTS

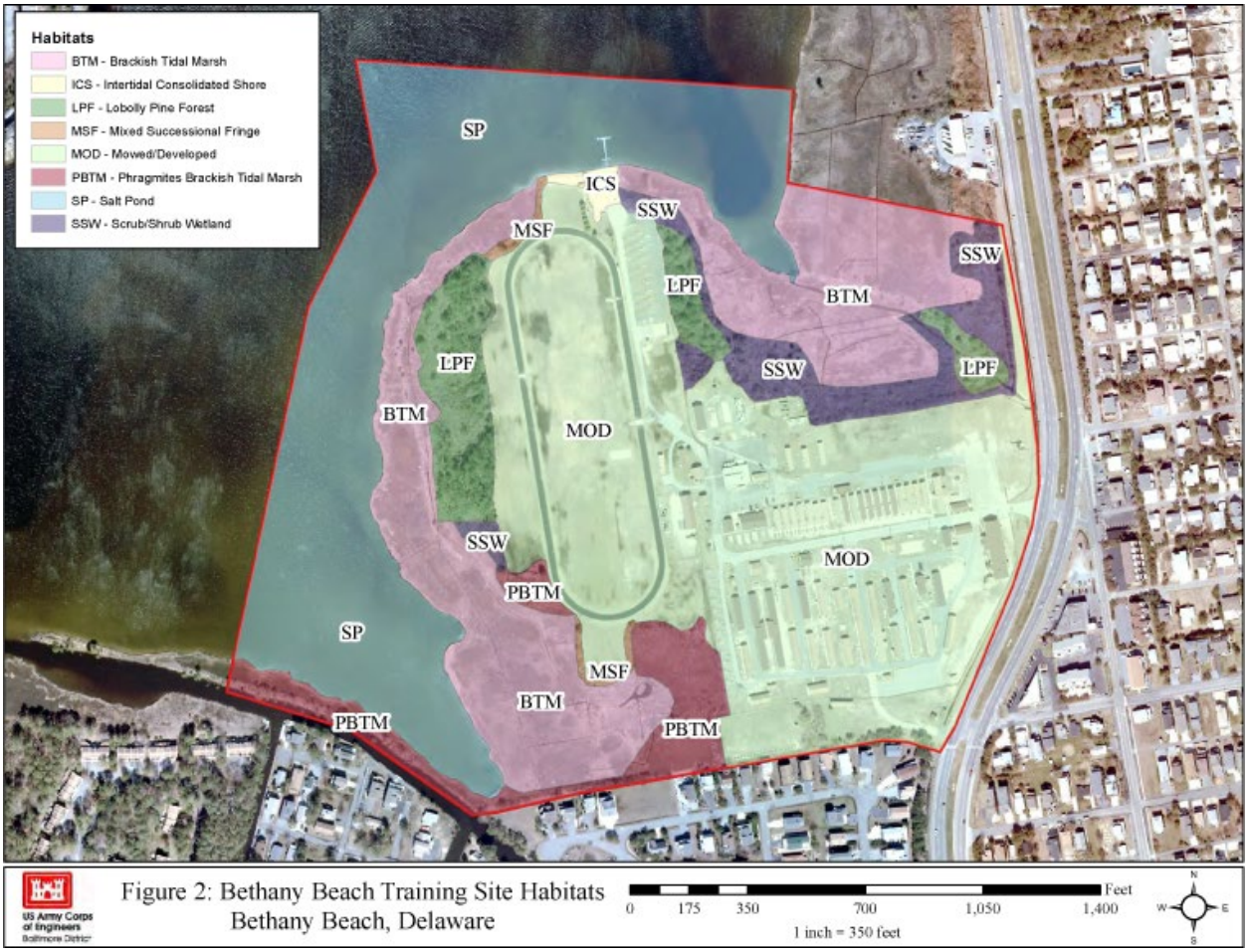
Ecological System	Calculated Area[(1)]		Percent of Installation
	Acres	Hectares	
Terrestrial	41	17	40.6
Palustrine	12	5	11.9
Estuarine	48	20	47.5
TOTALS	**101**	**42**	**100**

[(1)] Area calculations are based on the land cover mapping found in this report.

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 41 acres of the installation. These communities include coastal shrubland, Mixed Successional Forest, and unconsolidated shore. 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 BBTS



Mixed Successional Forest: This community is primarily located at the southern end of the airstrip. The dominant species of the mixed successional forest are black cherry (*Prunus serotina*), northern bayberry, evergreen bayberry (*Morella heterophylla*), winged sumac (*Rhus copallina*), and trumpet creeper (*Campsis radicans*).

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).

Loblolly Pine (Pinus taeda) Palustrine Forested (PFO) Wetland: These pine forests are found adjacent to the saltwater shrub wetland community in the northern and western regions of the installation. This forest community is tolerant of wetland conditions and occurs at the BBTS on soils that are classified as tidal marsh, although it also occurs frequently on drier soils. Loblolly pine is a common species of the piedmont and coastal plain regions of the southeastern United States, ranging from southern New Jersey to Florida and west to eastern Texas (Petrides, 1958). This southern tree grows to heights of 80 to 100 feet and diameters of 1 to 2 feet. Loblolly pines of various ages dominate this community, but red maple (*Acer rubrum*), water oak (*Quercus nigra*), American holly (*Ilex opaca*), and poison ivy are also present.

Palustrine Emergent (PEM) Wetland: This vegetation type is found predominantly at the wet edge of the mowed lawn, where freshwater, in the form of stormwater, begins to collect before its descent into the tidal marsh. Dominant vegetation includes blunt spikerush (*Eleocharis obtusa*), dotted smartweed (*Polyganum punctatum*), and saltgrass (*Distichlis spicata*), with Canadian rush (*Juncus canadensis*), path rush (*Juncus tenuis*), the occasional narrowleaf cattail (*Typha angustifolia*), and other associated wetland species. This vegetation type accounts for just under 1 acre, or 1 percent of the installation.

Palustrine Shrub-Scrub (PSS) Wetland: This vegetation type is found on disturbed soils near the jogging track/helipad, high enough in the landscape to be out of the influence of saltwater. Dominant species include bayberries (*Morella cerifera, Morella pennsylvanica*) and groundsel tree (*Baccharis halimifolia*), with the occasional loblolly pine sapling, poison ivy, *Phragmites*, or multiflora rose.

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 BBTS, the communities of the estuarine system include the following: brackish tidal marsh, shrub-scrub wetland, *Phragmites*–dominated brackish tidal marsh, subtidal unconsolidated bottom, and tidal creek.

Estuarine Emergent Brackish Tidal Marsh: This community represents a transitional zone between the strongly saline environment of the Salt Pond to the less saline saltwater shrub community. Salt marsh vegetation at the site includes species such as smooth cordgrass, saltmeadow cordgrass,

spike grass (*Distichlis spicata*), and black grass (*Juncus gerardii*). Mudflats are interspersed throughout the salt marsh.

Estuarine Shrub-Scrub (ESS) Wetland: This community consists of species such as northern bayberry (*Morella pensylvanica*), groundsel-tree, multiflora rose (*Rosa multiflora*), and poison ivy (*Toxicodendron radicans*). This community is found on a relatively narrow strip of land just north of the cantonment area, between salt marsh and mowed grass communities.

Phragmites-Dominated Brackish Tidal (EEM) Wetland: This marsh community is dominated by dense stands of *Phragmites* and occupies the south-central portion of the property. Other species present in this community include groundsel tree, swamp rose mallow, and marsh elder.

Subtidal Unconsolidated Bottom: This community classification includes all underwater habitats associated with the Salt Pond. No formal ecological surveys of this community have been conducted. The sandy bottom of Salt Pond is generally two to three feet below the water surface and no deeper than eight feet. There is likely a community of submerged aquatic vegetation.

Tidal Creek: The tidal creek community serves as the primary hydrologic link between inland marsh communities and Salt Pond. These narrow waterways provide important, and relatively secluded, habitat for birds and aquatic life.

5.2.3 Turf and Landscaped Areas

Areas dominated by mowed grass are located primarily in the central and southeastern portions of the property (Figure 5-1). The predominant species of the mowed community are fescues (*Festuca* spp.), crabgrass (*Digitaria serotina*), Virginia buttonweed (*Diodia virginiana*), and switchgrass (*Panicum* sp.), as well as a variety of sedges. Trees such as Japanese black pine (*Pinus thunbergiana*) landscape the perimeter of the installation, while species such as princess tree (*Paulownia tomentosa*) and eastern cottonwood (*Populus deltoides*) are found in the open, mowed areas near buildings.

The remaining area in the terrestrial system is occupied by roads and buildings, which are concentrated on the southeastern third of the BBTS. 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 BBTS. However, the species characteristic of estuarine environments should be found in the salt marshes and aquatic habitat of Salt Pond and adjacent tidal creeks. Fish such as mummichog (*Fundulus heteroclitus*) and striped killifish (*Fundulus majalis*) are likely to be found in the pond and the tidal creeks. The saltmarsh macroinvertebrate 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 BBTS between November 1993 and December 1994, in conjunction with surveys for protected species. A faunal survey was conducted in August 2010, November 2010, and April 2011. The Fauna PLS in Appendix B presents a complete list of the bird, mammal, amphibian, and invertebrate species observed at the installation to date.

Common species identified at the BBTS include eastern gray squirrel (*Sciurus carolinensis*), eastern cottontail (*Silvilagus floridanus*), muskrat (*Ondatra zibethicus*), raccoon (*Procyon looter*), white-tailed deer (*Odocoileus virginianus*), great blue heron (*Ardea herodias*), herring gull (*Larus argentatus*), and American robin (*Turdus migratorius*) (WRA, Inc., 1995b). Mallards (*Anas platyrhyncos*), black ducks (*Anas rubripes*), and Canada geese (*Branta canadensis*) are also abundant at the BBTS. The sharp-shinned hawk and osprey (*Pandion haliaetus*) have been occasionally sighted. No osprey or hawk nests are currently located on the property. One amphibian species identified on site was the Fowler's toad (*Bufo woddhousii fowleri*). Invertebrate species identified at the BBTS include black swallowtail (*Papilio polyxenes*), tiger swallowtail (*Papilio glaucus*), civil bluet (*Enallagma civile*), wood nymph (*Cercyonis pegala*), seaside dragonlet (*Erythrodiplax berenice*), and monarch (*Danaus plexippus*). In addition, many avian species utilize the aquatic and salt marsh habitats of the BBTS for feeding, resting, and possibly nesting.

Additional species which were not included in the past surveys are the diamondback terrapin (*Malaclemys terrapin*) and the Atlantic horseshoe crab (*Limulus polyphemus*), both which rely on sandy beaches for nesting and have been listed as a vulnerable species by the International Union

for Conservation of Nature. Diamondback terrapins live in bays, creeks, salt marshes, and coves. Female terrapins travel to sandy beaches and lay their eggs between mid-May and mid-July. The sandy beach habitat is also essential for horseshoe crab nesting. Migratory shorebirds rely on the horseshoe crab eggs on the shores of the Delaware Bay for nourishment while on their journey to breed in the Arctic. In fact, the Delaware Bay has the largest population of horseshoe crabs in the world (The Nature Conservancy, 2020).

The Bethany Beach firefly (*Photuris Bethaniensis*) is also a species of concern which is specific to the Bethany Beach area. It has only been found in a few areas along Delaware's Atlantic Coast, within 1,500 feet of the shore. Development in the area has led to light pollution and increased nighttime lighting, which disrupts the mating process. Increased spraying for mosquito control is also threatening the species. The Bethany Beach firefly live in interdunal freshwater swales in depressions between sand dunes. Future rising sea level is a threat to this already limited habitat where the species dwells.

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 BBTS.

The Department of the Army (DA) 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 BBTS

In 1993, the DEARNG contracted WRA to conduct protected species surveys at the BBTS 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, 12 bird species of special concern in the state were observed on the property (WRA, Inc., 1995b).

In 2005, the USACE identified 11 species of state-listed rare bird species during its quarterly wildlife surveys. Table 5-2 identifies the rare species present at the BBTS during the 2005 wildlife surveys. At the time of the survey, each species had a Delaware Natural Heritage Inventory 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. In surveys conducted in August 2010, November 2010, and April 2011, only 1 bird species of state-listed threatened and endangered species was identified: the brown creeper. This species had not been previously found in surveys at BBTS and identification of this bird are provided in the Rare, Threatened, and Endangered Species PLS in Appendix B.

5.5 WETLANDS

As stated in Chapter 4, two wetland surveys have previously been conducted at the BBTS: a wetland delineation was conducted by WRA in 1992, and a Planning Level Wetlands Survey was conducted by the USACE, WES in 2000. In 2010, the USACE updated previous delineations. The Wetlands PLS can be found in Appendix B. The USACE updated the wetland survey in 2005 and remapped wetland boundaries at the BBTS. Figure 4-2 shows these updated wetland boundaries at the installation.

Wetlands exist along the shorelines, including a thin strip along the southwestern property boundary. Wetlands serve many functions, including groundwater recharge and discharge, flood flow alteration (including flood prevention), sediment stabilization, sediment and toxicant retention, nutrient removal and transformation, and aquatic and terrestrial diversity, abundance, and uniqueness. 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 BBTS are discussed in Sections 5.2.2.2 and 5.2.2.3 above.

5.6 SANDY BEACHES

As stated in Section 5.3.2, sandy beaches in the Delaware Bay offer a critical habitat for diamond back terrapin and horseshoe crab nesting, both which have been classified as vulnerable species. Development close to the shoreline and erosion threaten the sandy beach habitat and reduce nesting areas for these species. DEARNG activities are not presently conducted in the sandy beach habitat, nor do they plan to be in the future with the exception of recreational activity near the dock.

5.7 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 BBTS. However, the Assawoman Bay Depression Meadow, classified as a Category I Freshwater Wetland by the Delaware Nature Heritage Inventory, is located in the Assawoman Bay Wildlife Management Area, approximately 2.5 miles southwest of the BBTS. This unique wetland area is considered to be one of the most significant coastal plain Depression Meadows on the Delmarva Peninsula. Many state and globally rare species, including

the awned meadow beauty (*Rhexia aristosa*) and Hirst's panic grass (*Panicum hirstii*) inhabit the wetland (DNREC, 1991).

Table 5-2: Rare, Threatened, and Endangered Species at BBTS

				Ecological Community						
Scientific Name	**Common Name**	**NHI Status** [(1)]	**Flyover**	**Palustrine Scrub-Shrub Wetland** (includes some former Mixed Successional Forest and all coastal shrubland)	**Loblolly Pine Forest (Palustrine Forested Wetland)**	**Mixed Successional Forest**	**Lawn/landscaping (including Palustrine Emergent Wetlands)**	**Estuarine Emergent Brackish Marsh** (includes intertidal mudflat, tidal creek & unconsolidated shore)	**Phragmites Brackish Tidal Marsh**	**Estuarine Scrub Shrub Wetland**
Ardea albus	Great Egret	S1B	**X**					**X**		
Ardea herodias	Great Blue Heron	S3B	**X**					**X**		
Calidris pusilla	Semi-Palmated Sandpiper	S3N					**X**			
Egretta thula	Snowy Egret	S1B	**X**					**X**		
Haliaeetus leucocephalus	American Bald Eagle	S3B, S4N	**X**					**X**		
Melospiza georgiana	Swamp Sparrow	S3B								
Phalacrocorax auritus	Double-crested Cormorant	S1B, S5N	**X**			**X**	**X**			
Porzana carolina	Sora Rail	S2						**X**		
Sterna forsteri	Forster's Tern	S1B, S4N						**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 non-breeder; "B" refers to occurrence during breeding season.

"Z" indicates regularly migrating through, but not breeding or wintering in DE.

CHAPTER 6 - MISSION IMPACTS ON NATURAL RESOURCES

6.1 LAND USE

In order to maintain readiness standards and achieve the mission of the BBTS, 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 BBTS are designated according to areas of unimproved, semi-improved, or improved areas. The improved areas in the southeastern portion of the property contain the majority of military facilities and occupy approximately 19 acres of the installation. These facilities include housing and dining facilities, classrooms, administration buildings, a medical dispensary, a small Post Exchange, a recreation area, a military parking area, and maintenance shops. Unimproved lands occupy approximately 62 acres to the north and west, including tidal wetlands and a saltwater pond. Approximately 18 acres of semi improved lands are located in the central and western portion of the BBTS, including a grass airstrip that can accommodate two full companies of UH-1 rotary winged aircraft (approximately 16 aircrafts), including appropriate fuel trucks.

The training of DEARNG personnel is the major operational activity at the BBTS. On an annual basis, 14,000 to 36,000 DEARNG personnel are trained in the BBTS classrooms and field locations. Training activities are primarily conducted indoors, since the BBTS provides classrooms for High Frequency Radio and Signal Communication Training. Low-impact activities such as field exercises and physical training are conducted outdoors on a limited basis. Neither driver training activities nor tracked vehicle operations are conducted at the BBTS.

6.1.2 Non-Military Land Use

Outdoor recreation is the primary non-military use at the BBTS, since DEARNG personnel and their families are permitted to vacation on site. School groups and non-profit organizations are also permitted to use the Rugged Outdoor Pursuit Education System (ROPES)/Challenge Course for educational and recreational purposes. While most of the indoor facilities at the BBTS are restricted for military use, the renovated conference center is available for non-military speakers and events.

6.2 NATURAL RESOURCES NEEDED TO SUPPORT THE MILITARY MISSION

At the BBTS, 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 BBTS 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 BBTS.

6.2.1 Forested Land

The woodlands support diverse military training activities at the BBTS, 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 Wetlands and Waterways

Wetlands and waterways at the BBTS provide surface water control and quality functions. Natural waterways and ditches direct stormwater from paved areas of the BBTS toward the Salt Pond, allowing most of the water to infiltrate into the ground. A ditch is located on the north side of the property which is maintained by the Delaware Department of Transportation (DelDOT). The current practice is for DelDOT to remove and dispose of accumulated sediment as needed.

Wetlands surrounding the installation filter surface water and provide physical, visual, noise, and ecological buffer between the developed portion of the BBTS and its neighbors. In addition, the small strip of wetlands to the southwest of the property protect from erosion.

6.2.3 Undeveloped Land

Undeveloped and semi-developed lands at the BBTS provide a high-quality setting and environmental infrastructure for those missions that take place on developed land. These missions include training, recreation, 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, the entire BBTS is located within the 100-year floodplain. This affects the type of construction and mission suitable at the installation and significantly constrains the ultimate size and development 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.[3] 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 events, which has flooding implications for a low-lying, poorly drained site like BBTS. 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.[4] Protection and preservation of the wetlands and forest of the BBTS will help mitigate the impacts of sea level rise and flooding. In addition to this, the projects outlined in Appendix F will help reduce BBTS vulnerabilities to sea level rise and climate change.

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

6.3.3 Coastal Zone

The expansion of DEARNG's BBTS is limited by coastal zone regulations and future planning must comply with these regulations. Currently, the BBTS has no plans to undertake development projects other than routine renovations or improvements that will affect the overall efficiency of the installation.

6.3.4 Critical Habitat for Rare, Threatened, and Endangered Species

As identified in Section 5.4 and Table 5-2, viable habitat areas have been identified on the BBTS for nine Delaware State Species of Concern. Because the potential exists that one or more of these species resides at the BBTS, or could move onto the BBTS 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 conducting missions impacting Mixed Successional Forest (Double-Crested Cormorant), Lawn/Landscaping (Semi-Palmated Sandpiper, Double-Crested Cormorant), or Estuarine Emergent Brackish Marsh (Great Egret, Great Blue Heron, Snowy Egret, American Bald Eagle, Sora Rail, Forster's Tern).

6.3.5 Wetlands

Wetland areas comprise over one-half of the land area at the BBTS. These areas surround three sides of the installation, and include marshes, shrub-scrub wetlands, and forested wetlands. These wetlands 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.

6.3.6 Highly Erodible Soils

All soils at the BBTS are considered highly erodible. The USDA defined these soils as having a severe erosion hazard based on presumed use for timbering. The definition of moderate erosion hazard is, "erosion control measures are needed on skid and logging roads during and immediately after the harvesting of wood products." Generally, these soils are sandy or silty. Their erodibility makes them 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 the BBTS and discusses management issues and concerns. The program structure has been 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 BBTS. Program-specific goals and objectives 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 BBTS. 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 BBTS have been incorporated into the role of the EQCC, which consists of key staff from the DEARNG. The DEARNG Environmental Program Manager currently serves as the lead representative for natural resources-related issues. The BBTS 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 BBTS INRMP include the following:

- To provide policy, guidance, and oversight to the development of goals and objectives in the BBTS INRMP.
- To monitor and control environmental projects and environmental activities presented in the BBTS INRMP.
- To foster understanding and environmental awareness at the BBTS.
- To oversee the development, implementation, and revision of the BBTS 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 BBTS. 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 has a vested interest in the conservation, protection, and management of the living marine resources, including fish and their habitat, present at the BBTS. 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 BBTS. 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 BBTS. 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 BBTS. 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 BBTS. This technical support includes preparation of the INRMP, NEPA analyses and documentation, and cultural and biological resource surveys.

7.1.5 Delaware Center for the Inland Bays

The Delaware Center for the Inland Bays is a National Estuary Program with a mission to preserve, protect, and restore the natural resources of the Inland Bays. The Center operates under a Comprehensive Conservation and Management Plan that outlines specific mission-related goals and works alongside DNREC, environmental groups, volunteers, businesses, and legislators. The BBTS is located within the Inland Bays watershed.

7.1.6 Other Interested Parties

External stakeholders include the general public and the local law enforcement agencies that use the BBTS facilities. These stakeholders have a vested interest in how the natural resources at the BBTS 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 BBTS.

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 Management 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, and pest wildlife control. Due to the size and location of the installation, hunting is not suitable at the installation and is not permitted. Therefore, this program does not address recreational hunting.

7.3.1 Fish and Wildlife Program Management

Habitat quality for migrating and resident coastal birds is an important Fish and Wildlife Management Program issue at the BBTS. During the wildlife surveys conducted in 1993 and 1994, over 70 bird species were observed utilizing the various habitats at the BBTS. However, the osprey was only occasionally observed and no osprey nesting sites have been identified at the installation. The osprey is a top predator of the estuarine system and its health reflects the health of the ecosystem. Although the salt marsh habitat at the BBTS is ideal for ospreys, a lack of suitable nesting structures may be preventing them from establishing nests. In 2019, BBTS in partnership with Tri-State Bird Rescue installed an osprey platform to support osprey nesting.

7.3.2 Enforcement of Fish and Wildlife Laws

The BBTS has no public fishing or hunting program, so no fish or wildlife law enforcement is necessary. The BBTS 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

Currently, no hunting or trapping is allowed on BBTS. However, crabbing is allowed at BBTS on Salt Pond. DNREC Division of Fish and Wildlife regulates recreational fishing and crabbing activities in Delaware. DNREC requires licenses for hook and line recreational fishing in tidal waters of the state, and limits the number and size of individual Atlantic blue crabs (*Callinectes*

sapidus), as well as the number of individual hard clams (*Mercenaria mercenaria*) caught per day. Annually DNREC assesses the fish, crab, and clam populations, and sets size and quantity limits accordingly (Delaware Fishing Guide, 2019). Open season for crabbing in tidal waters using crab pots is March 1 through November 30, and clamming is permitted all year (Delaware Fishing Guide, 2019). In order to comply with DNREC fishing regulations, DEARNG has posted signs at Salt Pond that inform visitors of these restrictions.

7.3.4 Demand for Hunting, Fishing, and Nonconsumptive Resource Uses

Current Force Protection Provisions do not allow public access to the BBTS for any purpose.

7.3.5 Wildlife Pest Problems and Control of Wildlife and Feral Animals

Relatively large numbers of Canada geese were observed during the wildlife surveys. Canada geese populations frequently present Bird Air Strike Hazard (BASH) issues during flight operations. However, flight activities at the BBTS are limited to IDT and AT, so that the potential for BASH issues is minimized. DEARNG has determined that BASH issues are negligible at this time.

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 die offs and unnatural behavior occurring on any of the DEARNG facilities, including the BBTS.

7.4 MANAGEMENT OF THREATENED AND ENDANGERED SPECIES AND HABITATS

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

The T&E Program was developed based on rare species surveys conducted at the BBTS between 1993 and 1994, and again in 2005 (refer to Section 5.4 for more information about rare species surveys). No federally-listed species were observed at the BBTS during that period, but nine bird species of special concern in the state were observed on the property, and an additional two species were identified flying over the site. The majority of these rare species utilize the salt marsh and

shoreline habitats at the BBTS. 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 BBTS.

7.5 WATER RESOURCE PROTECTION

7.5.1 Regional Programs

The DNREC Division of Water Resources, Watershed Assessment Section monitors the water quality in the Indian River/Indian River Bay watershed.

The Delaware Center for the Inland Bays invests significant resources into protecting water resources. Every five years, the Center assesses the overall health of the Inland Bays watershed in the State of the Bays report.[5]

7.5.2 Stormwater Management

The DEARNG continues to work with DNREC to correct issues regarding stormwater management at the BBTS. Because the BBTS is located on the Atlantic Coast, behind the primary

[5] https://www.inlandbays.org/wp-content/uploads/Final-CIB-State-of-the-Bays-2016-low-res.pdf

dune, it is a topographically flat, low location, with water very near the soil surface. This situation makes the control of stormwater difficult.

7.5.3 Nonpoint Source Pollution Issues

The Inland Bays watershed is plagued by nonpoint source pollution of nitrogen and phosphorus. As a result, Total Maximum Daily Loads have been established for the Inland Bays watershed in an effort to reduce nonpoint source pollution.[6]

At BBTS, lift pumps onsite discharge domestic wastewater to Sussex Shores Wastewater Treatment Facility.

Other water quality issues at the BBTS 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 BBTS, water quality benefits are expected to result from the ongoing wetland rehabilitation efforts.

7.5.4 Water Quality Monitoring Programs and Sampling Points

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

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. Wetland data was originally developed for BBTS by WRA in 1992, and was updated by WES in 2000. 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 BBTS. The results of this survey have been incorporated into GIS and will be used for future planning efforts.

It should be noted that the 2005 survey was not a legal Jurisdictional Determination, but rather a planning tool. Given the dynamic nature of ecosystems in the BBTS area, a jurisdictional determination will be necessary if future actions have the potential to impact wetlands.

[6] http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessmentTMDLs.aspx

7.6.2 Health of Existing Wetlands

The 2005 wetland survey indicated that the wetlands at BBTS are healthy and thriving. Previous efforts to eradicate *Phragmites* have been largely unsuccessful, but native species are dominant in most wetland areas. A stand of *Phragmites* still exists in the southern tidal marsh area, but represents approximately 4 of almost 64 acres of marsh, or about 6 percent.

7.6.3 Programs for Long-Term Monitoring of Wetlands

Currently, the DEARNG has an informal program of monitoring the wetland areas at BBTS 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 are limited to participation in the DNREC *Phragmites* control program in the past as needed.

In 2015, the Delaware Center for the Inland Bays completed a 350 foot living shoreline project on the land adjacent to the southwest border of the BBTS.[7] The project used thirty nine, 20-foot logs as wave attenuators to protect the shoreline from erosion. The project is annually monitored for accretion rates by the Center.

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 30 percent of the BBTS. 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

[7] https://www.inlandbays.org/projects-and-issues/all/bethany-loop-canal-project/

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 BBTS:

- 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.
- Restrict mowing in May and June during terrapin nesting season.

Landscaping at the BBTS is concentrated in the Cantonment Area near the barracks, classrooms, and vacation trailers, as well as around the campground. Improved landscaping in these areas is a priority due to the recreational function of the BBTS. Landscaping at BBTS emphasizes the use of low-maintenance, native plants that are well adapted to coastal habitats. The use of native plants for landscaping helps safeguard against the failure of plantings. However, proper maintenance is provided to ensure the survival of both native and non-native ornamental landscape plantings.

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 BBTS. 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 BBTS

Current forest resources at the BBTS include the loblolly pine forest and mixed successional forest communities 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 BBTS 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

7.8.4.1 Invasive Species

The forest communities at BBTS are generally healthy, but are impacted by invasive plants in certain areas. Encroachment of *Phragmites* is a problem on the perimeter of the loblolly pine forest areas of the BBTS, and the dense growth of poison ivy in the forest interior presents a serious obstacle to forest use.

7.8.4.2 Reforestation Potential

The potential for the reforestation of the southern end of the former air strip has been previously identified as a means to improve aesthetics and biodiversity at the BBTS, while providing a noise barrier between the installation and residences to the south. This area is currently mowed, but, since the unimproved ground of the air strip cannot be used to land airplanes, the air strip is used only for helicopter landing and the full length of the air strip is not used. The perimeter of the southern end of the air strip is narrowly surrounded by a mixed successional forest community. The area identified for reforestation includes all areas surrounded by this community, as well as the area just southeast of the loblolly pine forest.

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 BBTS for the ROPES/Challenge Course. Although the northwest portion of the loblolly pine forest community is designated for this use, future management decisions regarding such uses will be aided by information in this INRMP.

7.9 FIRE MANAGEMENT

There is no history of wildfire at the BBTS. Additionally, no controlled burns or other fire management activities area have been performed at the BBTS.

7.10 AGRICULTURAL OUTLEASING

There is currently no agricultural outleasing at the BBTS.

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

Portions of wetland areas at the BBTS are impacted by the invasion of the common reed (*Phragmites australis*). *Phragmites* is an invasive wetland plant that has formed dense stands in the marshes along the southern boundary of the BBTS. It prevents the growth of many desirable wetland species, thereby reducing biodiversity and habitat quality in these areas. In Sussex County, DNREC runs a cost-share program designed to control the spread of *Phragmites*. This program requires that properties have at least 5 acres of *Phragmites*-dominated wetlands to participate in the program, and that wildlife habitat improvement is the primary objective of the rehabilitation. Since the BBTS has only about 4 acres of *Phragmites*-dominated marsh, the installation is not eligible for this program. However, the problematic spread of *Phragmites* into the forest and salt marsh communities at the BBTS may be addressed as needed through Planned Projects, included as Appendix F.

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*), bur cucumber (*Sicyos angulatus),* giant ragweed (*Ambrosia trifida)*, Texas panicum (*Panicum texanum*), and Palmer

amaranth (*Amaranthus palmeri*).[8] Delaware law requires that these weeds not be allowed to exceed 24 inches in height or be allowed to produce seed. Of the six species, only Canada thistle has been identified at the BBTS. None of the 112 species appearing on the Federal list of Noxious Plants have been identified at the BBTS.[9]

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 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 BBTS 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 BBTS. However, as stated in Section 6.1.2, the primary non-military use is recreational.

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

7.14 COASTAL ZONE MANAGEMENT

The BBTS 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 BBTS 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 BBTS is limited by coastal zone regulations and future planning must comply with these regulations. Currently, the BBTS has no plans to undertake 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 BBTS, because there is no hunting or fishing program.

7.16 PUBLIC OUTREACH (ENVIRONMENTAL AWARENESS)

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

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 BBTS 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 in Appendix F.

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

<u>GIS</u>

- 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 BBTS. 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 BBTS 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 BBTS include:

- Permanent staff of the DEARNG and the BBTS:
  - The DEARNG Environmental Management Branch (full-time staff and part-time).
  - Environmental Protection Specialist.
  - Environmental Program Manager.
  - Site Manager, BBTS.
  - The BBTS Pest Management Specialist.
  - Various DEARNG units.
- Temporary staff of the BBTS:
  - 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.

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 BBTS 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 BBTS. 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 BBTS, 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 BBTS, 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 BBTS 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 BBTS 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 are presented in Section 8 and objectives are presented in Appendix F.

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