U. S. AIR FORCE

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

2020

Offutt Air Force Base

(See INRMP signature pages for plan approval date)

ABOUT THIS PLAN

This installation-specific Environmental Management Plan (EMP) is based on the United States Air Force's (USAF) standardized Integrated Natural Resources Management Plan (INRMP) template. This INRMP has been developed in cooperation with applicable stakeholders, which includes Sikes Act cooperating agencies and/or local equivalents, to document how natural resources will be managed. Where applicable, external resources, including Air Force Instructions (AFIs); Department of Defense Instructions (DoDIs); USAF Playbooks; federal, state, and local requirements; Biological Opinions; and permits are referenced.

Certain sections of this INRMP begin with standardized, USAF-wide "common text" language that address USAF and Department of Defense (DoD) policy and federal requirements. This common text language is restricted from editing to ensure that it remains standard throughout all plans. Immediately following the USAF-wide common text sections are installation sections. The installation sections contain installation-specific content to address local and/or installation-specific requirements. Installation sections are unrestricted and are maintained and updated by the approved plan owner.

NOTE: The terms "Natural Resources Manager," "NRM," and "NRM/POC" are used throughout this document to refer to the installation person responsible for the natural resources program, regardless of whether this person meets the qualifications within the definition of a natural resources management professional in DoDI 4715.03, Natural Resources Conservation Program.

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DOCUMENT CONTROL

Standardized INRMP Template

In accordance with (IAW) the Air Force Civil Engineer Center (AFCEC) Environmental Directorate (CZ) Business Rule (BR) 08, *EMP Review, Update, and Maintenance*, the standard content in this INRMP template is reviewed periodically, updated as appropriate, and approved by the Natural Resources Subject Matter Expert (SME).

This version of the template is current as of 10/03/2018 and supersedes the 2015 version.

NOTE: Installations are not required to update their INRMPs every time this template is updated. When it is time for installations to update their INRMPs, they should refer to the eDASH EMP Repository to ensure they have the most current version.

Installation INRMP

Record of Review – The INRMP is updated no less than annually, or as changes to natural resource management and conservation practices occur, including those driven by changes in applicable regulations. IAW the Sikes Act and AFI 32-7064, *Integrated Natural Resources Management*, the INRMP is required to be reviewed for operation and effect no less than every five years. An INRMP is considered compliant with the Sikes Act if it has been approved in writing by the appropriate representative from each cooperating agency within the past five years. Approval of a new or revised INRMP is documented by signature on a signature page signed by the Installation Commander (or designee), and a designated representative of the United States Fish and Wildlife Service (USFWS), state fish and wildlife agency, and National Oceanic and Atmospheric Administration (NOAA) Fisheries when applicable (AFI 32-7064).

Annual reviews and updates are accomplished by the installation Natural Resources Manager (NRM), and/or a Section Natural Resources Media Manager. The installation shall establish and maintain regular communications with the appropriate federal and state agencies. At a minimum, the installation NRM (with assistance as appropriate from the Section Natural Resources Media Manager) conducts an annual review of the INRMP in coordination with internal stakeholders and local representatives of USFWS, state fish and wildlife agency, and NOAA Fisheries, where applicable, and accomplishes pertinent updates. Installations will document the findings of the annual review in an Annual INRMP Review Summary. By signing the Annual INRMP Review Summary, the collaborating agency representative asserts concurrence with the findings. Any agreed updates are then made to the document, at a minimum updating the work plans.

INRMP APPROVAL/SIGNATURE PAGES

The information provided in this INRMP demonstrate and keep the Offutt AFB INRMP current in operation and effect for the management of installation natural resources. The accepted and proposed updates are minor edits to provide current information, or adjust timelines that do not result in changes to management goals and objectives that are substantively different than those previously agreed to by the cooperating agencies, and would not result in environmental consequences different from those in the existing INRMP. The execution strategy for the INRMP Work Plan is coordinated with participating agencies, and the agencies have identified projects they have interest in executing. All other implementation will be performed through other authorized acquisition methods.

Integrated Natural Resources Management Plan

Offutt Air Force Base, Nebraska

This Integrated Natural Resources Management Plan (INRMP) meets the requirements of the Sikes Act (16 U.S.C. 670a et seq.) as amended and has been prepared in accordance with regulations, standards, and procedures of the Department of Defense and the United States Air Force. To the extent that resources permit, Offutt Air Force Base will implement the actions associated with this plan and will strive to meet its goals and objectives.

By their signatures below, or an enclosed letter of concurrence, all parties have reviewed this plan and grant their concurrence and acceptance.

GARY D. CHESLEY, P.E. — Date: 17 April 2020

MELISSA MARINOVICH
Asst. Division Administrator,
Planning & Programming Division,
Nebraska Game and Parks Commission — Date: April 6, 2020

DRUE DEBERRY Digitally signed by DRUE DEBERRY Date: 2020.03.19 15:05:21 -06'00'

DRUE DEBERRY
Colorado ES, Region 6, U.S. Fish and Wildlife Service — Date:

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 55TH WING (ACC)
OFFUTT AIR FORCE BASE, NEBRASKA

19 Sep 19

MEMORANDUM FOR 55 CES/CL

FROM: 55 WG/CC

SUBJECT: Delegation Authorization for the Integrated Natural Resources Management Plan (INRMP)

1. In accordance with AFI 32-7064 paragraphs 2.7.1., 2.7.2. and 3.4., approval and signatory authority for revisions and annual reviews of the Offutt AFB INRMP are delegated to the 55th Civil Engineer Director.

2. This supersedes all previous letters, same subject. Please direct any questions to 55 CES/CEIEC at DSN 271-4087.

GAVIN P. MARKS, Colonel, USAF
Commander

cc.
55 CES/CEIE

EXECUTIVE SUMMARY

This Integrated Natural Resources Management Plan (INRMP) employs an interdisciplinary approach to ecosystem management using the expertise and cooperation of the US Air Force and other national government institutions, elected officials of state and local governments, representatives of community interests, and consultants as needed as required by Air Force Instruction (AFI) 32-7064, Integrated Natural Resources Management. This approach provides a comprehensive guide for the protection, management, and development of natural resources at Offutt Air Force Base (AFB). It requires natural resource managers to plan for the future so that ecosystem needs and the Air Force mission remain compatible.

Achieving and maintaining environmental quality is an essential part of the US Air Force mission. Preserving and improving ecosystem integrity and proactively managing natural resources held in public trust are important components of this mission.

The overall goal of natural resources management is to preserve and improve ecosystem integrity as a means of sustaining and enhancing biological diversity while furthering the military mission of the base. To support this goal, the NRM (55 CES/CEIEC) oversees the management of natural resources to sustain the military mission and maintain operational capability and flexibility. This plan integrates all aspects of natural resource management into the mission of Offutt AFB. It provides guidance for management decisions and develops a framework within which program specific operational plans are to be constructed.

This INRMP describes the physical and natural environments at Offutt AFB. Offutt AFB is located in Bellevue, Sarpy County, Nebraska. The base was first established in 1887 as Fort Crook and when the US Air Force was created in 1947, the installation became Offutt Field. Offutt AFB is located in the Omaha-Council Bluffs metropolitan region, with a surrounding population of approximately 900,000 residing in eight counties. The base is in the Missouri River drainage area, with nearby surface water features including the Papillion Creek and Platte River.

Several wetlands are located on Offutt AFB property. These wetlands include both USACE jurisdictional Waters of the US and non-jurisdictional water features.

Management of these wetlands, regardless of jurisdictional status, is done in accordance with E.O. 11990, Protection of Wetlands. The goal of wetlands management at Offutt AFB is to preserve, enhance, and protect existing wetlands.

Offutt AFB is comprised primarily of improved and semi-improved lands. Improved lands include developed areas such as buildings, the flight lines, and the golf course fairways. Semi- improved lands included clear and safety zones on the flightline, picnic areas, and golf course roughs. Vegetation in these areas is maintained for aesthetic and operational purposes, with mowed grasses and landscaped trees and shrubs.

Offutt AFB provides habitat for wildlife that would be typical in an urban environment. Several species of wild mammals are known to exist in Sarpy and Douglas Counties. Many of the mammals that frequent this part of Nebraska would be anticipated to occur at Offutt AFB, including opossum, moles, shrews, raccoons, bats, hares and rabbits, rodents, coyotes, skunks, foxes, and deer. Reptiles and amphibians that frequent the base include snakes, frogs, toads, lizards, and salamanders. Offutt AFB is also located within a migratory bird corridor and as such, several types of birds frequent the area. Songbirds (robins, swallows, sparrows, etc.), waterfowl (ducks, geese, swans), raptors (hawks, eagles, owls, kites, etc.), and other birds species may be found at Offutt AFB, as both migratory and resident populations.

Offutt Base Lake is a relatively small lake that provides recreational fishing for Offutt AFB personnel. The lake is managed with several fish species including smallmouth and largemouth bass, walleye, sunfish, and catfish.

The primary goals of fish and wildlife management at Offutt AFB are to maintain and enhance fisheries resources to provide recreational fishing opportunities and to establish and maintain a wildlife baseline and habitat mapping. All fish and wildlife management will be done in support of the overall base mission to maintain operational capability and flexibility. The Offutt AFB Bird Aircraft Strike Hazard (BASH) program is considered of paramount importance in all natural resources considerations. No wildlife management activities will be in conflict with the BASH plan, nor will wildlife enhancement take place that will be a hazard to aircraft or crew.

Several species afforded protection under the Endangered Species Act are known to occur in eastern Nebraska; however, no federally- or state-listed threatened or endangered species are known to occur on base. The overall goal of natural resources management at Offutt AFB is to maintain and enhance natural resources and habitat in a manner consistent with the military mission. Management of threatened and endangered species would be included with this goal and would include proactive management for these species if found to exist on base.

Invasive species management at Offutt AFB is focused primarily on noxious weed species designated by the Nebraska Department of Agriculture. Several invasive species including purple loosestrife and various thistles were identified. Invader trees, including the Eastern red cedar, tree-of-heaven, and Russian olive species are also known to occur at Offutt AFB. Management of invasive species and invader trees involves control of the occurrence and spread of these species on base. In addition, the aquatic invasive species, zebra mussel, occurs in the base lake. Management of invasive species is an ongoing program.

This INRMP presents both broad philosophical guidance as well as specific goals for each of these natural resources management programs. The focus of the INRMP is on present and future use of the land, the land's role in support of military missions, and its support of human communities. The main objective is to maintain or restore ecosystem integrity. Land management goals will seek to balance military mission support, landscape aesthetics, soil stability and fertility, water and air quality, biological diversity, recreational opportunities, and sustainability of resource production.

1.0 OVERVIEW AND SCOPE

This INRMP was developed to provide for effective management and protection of natural resources. It summarizes the natural resources present on the installation and outlines strategies to adequately manage those resources. Natural resources are valuable assets of the USAF. They provide the natural infrastructure needed for testing weapons and technology, as well as for training military personnel for deployment. Sound management of natural resources increases the effectiveness of USAF adaptability in all environments. The USAF has stewardship responsibility for the physical lands on which installations are located to ensure all natural resources are properly conserved, protected, and used in sustainable ways. The primary objective of the USAF natural resources program is to sustain, restore, and modernize natural infrastructure to ensure operational capability and no net loss in the capability of USAF lands to support the military mission of the installation. The plan outlines and assigns responsibilities for the management of natural resources, discusses related concerns, and provides program management elements that will help to maintain or improve the natural resources within the context of the installation's mission. The INRMP is intended for use by all installation personnel. The Sikes Act is the legal driver for the INRMP.

1.1 Purpose and Scope

This INRMP employs an interdisciplinary approach to ecosystem management that uses expertise and cooperation of the US Air Force and other national government institutions, elected officials of state and local governments, representatives of community interests, and consultants as needed. This approach provides a comprehensive guide for the protection, management, and development of natural resources at Offutt AFB. It requires natural resource managers to plan for the future so that ecosystem needs and the Air Force mission remains compatible. The goal of natural resources management is to preserve and improve ecosystem integrity as a means of sustaining and enhancing biological diversity while furthering the military mission of the base. AFI 32-7064 specifies that the INRMP will define natural resources management goals and objectives that are consistent with the military mission and ensure "no net loss" in the capability of the installation lands to support the military mission.

The goal of the NRM (55 CES/CEIEC) is to manage natural resources to sustain the military mission and maintain operational capability and flexibility. This INRMP identifies the need for an ecosystem model for Offutt AFB that approximates the original natural characteristics of the region. The model provides the standard by which natural resource management practices on the base are developed and progress is measured. This does not mean that a pre-habitation natural environment can or should be restored on any part of Offutt AFB, but this approach highlights the values of respect and preservation of indigenous plant and animal species. Hence, the health of the ecosystem and its identifiable parts receive attention in the plan.

Offutt AFB employs a cooperative approach to natural resources management that uses partnerships and alliances with other governmental and non-governmental agencies. Wildlife and protected species management is done in coordination with the Nebraska Game and Parks Commission (NGPC) and the US Fish and Wildlife Service (USFWS). Offutt AFB also has cooperative agreements with the US Department of Agriculture (USDA) for the Bird Aircraft Strike Hazard (BASH) program. Offutt AFB also strives to maintain its partnership with the National Arbor Day Foundation and other non-governmental organizations.

1.2 Management Philosophy

This INRMP is a guide for ecosystem management at Offutt AFB and was developed under the concept of natural resources stewardship. Stewardship is the management of a resource with the goal of maintaining

or increasing the resource's value indefinitely into the future. The goal of Air Force natural resources stewardship is to manage all aspects of the resource base in such a way that allows for multiple-use, whether for mission training, commercial production, outdoor recreation, aesthetics, or preservation, are compatible with each other and the long-term sustainability and health of the ecosystem in which these activities occur. This is done in a manner ensuring "no net loss" of the capability for the installation lands to support the military mission. Therefore, a comprehensive or holistic approach, rather than a narrow focus are required to manage the resources.

Achieving and maintaining environmental quality is an essential part of the Air Force mission. This commitment extends to:

- Cleaning up environmental damage from past activities
- Proactively managing the cultural and natural resources held in public trust
- Applying environmental standards to all operations and activities to minimize environmental harm
- Protecting the population from air, water, soil, and noise pollution, and, in general
- Preserving and improving ecosystem integrity.

This plan integrates all aspects of natural resource management into the mission of Offutt AFB. It provides guidance for management decisions. It develops a framework within which program- specific operational plans are to be constructed. The Offutt AFB INRMP was developed in an interdisciplinary manner. The intent is that the INRMP will be implemented and revised periodically under the management of the Commander, 55th Civil Engineer Squadron (CES) with input from an interdisciplinary professional team assigned through the installation Environmental, Safety, and Occupational Health (ESOH) Council.

This plan presents both broad philosophical guidance as well as specific goals. The focus of the INRMP is on present and future use of the land, the land's role in support of military missions, and its support of human communities. Maintaining or restoring ecosystem integrity is the plan's objective. Land management goals will seek to balance military mission support, landscape aesthetics, soil stability and fertility, water and air quality, biological diversity, recreational opportunities, and sustainability of any resource production.

This INRMP is a planning tool designed in cooperation with other Offutt AFB planning tools. Specifically, the INRMP supports the Base Comprehensive Plan and General Plan to provide a comprehensive guide for the protection, management, and development of Offutt AFB's natural resources. The INRMP is also compatible with the Offutt AFB Integrated Pest Management Plan (IPMP), BASH Plan, and Airfield Management Plan.

A list of acronyms and general terms are included as Acronyms and Definitions Sections, respectively.

1.3 Authority

This plan is prepared under the authority of the Sikes Act 16 USC § 670 *et. seq*. The Sikes Act establishes policy for conservation of natural resources on military installations. The INRMP is developed under, and proposes actions in accordance with, applicable DoD and USAF policies, directives, and instructions. The Department of Defense Directive (DoDD) 4700.4, DoDi 7310.5, DoDI 4715.3, Air Force Policy Directives (AFPD) 32-70, Air Force Instruction (AFI) 32-7064, and Headquarters (HQ)-Air Combat Command (ACC)/National Environmental Policy Act Manager (A7VS) all provide further guidance on the INRMP.

Refer to the complete listing of AFIs, the Federal Registry and the US Code to ensure that all applicable guidance documents, laws and regulations are reviewed. Installation-specific policies, including state and local laws and regulations are summarized in the table below.

Installation-Specific Policies (including State and/or Local Laws and Regulations)	
State of Nebraska	Nebraska Nongame and Endangered Species Act

1.4 Integration with Other Plans

The Community Planner and the NRM consult on planning projects to determine what potential affect, if any, on natural resources and the natural environment is likely. If a potential adverse effect is identified, practical alternatives are explored to ensure no or minimal net loss of natural resources while still accomplishing the mission.

The INRMP supports the BASH plan in a number of ways. Support includes conducting periodic airfield inspections to detect possible bird and wildlife attractants, developing procedures for removal and control of bird and wildlife attractants, conducting bird and wildlife surveys and making population control recommendations, requesting corrections to environmental conditions that increase BASH potential, modifying airfield habitat consistent with runway lateral and approach zone management criteria, and obtaining appropriate depredation and take permits as needed. The BASH Plan outlines duties and responsibilities of the BASH managers and other agencies in support of the INRMP as it pertains to BASH issues and management. The NRM is a member of the BASH Working Group that meets semi-annually, and reviews the BASH Plan as required.

The IPMP supports the INRMP through the control of four categories of pests:

- household and nuisance pest
- small mammals and birds
- miscellaneous pests
- vegetation management

The IPMP and the Pest Management staff play a key role in controlling populations of wildlife critical to a successful BASH program. The IPMP supports various INRMP goals and the Pest Management staff and the NRM consult as needed on aspects of both plans. The NRM reviews and provides input on the IPMP annually or on an as needed basis.

2.0 INSTALLATION PROFILE

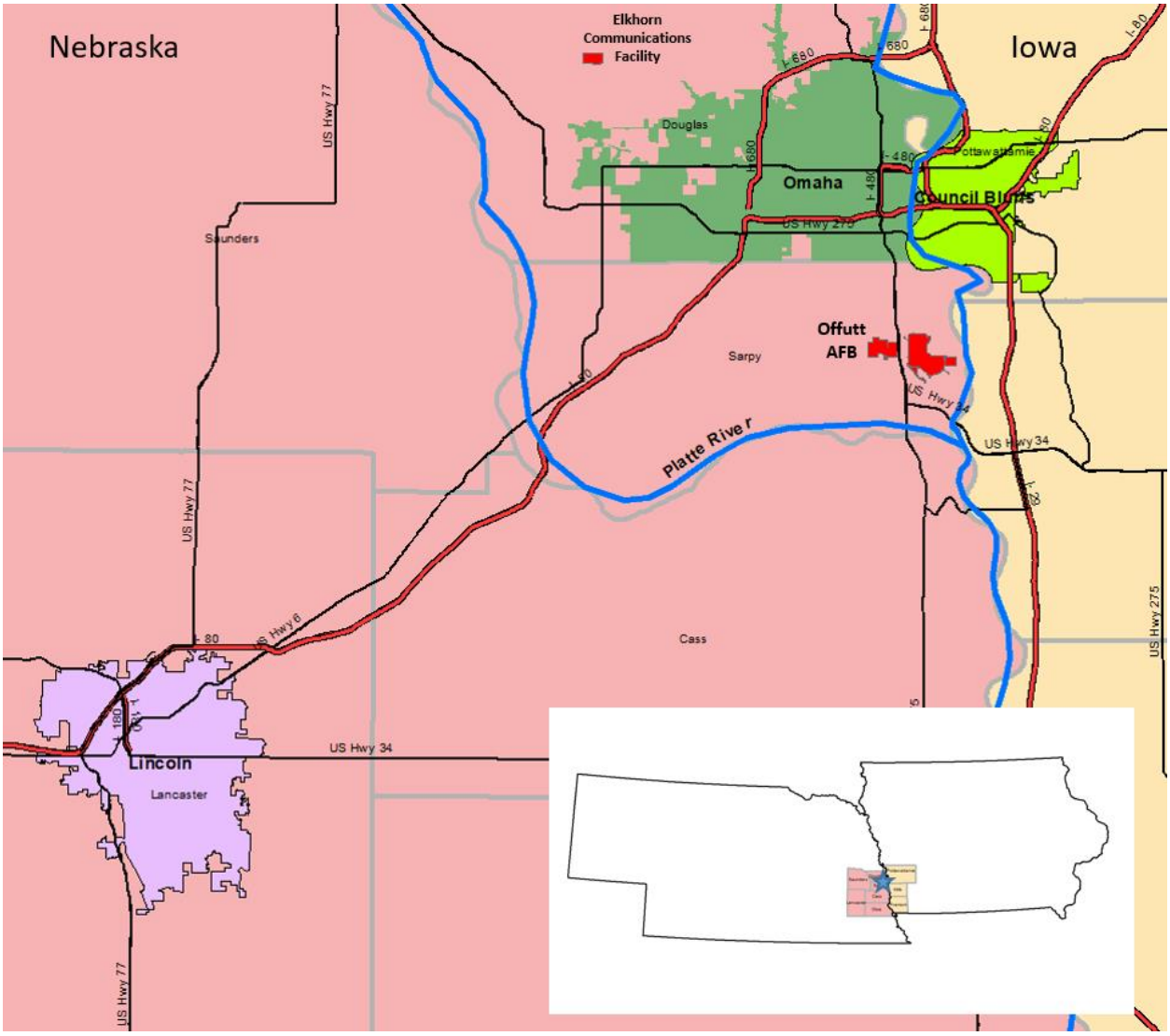
Office of Primary Responsibility (OPR)	55 CES/CEIEC has overall responsibility for implementing the natural resources management program and is the lead organization for monitoring compliance with applicable federal, state, and local regulations.
Natural Resources Manager/Point of Contact (POC)	Name: Ms. Marisa Gibb Phone: (402) 294-4087 Email: marisa.gibb.1@us.af.mil
State and/or local regulatory POCs (Include agency name for Sikes Act cooperating agencies)	Nebraska Game and Parks Commission US Fish and Wildlife Service Nebraska Ecological Services Office
Total acreage managed by installation	3855.2
Total acreage of wetlands	208.226

Total acreage of forested land	N/A
Does installation have any Biological Opinions? (If yes, list title and date, and identify where they are maintained)	N/A
Natural Resources Program Applicability (Place a checkmark next to each program that must be implemented at the installation. Document applicability and current management practices in Section 7.0)	☒ Fish and Wildlife Management ☒ Outdoor Recreation and Access to Natural Resources ☒ Conservation Law Enforcement ☒ Management of Threatened, Endangered, and Host Nation-Protected Species ☒ Water Resource Protection ☒ Wetland Protection ☒ Grounds Maintenance ☒ Forest Management ☒ Wildland Fire Management ☒ Agricultural Outleasing ☒ Integrated Pest Management Program ☒ Bird/Wildlife Aircraft Strike Hazard (BASH) ☐ Coastal Zone and Marine Resources Management ☐ Cultural Resources Protection ☒ Public Outreach ☒ Geographic Information Systems (GIS)

2.1 Installation Overview

2.1.1 Location and Area

Offutt AFB is located south of Bellevue, Sarpy County, Nebraska (Figure Map of Offutt AFB and Surrounding Area). Bellevue has a population of approximately 54,000 individuals and is part of the Omaha-Council Bluffs metropolitan area. Omaha, located along Interstate 80 and the Missouri River, has a total population of approximately 900,000 and is the industrial, commercial, and retail center of the state. Offutt AFB is located along US Highway 75. Aside from the main property at Offutt AFB, satellite locations of Offutt AFB include the Coffman Heights Housing area and the base lake, all of which comprises 1,923 acres of land. Additionally, the Rising View Communities, located approximately 0.5-mile west of the base, is a 793-acre site that includes an 18-hole golf course.



Map of Offutt AFB and Surrounding Area

Installation/GSU Location and Area Descriptions

Installation/ Geographically Separated Unit (GSU)	Main Use/ Mission	Acreage	Addressed in INRMP?	Describe Natural Resource Implications
Offutt AFB	Providing worldwide reconnaissance, real-time intelligence, command and control, information warfare and combat support to national leadership and warfighting commanders	3383.6	INRMP	Bird Airstrike Hazard, Wetlands, Threatened and Endangered Species (T&E), Outdoor Recreation, Invasive Species

Offutt Communications Annex #2	Communications, Agriculture	363.9	Chapter 2.3, 7.5, 7.10	Agriculture Outlease,Invasive Species, Wetlands, and T&E Species
Offutt Communications Annex #3	Communications, Agriculture	107.7	Chapter 2.3, 7.5, 7.10	Agriculture Outlease,Invasive Species, Wetlands, and T&E Species

2.1.2 Installation History

Congress authorized the construction of Fort Crook in December 1887, and upon completion in 1896, the Army 22nd Infantry moved its headquarters to the new 546-acre installation. The advent of the airplane and the demonstration of its military importance in World War I led to a decision to obtain an additional 260 acres of land and establish an air field at Fort Crook in 1920. It was named for Lieutenant Jarvis J. Offutt, an Omaha native, killed during World War I.

In 1941, just prior to World War II, the US government increased the size of the installation and leased over 500 acres of land, including Offutt Field to the Glenn L. Martin Company. Twenty- seven buildings were demolished to make room for an aircraft assembly plant. Over five million cubic yards of soil were removed to facilitate construction of this manufacturing facility. At its peak, 14,572 people worked at the Martin Bomber Plant. Within a year, the first B-26C bomber rolled off the company's production line. Later, B-29 Superfortresses were produced at the plant during the war.

When the Air Force was created in 1947, the installation was renamed Offutt Field. In 1948, the present name, Offutt AFB, was designated. The Strategic Air Command (SAC) moved to Offutt that same year. Significant building programs took place during the "Cold War." The equivalent of a small city was built on fifty newly acquired acres within the confines of the base. This site, known as Wherry came to have 611 units on it. The Wherry housing units have been demolished and replaced by Coffman Heights in the same general area. The famous SAC underground command center and administrative buildings were also constructed during this time. From 1958-1989 a total of 236 non-housing structures were built at Offutt AFB. Capehart Housing was constructed from 1961 to 1967 and has now been replaced by the Rising View Communities.

2.1.3 Military Missions

The US Strategic Command (USSTRATCOM) and Air Combat Command (ACC) began operations at Offutt AFB on 1 June 1992, the day SAC was disestablished (Cultural Resource Survey, 1.23-1.27). This action merged Air Force and Navy strategic nuclear forces under one command. Its mission is to deter attack against the US and its allies. Should an attack occur, USSTRATCOM, under direction of the President, stands ready to deploy its forces. This command relies upon component commanders, including ACC, to be at the ready in order to fulfill the mission.

The 55th Wing at Offutt AFB is the largest in the ACC and also the largest command in the US Air Force. The Offutt AFB mission is "Global information and electronic warfare dominance… Any time. Any place". The role of the 55th Wing and ACC is to provide immediate air combat response to any attack on the US.

Other missions include global reconnaissance, global communications, and operation of Presidential and USSTRATCOM airborne command posts. The 55th Wing consists of the following groups: Communications, Logistics, Medical, Operations, Support, Maintenance, and Wing Special Staff.

Listing of Tenants and Natural Resources Responsibility

Tenant Organization	Natural Resources Responsibility
US Strategic Command	55 CES/CEIE
557th Weather Wing	55 CES/CEIE
595th Command and Control Group	55 CES/CEIE
Defense POW/MIA Accounting Agency	55 CES/CEIE
Heartland of America Band	55 CES/CEIE

2.1.4 Natural Resources Needed to Support the Military Mission

The mission is supported by natural resources to reduce the nuisance hazardous wildlife, increase moral welfare, and for recreation. Offutt AFB open areas reduce vegetation maintenance as well as the leased out agricultural land. The primary mission is to retain resources that would allow for rapid, sustainable air combat power and expeditionary support worldwide. Open space allows for less obstructed evaluations of infrastructure from wetland impacts or natural disasters, such as tornadoes and floods.

2.1.5 Surrounding Communities

The area surrounding Offutt AFB includes a mix of residential (including base housing), commercial, industrial, and agricultural. Offutt AFB is located south of Bellevue, Sarpy County, Nebraska (Figure Map of Offutt AFB and Surrounding Area) and in close proximity to the Omaha-Council Bluffs metropolitan area. Bellevue had a population of 53,627 at the 2018 census, which increased from 50,137 in 2010. Bellevue is bounded on the east by the Missouri River and also the site of the 1,400 acre Fontenelle Forest. Omaha had a population of 468,262 at the 2018 census; however, also including Omaha's suburbs increased the estimate to 935,000. The area surrounding Offutt AFB is continually growing as Omaha is the largest city in Nebraska and the industrial, commercial, and retail center of the region.

2.1.6 Local and Regional Natural Areas

Offutt AFB is located in eastern Sarpy County has a total land area of approximately 247 square miles (158,079 acres) and is in the Great Plains region of the central United States. Of the land area, 241 square miles are land while 7 square miles are water. This area is part of the Iowa and Missouri Deep Loess Hills Resource Area (SCS 1975), which is generally characterized by rolling hills and bluffs along the Missouri River. The Loess Hills are a distinctive topographic region found along the alluvial plain of the Missouri River, which comprises small valleys with narrow floodplains and larger valleys with broad floors. The nearest state park, Lake Manawa State Park, is located across the Missouri River in Iowa. Several city parks are located in Bellevue, Papillion, and Omaha. Elevation of Offutt AFB ranges from approximately 950 to 1,220 feet above mean sea level (msl).

2.2 Physical Environment

2.2.1 Climate

Nebraska has a continental climate characterized by variable temperatures and four distinct seasons. Summers are generally warm to hot with high humidity. July is the warmest month, averaging approximately 77 degrees Fahrenheit (°F) with an average 12 days above 90°F. Winters are cold and dry,

averaging approximately 21°F in January with an average of 30 days below freezing. The highest temperature recorded in Nebraska was 118°F and the lowest was 47°F below zero. Average wind speed ranges from a high of 13 miles per hour (mph) in April to about 9.1 mph in July and August. The region is characterized by violent storms in the spring and summer that often result in tornadoes, hail, and high winds. All of these factors impact the Offutt AFB mission and also result in ecological impacts. Average monthly precipitation ranges from a low of 0.7 inches in January to a high of 4.5 inches in May. Annual precipitation averages approximately 30 inches (Table Climate Summary near Offutt AFB [Omaha, NE]).

Climate Summary near Offutt AFB (Omaha, NE)

Month	Temperature (°F) Average	Relative humidity (Avg. %)		Below 32 °F	Above 90 °F	Precipitation (inches) Average
		A.M.	P.M.			
January	23.3	79	67	29.8	0.0	0.8
February	24.0	78	63	24.3	0.0	1.0
March	40.3	78	60	19.9	0.0	2.8
April	44.9	77	55	6.4	0.5	0.3
May	70.6	81	58	0.2	0.9	2.0
June	77.6	83	60	0.0	5.2	6.9
July	77.5	85	62	0.0	9.7	2.9
August	76.0	87	63	0.0	6.4	9.8
September	69.4	86	62	0.4	3.0	3.5
October	51.6	81	58	4.9	0.1	2.9
November	33.7	81	65	19.1	0.0	3.0
December	29.7	81	69	28.7	0.0	1.0
Annual	**51.6**	**81**	**62**	**133.7**	**25.8**	**29.8**

Note: Source: National Weather Service at Omaha

2.2.2 Landforms

Offutt AFB is located on the Iowa and Missouri Deep Loess Hills Resource Area (SCS 1975), generally characterized by rolling hills and bluffs along the Missouri River. The Loess Hills are a distinctive topographic region found along the alluvial plain of the Missouri River, which comprises small valleys with narrow floodplains and larger valleys with broad bottomlands. The total topographical relief is 270 feet (1,220 feet above msl in the Missouri River bluffs and 950 feet above msl in the southeast corner). Predevelopment surfaces have been greatly modified by construction activities.

Uplands are occupied by narrow ridges separated by narrow valleys. Water erosion has created the existing landscape in the upland areas as individual valleys join to form drainage basins into the Missouri River, Platte River, or Papillion Creek. Most upland areas have moderate slopes (3 to 7 percent) to strong slopes (7 to 11 percent).

Two alluvial valleys are present at Offutt AFB. Each is occupied by perennial streams, the Papillion Creek and the Missouri River. Valley surfaces are nearly level and total relief for alluvial valleys at Offutt AFB is approximately 25 feet. Papillion Creek flows west of Offutt AFB into the Missouri River southeast of the base. The Missouri River is located east of the base. The Missouri River valley is characterized by several small lakes that have been formed by dredging to remove sand and gravel. The base lake was created by sand removal.

A dissected terrace is located near the center of Offutt AFB. Its surface has an elevation between 1,030 and 1,040 feet above msl. A small remnant of the terrace that has not been obscured by construction is located south of the base, west of Papillion Creek. The terrace surface is nearly level; the terrace edges strongly slope.

2.2.3 Geology and Soils

Bedrock in eastern Sarpy County consists of limestone and shale of the Lansing and Kansas City Groups (Missouri Series of the Pennsylvanian System). The depth to bedrock varies throughout the base. Bedrock at the main base varies from less than 30 feet below ground surface (bgs) south of Landfill 4 to 124 feet bgs in the south-central portion of the base. Offutt AFB is located above the south limb of an anticlinal structure related to the Richfield Arch. Pennsylvanian rocks below Offutt AFB are gently folded. The Winterset Limestone located at the City Wide Rock Quarry, three miles south of the Rising View Communities, contains a fault with approximately 4 feet of vertical displacement. The folding of the Pennsylvanian strata may be a result from faulting of Precambrian rocks at this depth. The Humboldt Fault Zone is located approximately 2.5 miles west of Offutt AFB. This is an active fault (Woodward Clyde 1993).

Surficial geology at Offutt AFB is primarily unconsolidated sediments, man-placed fill, and/or concrete and asphalt. Several small areas along the eastern half of the base contain disturbed soils created by sand and gravel quarry operations. Alluvial sediments are located throughout the base. These areas vary in terms of surface materials, but mostly consist of silty sands. All soils located at Offutt AFB generally provide sufficient nutrients to support growth of grasses, woody plants, and trees without the need for intense application of chemicals. In soil series where lime content is high, phosphorous may be added to spur growth. Soils along the southeast end of the runway in the vicinity of the ammunition storage facility and on the banks of Base Lake drain poorly, are elastic, and maintain a high water table during the wet season. The parent material for soils found at Offutt AFB can be grouped in five categories that include:

- Loess: windblown silty clay
- Colluvium: silty clay derived from uplands and redeposited on toe slopes or drainages
- Sandy alluvium: sand with minor silt and clay transported by streams
- Silty colluvium: silt with minor sand and clay transported by streams
- Clayey alluvium: clay with minor sand and silt transported by streams

The soil series association found on base is the: Judson, Marshall, Albaton, Monona, Ida, Onawa, Colo, Hayine, and Wet Alluvial. Cut and Fills soils exist where construction has taken place.

2.2.4 Hydrology

Groundwater may be found at depths as shallow as 10 feet. At the higher elevations of the base, groundwater is located 70 or more feet bgs. Groundwater generally flows from uplands to lowlands. Surface water at the base consists of five drainage basins all flowing into Papillion Creek, the Platte River, or the Missouri River.

Drainage Basin A (North Papillion Drainage) delineates areas that drain to Papillion Creek from the north. Surface runoff flows into perennial and intermittent streams that discharge into Papillion Creek.

Drainage Basin B1 (Missouri-Offutt AFB Drainage) discharges runoff into Missouri River tributaries, the Bellevue Drain, or to low-lying areas of the floodplain. Because of flood protection levees adjacent to the Missouri River, runoff accumulation areas include surface depressions and old riverbeds. Drainage Basin

B2 (Offutt AFB Drainage) discharges runoff to low-lying areas in the southern portion of Offutt AFB and to the East Gate Drain.

Drainage Basin C (South Papillion Drainage) delineates areas that drain to Papillion Creek to the south. Surface runoff accumulates in streams, intermittent streams, and farm ponds. Streams and intermittent streams discharge to Papillion Creek.

Drainage Basin D (Papillion-Missouri Drainage) delineates a floodplain area that drains to Papillion Creek or the Missouri River. Surface runoff collects in low-lying areas or is routed via intermittent streams that discharge to Papillion Creek or the Missouri River.

Drainage Basin E (Platte-Papillion Drainage) delineates areas that drain to the Papillion-Platte River drainage areas. Surface runoff from the upland areas accumulates in streams and intermittent streams before discharging into the Platte River and Papillion Creek. Precipitation from the floodplain areas accumulates in low-lying areas or discharges to Papillion Creek or the Platte River via intermittent streams.

The Offutt AFB Base Lake has approximately 113 surface acres and an average depth of 15 feet. Variations in the elevation of the Missouri River directly affect the lake's surface elevation. The lake was formed from dredging that supplied material for construction on base. Since its formation, concrete riprap has been placed along the bank to stabilize the shoreline. Soil composition of the banks coupled with high usage makes vegetative cover difficult to maintain. Water quality at the base lake is deficient for some species of fish such as trout. Dissolved oxygen levels at a depth of 25 feet are as low as four parts per million, which is generally suitable for most warm water fish species. Monitoring of water that flows into the base lake is necessary to ensure water quality does not degrade because much of the lake's water derives from on-base. Due to the proximity of the runway, runoff into the lake could potential contain petroleum contaminants.

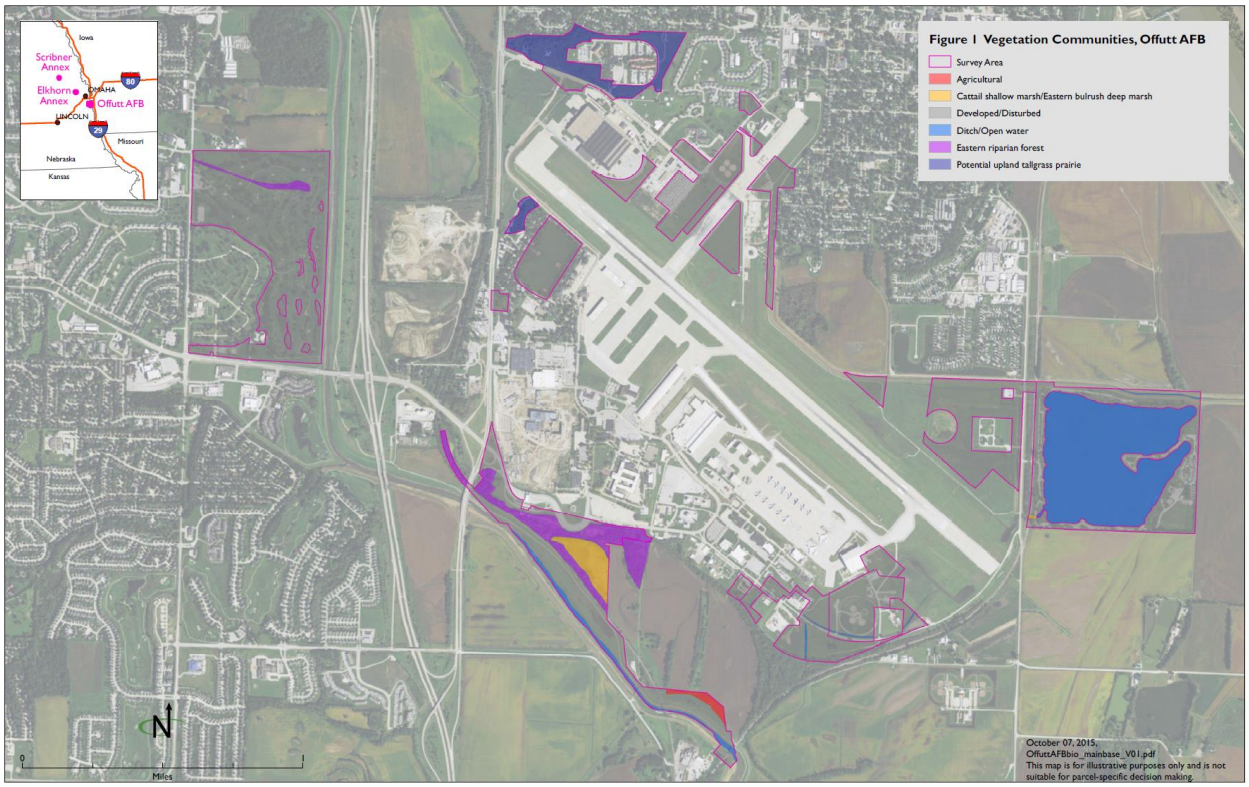
Much of the area presently occupied by Offutt AFB had historically been located within the floodplains of the Missouri River and Papillion Creek. According to the Flood Insurance Rate Maps (FIRM) produced by the Federal Emergency Management Agency (FEMA), Offutt AFB property is not included in the public floodplain mapping although construction of levies by the USACE has nearly eliminated the threat of base flooding (USACE letter dated 01 February 1985).

2.3 Ecosystems and the Biotic Environment

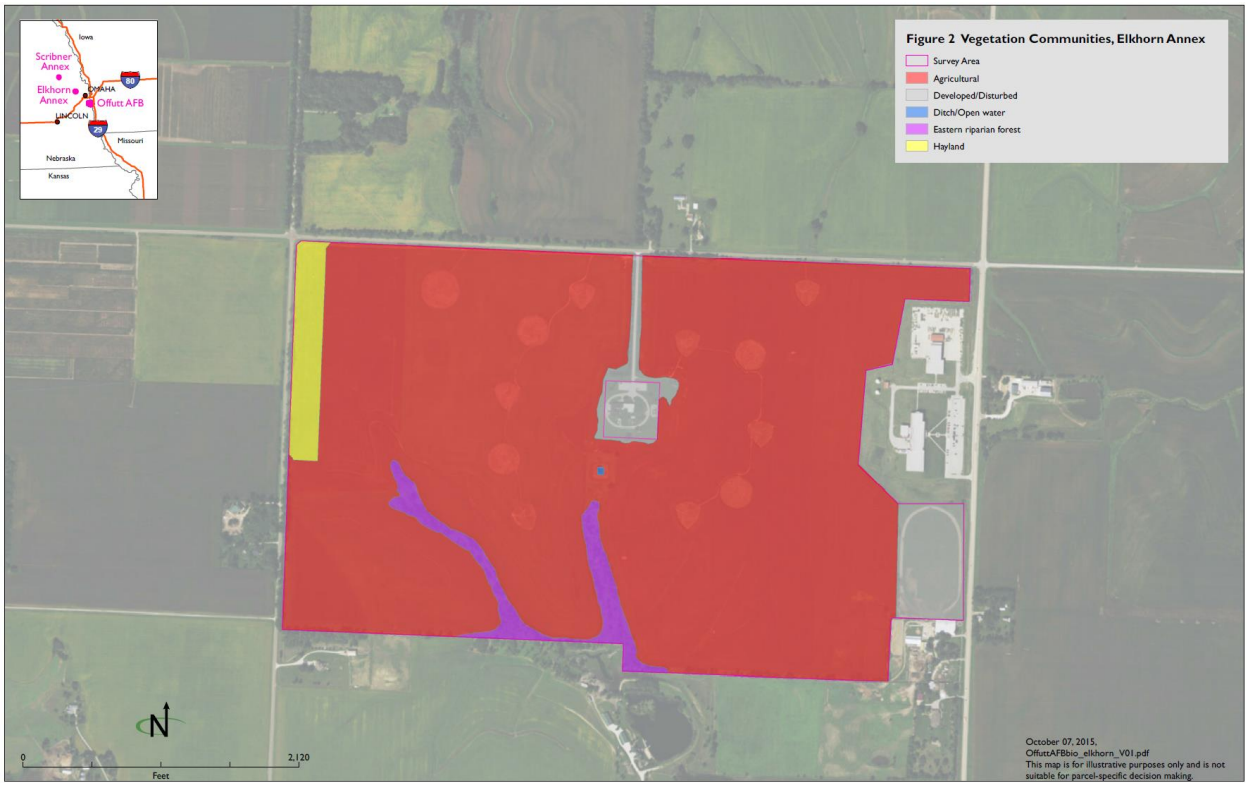
2.3.1 Ecosystem Classification

Offutt AFB is located in the Humid Temperate Domain, Prairie Division, Temperate Prairie Parkland (Central Lowland) Province, according to the National Hierarchical Framework of Ecological Units (Cleland et. al. 1997). Ecological units are used to differentiate biological and physical components. These units and mapping systems are compiled to meet the needs and values of the community. Use of the ecological unit system allows for managing separate land and water areas that have similar capability and potential for natural communities, soils, hydrologic functions, topography, lithology, climate, and natural processes.

Vegetation communities observed in unimproved and semi-improved areas on Offutt AFB are identified (EMPSi, 2015), consistent with the Terrestrial Ecological Systems and Natural Communities of Nebraska (Rolfsmeier and Steinauer 2010).



Offutt AFB Vegetation Communities



Elkhorn Communication Annex 2, Vegetation Communities

Scribner Communication Annex 3, Vegetation Communities

2.3.2 Vegetation

Vegetation will be managed within and around an active airfield to satisfy wildlife abatement objectives. Establishing vegetation cover around the airfield that will reduce the attractiveness to wildlife and support BASH plan objectives promotes military readiness activity.

2.3.2.1 Historic Vegetation Cover

The areas of Sarpy and Douglas Counties in the floodplain of the Missouri River Basin were historically populated with deciduous trees. The area currently occupied by Offutt AFB was part of the Central Lowland Province, which was a tall grass prairie located on the dissected till plain. Vegetation within this province consisted of forest-steppe intermixed with prairies, groves, and strips of deciduous trees. The tall grass prairie was dominated by big bluestem, switch grass, and Indian grass. Along the hillsides and depression were little bluestem and sideoats grama. Deciduous forest has been encroaching on many prairies in this province and much of the land that has been cultivated does not contain original vegetation (US Forest Service 2005).

2.3.2.2 Current Vegetation Cover

Most of Offutt AFB's land has been modified by human development. Significant additions have not been made since the mid- 1950s. The "improved" and "semi-improved" areas of Offutt AFB generally have five types of planted grasses that include brome, creeping red fescue, Kentucky bluegrass, turf type tall fescue, and perennial ryegrass. The golf course is planted with Penncross bentgrass. The "unimproved" lands have a combination of native species such as buffalo grass and blue grama. The various species of trees and

shrubs on Offutt AFB include green ash, silver maple, Austrian pine, Eastern cottonwood, honey locust, juniper, brasswood, crabapple, Norway maple, white ash, Northern Red Oak, Siberian elm, silver maple and Colorado Spruce. Vegetation around the Offutt base lake and other wetland areas include foxtail, duckweed, cattails, bulrush, horsetail, goldenrod, and cottonwood.

Most of the Elkhorn Communication Annex 2 is in actively being used agriculturally, with the exception of two successional riparian woodlands. A ten acre smoot bromegrass pasture exists in the southeast corner of the property. An eight acre grenade range on the northwest side of the annex is primarily comprised of smooth bromegrass and alfalfa.

The Scribner Communication Annex has paved roads and concrete pads used in hay production are located in several areas of the site. Planted trees and volunteer woodlands have become established to form a nearly closed canopy in places. Some of the established trees have been taken down by the Wildland Fire Module team to allow for more prairie space as well as tree falling experience. Most of the site that is not developed is in active hay production, with seeded alfalfa mowed periodically. Excavated drain ditches transport surface and shallow groundwater off-site. There are patches of remnant tallgrass prairie on-site (EMPSi, 2015).

2.3.2.3 Future Vegetation Cover

Future climate changes assessments will provide direction on how to proceed in returning the natural resources on OAFB to the presettlement condition. The need for installation-specific climate data, region-specific climate projections, and land use assessments will all help assess risks, vulnerabilities and adaptation strategies to balance mission requirements as well as address the needs already identified in this INRMP. Climate change will challenge the current natural resource stability. Modern, adaptable climate change assessments will guide changes to lessen the impact and keep the natural resources at Offutt AFB relevant.

2.3.2.4 Turf and Landscaped Areas

Although trees are scarce in turf and landscaped areas, native elm, ash, and cottonwood tree species are the most prevalent in the unimproved areas along fence lines and watercourses. The improved and semi-improved areas are comprised primarily of juniper trees. The Base is divided into zones for landscaping and flora planning. Based upon the 2015 tree survey, there are approximately 4,143 trees at Offutt AFB. The 10 most common trees found on Offutt AFB include the green ash, Eastern cottonwood, ornamental juniper, brasswood, ornamental crabapple, thornless honey locust, Norway maple, red mulberry, Colorado spruce, and Austrian pine.

2.3.3 Fish and Wildlife

Numerous species of wild mammals are known to exist in Sarpy and Douglas Counties. Many of the mammals that frequent this part of Nebraska occur on or near Offutt AFB including opossum, moles, shrews, raccoons, bats, hares and rabbits, rodents, coyotes, skunks, foxes, mink, river otter, and deer.

Reptiles and amphibians that frequent the base include various snakes, frogs, toads, lizards, and salamanders.

Numerous bird species frequent the area surrounding Offutt AFB. Songbirds (robins, swallows, sparrows, etc.) are prevalent throughout the base as both resident and migratory populations. Resident populations of

waterfowl (ducks, geese, swans) are located around nearby grain fields and water bodies. Offutt AFB is located within a migratory bird corridor, thus migratory waterfowl travel in large flocks during spring and fall. Raptors (hawks, eagles, owls, kites, etc.) are often observed. Other bird species include pigeons, shorebirds, blackbirds, and starlings.

The base lake is a relatively small lake that provides recreational fishing for Offutt AFB personnel. Access to the base lake for the general public is prohibited due to installation security and force protection requirements. Since the March 2019 flooding, the base lake has been closed until further notice. The lake has been stocked with several fish species, including smallmouth bass, largemouth bass, walleye, wipers, and channel catfish.

2.3.4 Threatened and Endangered Species and Species of Concern

Five federal and four state listed species have been documented in Sarpy County, but until 2017, the species had not been observed on Offutt AFB property. The federal species include the interior least tern, piping plover, pallid sturgeon, northern long-eared bat, and western prairie fringed orchid; while the state-listed species include the lake sturgeon, sturgeon chub, river otter, and American ginseng (Threatened and Endangered Species Observed in Sarpy County, Nebraska table). Numerous state listed at-risk species also occur in Sarpy County (Appendix State Listed At-Risk Species for Sarpy County, Nebraska).

Threatened and Endangered Species Observed in Sarpy, Douglas, and Dodge County, Nebraska

Listing agency	Common name	Scientific name	Status
Federal			
	Piping Plover	*Charadrius melodus*	FT, ST
	Interior Least Tern	*Sterna antillarum athalassos*	FE, SE
	Pallid Sturgeon	*Scaphirhynchus albus*	FE, SE
	Northern Long-eared Bat	*Myotis septentrionalis*	FT, ST
	Western Prairie Fringed Orchid	*Platanthera praeclara*	FT, ST
State			
	Lake Sturgeon	*Acipenser fulvescens*	ST
	River Otter	*Lontra canadensis*	ST
	Sturgeon Chub	*Macrhybopsis gelida*	SE
	American Ginseng	*Panax quinquefolium*	ST
	Western Massasauga	*Sistrurus tergeminus*	ST

Notes: FE – Federally Endangered, SE - State Endangered, FT – Federally Threatened, SE – State Threatened

Environmental Management and Planning Services (EMPSi, 2015) conducted surveys for terrestrial federal and state T&E species and their habitat on Offutt AFB and the two GSU sites. The purpose of these surveys was to determine if federal or state T&E species or suitable habitat for these species are present in open space, outdoor recreation, grazing land, cropland, and hay land areas of Offutt AFB. Aquatic T&E species surveys were conducted by the USFWS Great Plains Fish and Wildlife Conservation office and included in the EMPSi report to determine the presence or absence of pallid sturgeon, lake sturgeon, river otter, and sturgeon chub. The University of Montana and Tetra Tech, Inc. (Tetra Tech) performed passive acoustic monitoring surveys to examine presence of northern long-eared bats and other bat species at Offutt AFB during June, July, and August of 2016 (CIRE, 2017).

The least tern and piping plover typically nest on sandbars of major rivers, non-vegetated sand piles, and exposed sand shorelines. Low potential; lack of suitable sandbar nesting habitat. No suitable habitat observed during surveys (EMPS, 2015).

The pallid sturgeon is one of the largest fish in the Missouri and Mississippi River systems and was the first fish species from the Missouri River to be protected under the Endangered Species Act. Pallid sturgeon are bottom dwellers found in areas of strong current and firm sand bottom in the main channel of large turbid rivers such as the Missouri River. No potential for occurrence; detected within 2 miles of Offutt AFB in the Missouri River; however, Base Lake is isolated from the Missouri River (EMPSi, 2015).

The northern long-eared bat is one of the species of bats most impacted by the white-nose syndrome disease. Due to declines caused by white-nose syndrome and continued spread of the disease, the northern long-eared bat was listed as threatened under the Endangered Species Act on April 2, 2015. USFWS also developed a final 4(d) rule, which specifically defines the "take" prohibitions. Offutt AFB is within the designated White-nose Syndrome Zone described in the 4(d) rule, but there are no known hibernacula or maternal roost trees on the installation. Northern long-eared bats spend winter hibernating in caves and mines, called hibernacula. During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). Males and non-reproductive females may also roost in cooler places, like caves and mines. Northern long-eared bats seem to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices. This bat has also been found rarely roosting in structures, like barns and sheds. Low potential for occurrence; Offutt AFB has limited forest habitat (EMPSi, 2015). Northern long-eared bats were acoustically detected and confirmed in 2016 (CIRE, 2017); this survey does not meet the USFWS summer survey protocol for the species. There have been formal survey efforts conducted in 2019 to collect the species or identify maternal roost sites but the information has not yet been received.

The western prairie fringed orchid is a federally- and state-listed threatened prairie wildflower that is observed most often in remnant native prairies and meadows, but that has also been observed at disturbed sites. On occasion, it is found in prairies and swales in sand dune complexes fed by shallow underground water. To date, the western prairie fringed orchid has not been observed on Offutt AFB. Low potential of occurrence; no suitable habitat is present at main base or Elkhorn site. Low suitability habitat may be present within depressions in tallgrass prairie habitat at the Scribner site; however, this site is not within the current estimated range of this species (EMPSi, 2015).

The lake sturgeon is found primarily in freshwater lakes and rivers. Lake sturgeon were once abundant in Nebraska lakes and rivers; however, overharvesting, construction of the mainstem dams, and habitat modification have greatly reduced the population. Lake sturgeon have not been observed on Offutt AFB. No potential for occurrence; Base Lake is isolated from the Missouri River (EMPSi, 2015).

Sturgeon chub are typically observed in gravel and rock rapids or sandy areas if gravel is present. No potential for occurrence; detected within 2 miles of Offutt AFB in the Missouri River; however, Base Lake is isolated from the Missouri River (EMPSi, 2015).

The river otter typically occupies large areas of large rivers such as the Missouri River. Although river otters are known to use lakes and ponds, they typically reside alongside rivers and streams. This species has not been observed on Offutt AFB. Low potential for occurrence; may feed on fish stocked in Base Lake, but has never been observed in the vicinity (EMPSi, 2015).

American ginseng is a forest herb that grows in rich, well-drained soils within deciduous forests. The American ginseng has not been observed at Offutt AFB to date. No potential for occurrence; no suitable habitat is present at main base or annexes (EMPSi, 2015).

There is the potential for a third species of sturgeon to be found in the base lake after the Missouri River flooding in March 2019. There have been no formal survey efforts conducted in 2019 to collect the species or identify maternal roost sites.

2.3.5 Wetlands and Floodplains

A wetland is an area inundated or saturated by surface or ground water at a frequency and duration sufficient to support vegetation adapted to an aquatic environment. Three environmental characteristics are associated with wetlands: hydrophytic vegetation that has the ability to grow and compete in anaerobic soil conditions; hydric soil conditions; and water permanently or periodically saturating the soil to a depth of seven feet at some time during the growing season of the prevalent vegetation. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. The National Wetlands Inventory (NWI) is contained on maps produced by the USFWS of the Department of the Interior.

A boundary denoting jurisdictional and non-jurisdictional waterways was identified in 1998 by 55 CES. This boundary was coordinated with the USACE, and in a letter dated 10 February 1998, the USACE concurred that the boundary identified by 55 CES serves as an accurate division for jurisdictional and non-jurisdictional Waters of the US. In a letter dated 17 December 2004, the USACE confirmed an updated boundary of jurisdictional and non- jurisdictional waters at Offutt AFB. This boundary includes most of the main base property, with the exception of the southwestern border of the base and the base lake.

URS Group, Inc. (URS 2009) staff conducted wetland delineations at the Base and satellite properties between 26 May and 28 May 2009. Wetland inventory maps obtained from previous wetland surveys were used to locate each wetland previously recorded. Wetland Determination Data Forms (Midwest Region) obtained from the USACE were used to document existing vegetation, soils and hydrology. Eleven areas were identified and are detailed below in Appendix E. Future wetland surveys are currently being programmed.

The Rising View Communities are located west of Highway 75 and comprises several large tracts of housing, schools, large open areas, and 18-hole Willow Lakes Golf Course. Two wetland features (Cp23 and Cp22) are located in an area near the Lemay Elementary School (Figure Rising View Community NW). Site Cp23 is a small non-jurisdictional drainage area consisting of primarily emergent vegetation that runs through Lemay Elementary School playground. Site Cp22 is a jurisdictional drainage system that runs adjacent to Kennedy Boulevard. The golf course has numerous open water features (water hazards) with associated fringe wetlands and several drainage swales and ditches within its boundary (Figures Rising View Community NE and Rising View Community SE).

2.3.6 Other Natural Resource Information

Invasive species are capable of affecting the structure, organization, or function of ecological systems. For the purposes of this INRMP, fungi and microbes are not discussed. Several animal species such as carp, feral pigeons, European starlings, and house sparrows occur throughout the state and the US. Several invasive animal species occur on Base and control measures are only warranted if the population of the species becomes a nuisance.

The term “invasive” as it pertains to this INRMP will include “noxious” plant species as defined by the Federal Noxious Weed Act. The Nebraska Department of Agriculture (NDA) designates eight plant species

as noxious (NDA 2005). OAFB is in an area of concern for four of the noxious plant species: musk thistle, purple loosestrife, plumeless thistle, and saltcedar.

The NGPC confirmed the presence of zebra mussels in the base lake in April 2006, which was the first confirmed reproducing population of zebra mussels in the state of Nebraska. On 17-18 September 2008 and 7-8 April 2009, the chemical copper sulfate was used in the base lake as an attempt to eradicate zebra mussels from the lake. After repeated sampling, zebra mussels were not detected in the lake after the chemical treatment was completed. However, its presence was suspected in 2013 and confirmed by the USFWS in the spring 2014.

2.4 Mission and Natural Resources

2.4.1 Natural Resource Constraints to Mission and Mission Planning

Wetlands on Offutt AFB have the potential to attract wildlife, which could pose a BASH threat. Monitoring of wetlands and wildlife associated with them is important for ensuring the safety of military flight operations.

Although the federally threatened Northern long-eared bat was confirmed on Offutt AFB (CIRE, 2017), there are no anticipated impacts to primary flight mission based on the 4(d) rule. Impacts to support missions such as grounds maintenance or construction may require additional surveys or delays in action, but any delays would be identified early in the planning process due to regular project coordination and NEPA analysis.

When Offutt AFB experienced mass flooding in Spring 2019, the floodplain was increased as well as the potential for growing wetlands. Scheduled base and environmental projects and surveys were delayed as the flooding covered over a third of the base.

2.4.2 Land Use

The US Air Force has traditionally placed the lands under its care under one of three classes that include Improved, Semi-improved, and Unimproved (Figure Land Classification on Offutt AFB, Nebraska).

The improved lands designation refers to landscape that has experienced significant alteration of natural features. Approximately 400 acres of improved land at present on Offutt AFB including the main base, Elkhorn Communications Annex 2, and Scribner Communication Annex 3 (Rising View Communities are not included in acreage since it has been transferred to America First Communities). In some areas, natural characteristics are not present at all and in other locations a minor resemblance of the natural condition is present. Intensive maintenance activities often occur on these landscapes. Improved areas include buildings, asphalt areas, flight lines, and mowed, green areas that experience high human use. Residential yards, commons spaces, flower gardens, parade grounds, and golf courses greens and fairways are examples of improved green areas.

Semi-improved lands are maintained for aesthetic and operational purposes, but the frequency of tailoring is less than improved areas. Mowing is accomplished as needed at heights considerably above residential standards. Grounds adjacent to runways, taxiways, and aprons are examples. Other examples of semi-improved lands are safety zones, clear zones, rifle and pistol ranges, picnic areas, ammunition storage areas, antenna facilities, and golf course roughs. Approximately 1,088 acres of semi-improved land is present on Offutt AFB including the main base, Elkhorn Communications Annex 2, and Scribner Communication Annex (Rising View Communities are not included in acreage).

Unimproved lands include two types, natural and altered. Natural areas have evidence of human activity, but contain some habitat and contours indigenous to the area. No land at Offutt AFB would be considered natural. Land that is mowed annually at heights considerably above residential norms are identified as altered. Forested areas, the area beyond flightline safety zones, and land adjacent to water courses and ponds are examples of altered lands. Strips of land around the base lake qualify as unimproved although they are maintained and impacted by man. The unimproved, altered areas have more characteristics of the regional ecosystem model (the basis for the INRMP) than any other land classification. Approximately 4.2 acres of unimproved land is present on Offutt AFB including the main base, Elkhorn Communications Annex 2, and Scribner Communication Annex (Rising View Communities are not included in acreage).

Land Classification on Offutt AFB, Nebraska

2.4.3 Current Major Mission Impacts on Natural Resources

The operation of Offutt AFB could potentially result in wide ranging impacts to the environment, similar to those impacts that would be expected from a medium sized city. Impacts on natural resources could include, but are not limited to:

- Nuisance wildlife interactions
- Storm water runoff into lakes, streams, and rivers
- Potential for soil and groundwater contamination, including construction sites and grounds maintenance
- Air pollution from aircraft, vehicle operations, and chemical use
- Noise pollution from aircraft, vehicles, construction, and lawn maintenance equipment
- Storage, use, and transportation of hazardous materials, hazardous waste and non-hazardous waste
- Management of Environmental Restoration Program (ERP) sites

Actual current impacts are more designated to programs involving bird strikes and water pollution. Natural resources management is a continually changing process and involves balancing multiple-use with the principle of sustained yield. The requirements of operating a combat ready force necessitates the handling of fuels and other petroleum products, hazardous and toxic chemicals, paints, munitions, and other products which pose direct and indirect dangers to people and the environment. The goal of 55 CES/CEIEC is to manage natural resources to sustain the military mission and maintain operational capability and flexibility.

Water Pollution

Offutt AFB discharges its wastewater into the City of Omaha sanitary sewerage system. A wastewater discharge permit or any pre-treatment is not required.

Storm water runoff pollution is a closely monitored aspect of the Offutt AFB environmental program. A National Pollutant Discharge Elimination System (NPDES) Permit for construction is required for all construction projects greater than one acre in size. Offutt AFB has two NPDES permits, one Small Municipal Separate Storm Sewer System (sMS4) permit managed by the Storm Water Management Plan (SWMP), and the other is a general Industrial Storm Water permit (ISW) managed by a Storm Water Pollution Prevention Plan (SWPPP) required by NDEE. The stipulations of the permit outline the responsibilities of contractors and base personnel in minimizing erosion and discharge of pollutants through surface water runoff.

BASH

BASH Program is based on hazards from resident and migratory bird populations (AFI 91-212). There is no single solution to minimize BASH threats, but identifying high risk situations to alter flying operations and reducing the appeal of the airfield will make personnel more knowledgeable on the threat.

2.4.4 Potential Future Mission Impacts on Natural Resources

Any potential future mission impacts on installation natural resources are not known at this time. Mission projects, including flight line construction and repairs after the 2019 flood, will be monitored for natural resource impacts.

3.0 ENVIRONMENTAL MANAGEMENT SYSTEM

The USAF environmental program adheres to the Environmental Management System (EMS) framework and its Plan, Do, Check, Act cycle for ensuring mission success. Executive Order (EO) 13693, *Planning for Federal Sustainability in the Next Decade*; DoDI 4715.17, *Environmental Management Systems*; AFI 32-7001, *Environmental Management*; and International Organization for Standardization (ISO) 14001 standard, *Environmental Management Systems – Requirements with guidance for use*, provide guidance on how environmental programs should be established, implemented, and maintained to operate under the EMS framework.

The natural resources program employs EMS-based processes to achieve compliance with all legal obligations and current policy drivers, effectively manage associated risks, and instill a culture of continual improvement. The INRMP serves as an administrative operational control that defines compliance-related activities and processes.

4.0 GENERAL ROLES AND RESPONSIBILITIES

General roles and responsibilities that are necessary to implement and support the natural resources program are listed in the table below. Specific natural resources management-related roles and responsibilities are described in appropriate sections of this plan.

Office/Organization/Job Title (Listing is not in order of hierarchical responsibility)	**Installation Role/Responsibility Description**
Installation Commander	The Wing Commander (WC) is responsible for ensuring that base assigned and tenant units comply with laws and requirements associated with the management of natural resources. The WC or designee approves the INRMP and any necessary revisions, provides appropriate funding and staffing to ensure implementation of the INRMP, controls access to and use of installation natural resources, and signs cooperative agreements entered into between the installation and other entities pursuant to the Sikes Act.
AFCEC Natural Resources Media Manager/SME/Subject Matter Specialist (SMS)	Coordinates with installation NRM/points of contact (NR POC) to: identify changes and provides technical assistance to each respective base's program; changes to execution strategy (to include accomplishing in-house) and/or execution agent; provides and manages contracts/agreements; confirm funding amounts, distribution date, and mission/situational changes that may initiate the emergent requirement process; administers training, both wildland fire and records for AF conservation law; as well as serve as liaison with the AFWFC (AFCEC/CZOF) on all matters pertaining to coordination of support activities of the AFWFC with installation POCs.
Installation Natural Resources Manager/POC	The NRM, 55 CES/CEIEC is responsible for completing the annual INRMP review and coordination, maintaining a compliant INRMP, tracking permits, reports and programs, and micropurchase procurement related to natural resources.
Installation Security Forces	Cooperatively enforces state fish and wildlife laws with Nebraska Game and Parks Commission. Primary enforcement is through access control and encroachment enforcement.
Installation Unit Environmental Coordinators (UECs); see AFI 32-7001 for role description	The UEC will serve as the EMS conduit between the installation environmental function and their unit. They will attend the Cross-Functional Team (CFT) meeting and advise the work area supervisor on any EMS and environmental policies. They will manage and monitor the EMS requirements to provide environmental and sustainability performance indicators to the installation. UECs will support EMS inspections and assist with developing corrective actions to identify findings, and maintain a continuity binder to ensure turnover documentation.
Installation Wildland Fire Program Manager	Responsibilities include development, updates and implementation of the Wildland Fire Management Plan. The WFPM may approve plans for prescribed burns if minimally qualified as a RXB2 Type 2 Burn Boss.
Pest Manager	The Offutt Pest Management Coordinator should regularly coordinate with the NRM concerning insect, rodent, bird, plant,

Office/Organization/Job Title (Listing is not in order of hierarchical responsibility)	**Installation Role/Responsibility Description**
	and predator pest concerns in Semi-improved and Unimproved areas to evaluate and recommend integrated solutions to benefit natural resources and control pests.
Range Operating Agency	The Range Operating Agency will determine the availability of outgrant lands on military training and testing ranges IAW guidelines in AFI 13-212. The agency will review ag outgrant documents and their associated land use rules.
Conservation Law Enforcement Officer (CLEO)	Enforcement of state fish and wildlife laws will be a cooperative effort between the NGPC and the 55th Security Forces Squadron (SFS). The CLEO will provide for the enforcement of laws for the protection of natural and cultural resources on military installations. A formal cooperative agreement is not currently in place but if a situation presents itself the Air Force is committed to working in cooperation with the USFWS or NGPC conservation officers.
National Environmental Policy Act (NEPA)/Environmental Impact Analysis Process (EIAP) Manager	Work with the ISS NRM to ensure that activities that may affect NR are fully considered in compliance with NEPA.
NOAA)/ National Marine Fisheries Service (NMFS)	Consultant for the survey methodology, scope, and species considered in the inventory on the ISS, as well as preparation and implementation of an INRMP.
US Forest Service	Maintain and enhance the ecological integrity of forested landscapes while supporting the military mission, review funding requests, and manages Cooperative Agreements as needed.
USFWS	The US Fish and Wildlife Service (USFWS), Great Plains Fish and Wildlife Conservation Office provide project level assistance for management, inventory, and natural resource planning on the installation. This relationship is formalized through an inter-agency assistance agreement for conservation of natural resources on Air Force controlled lands. The staff assistance provided aides Offutt AFB with maintaining Sikes Act compliance to ensure sufficient professionally trained natural resources management personnel are available to prepare and implement the INRMP.
Vice Wing Commander/ESOH Council Chair	The ESOH Council provides senior leadership input and guidance for environmental programs at Offutt AFB and is chaired by the Vice Wing Commander. They review updates from AFCEC/CZ and provide direction to the ISS Commanders. eDASH is utilized for reporting and analysis tools, then inspection requirements are tracked to accomplishment. An annual review is completed with AFCEC/CZ.
USDA-APHIS-WS Biologist	Regularly coordinate with the NRM concerning insect, rodent, bird, and predator pest concerns in Semi-improved and Unimproved areas to evaluate and recommend integrated solutions to benefit natural resources and control pests.

5.0 TRAINING

USAF installation NRMs/POCs and other natural resources support personnel require specific education, training, and work experience to adequately perform their jobs. Section 107 of the Sikes Act requires that professionally trained personnel perform the tasks necessary to update and carry out certain actions required within this INRMP. Specific training and certification may be necessary to maintain a level of competence in relevant areas as installation needs change, or to fulfill a permitting requirement.

Installation Supplement – Training

Natural resources management training is provided to ensure that base personnel, contractors, and visitors are aware of their role in the program and the importance of their participation to its success. Training records are maintained IAW the Recordkeeping and Reporting section of this plan. Below are key NR management-related training requirements and programs:

- NRMs at Category I installations must take the course, DoD Natural Resources Compliance, endorsed by the DoD Interservice Environmental Education Review Board and offered for all DoD Components by the Naval School, Civil Engineer Corps Officers School (CECOS).
- All individuals who will be enforcing fish, wildlife and natural resources laws on AF lands must receive specialized, professional training on the enforcement of fish, wildlife and natural resources in compliance with the Sikes Act. This training may be obtained by successfully completing the Land Management Police Training course at the Federal Law Enforcement Training Center (http://www.fletc.gov/)
- Personnel supporting the BASH program should receive flight line drivers training, training in identification of bird species occurring on airfields, and specialized training in the use of firearms and pyrotechnics as appropriate for their expected level of involvement.

6.0 RECORDKEEPING AND REPORTING

6.1 Recordkeeping

The installation maintains required records IAW Air Force Manual 33-363, *Management of Records*, and disposes of records IAW the Air Force Records Management System (AFRIMS) records disposition schedule (RDS). Numerous types of records must be maintained to support implementation of the natural resources program. Specific records are identified in applicable sections of this plan, in the Natural Resources Playbook, and in referenced documents.

Installation Supplement – Recordkeeping

There are no other installation specific process for Offutt AFB recordkeeping.

6.2 Reporting

The installation NRM is responsible for responding to natural resources-related data calls and reporting requirements. The NRM and supporting AFCEC Natural Resources Media Manager and SMS should refer to the Environmental Reporting Playbook for guidance on execution of data gathering, quality control/quality assurance, and report development.

Installation Supplement – Reporting

There are no other installation specific process for Offutt AFB reporting.

7.0 NATURAL RESOURCES PROGRAM MANAGEMENT

This section describes the current status of the installation's natural resources management program and program areas of interest. Current management practices, including common day-to-day management practices and ongoing special initiatives, are described for each applicable program area used to manage existing resources. Program elements in this outline that do not exist on the installation are identified as not applicable and include a justification, as necessary.

Installation Supplement – Natural Resources Program Management

The overall responsibility of every program at Offutt AFB lies with the Wing Commander who oversees all groups and squadrons, including the CES that manages the natural resources program and guidelines established by 55 CES/CEIEC AFI 32-7064, Section 6.4. The 55 CES is in the Mission Support Group, which is under the authority of the Group Commander.

The NRM, 55 CES/CEIEC is responsible for completing the annual INRMP review and coordination, maintaining a compliant INRMP, tracking permits and reports, and micropurchase procurement related to natural resources.

The 55 WS/SEG maintains an agreement with USDA-APHIS-WS wildlife biologist and wildlife technician. These partners support INRMP projects by providing wildlife and habitat inventory information. Significant coordination and input related to fish and wildlife management is required from the partners to accurately account for BASH relationships.

The Air Force Civil Engineering Center, Environmental Management Directorate, Midwest Branch (AFCEC/CZOM) houses a Natural Resources Media Manager (NRMM) at Offutt. The NRMM provided Natural Resources project agreement coordination, INRMP annual review assistance, and technical guidance to the NRM, 55 CES/CEIEC.

The US Fish and Wildlife Service, Nebraska Ecological Services Field Office (Ecological Services), serves as the lead collaborating agency for Annual INRMP Review and Coordination for Offutt. Ecological Services also serves a cooperating agency for INRMP revisions; signature authority is designated from the USFWS Mountain-Prairie Region Director to the Ecological Services Supervisor.

The Nebraska Game and Parks Commission (NGPC) is the collaborating state agency for Annual INRMP Review and Coordination. NGPC Director's signature is required for approval of INRMP revisions. Offutt AFB coordinates with NGPC concerning rare and threatened species through the Nebraska Natural Legacy Program. NGPC assists with a wildlife management guidance and nuisance species control recommendations.

The Nebraska Invasive Species Project is a state agency, natural resources stakeholder. Since some of the most imminent threats to natural resources at Offutt AFB are associated with control and containment of invasive species, frequent coordination, outreach, and monitoring occurs.

USFWS Great Plains Fish and Wildlife Conservation Office provide project level assistance for management, inventory, and natural resource planning on the installation.

Fishing at Offutt AFB has been authorized at Offutt Base Lake. Hunting and non-consumption resource uses have projects being evaluated for potential awarding.

7.1 Fish and Wildlife Management

Applicability Statement

This section applies to all USAF installations that maintain an INRMP. The installation is required to implement this element.

Program Overview/Current Management Practices

The primary goal of fish and wildlife management is to protect and improve fish and wildlife species without creating conditions likely to cause bird-aircraft strike hazards. By maintaining and enhancing fisheries resources at Offutt Base Lake, recreational fishing opportunities are available. Other important management goals include maintaining wildlife baselines, map habitat, and native species, but also protecting migratory birds and waterfowl.

Offutt Base Lake is the only source of aquatic recreation for Offutt AFB. The lake contains numerous species of fish including game fish (e.g., black bass, catfish, crappie, sunfish), rough fish (e.g., buffalo, carp, gar), and nuisance species (e.g., white perch). The lake is managed primarily for recreational fishing opportunities. Management activities include fisheries surveys, fish stocking, and fishing regulations. Surveys have been conducted by private consultants in the past (Farmers National Company, Omaha, NE) but beginning 2014, the USFWS (Pierre, SD) conducted the fish population surveys (James, D. 2016). Generally, after the surveys, data are analyzed and recommendations are made regarding stocking and future management of the fisheries. Fishing regulations for Offutt Base Lake follow the state of Nebraska's standard regulations. A formal fisheries management plan will be developed after adequate baseline inventory is complete for Offutt Base Lake; additional restrictions for zebra mussel predatory species are being considered.

Recreational fishing is popular at the Offutt Base Lake and allowed for active-duty, retired military, DoD civilian personnel and their families only. While archery fishing permits have not been implemented yet, authorizing the sport would help improve the fishery as recommended by Dr. Dan James from FWS by reducing non-sport fish populations. Long-term planning for archery fishing procedures and licensing fee revenues will be organized after approval. All anglers must purchase a state of Nebraska fishing license in addition to an Offutt AFB fishing license. As of 2014, the cost of an Offutt AFB fishing license was $6 per calendar year (1 January - 31 December). From these fees, $5 funds an account for fisheries management purposes (e.g., fish stocking) and $1 funds the Outdoor Recreation Boathouse administrative account for program overhead (e.g., printing licenses).

Fish habitat requirements are currently being evaluated through baseline surveys of Offutt Base Lake. A fisheries management plan is programmed. This management plan will describe fish habitat requirements and provide habitat improvement recommendations.

Hunting and trapping are prohibited on Offutt AFB property. Access and Participation are described in 7.2 of this INRMP.

The primary nuisance species in the base lake is the invasive zebra mussel (*Dreissena polymorpha*; see section 5.6). Because zebra mussels are filter feeders, they can detrimentally affect lake ecosystems by consuming mass quantities of phytoplankton and disrupting the trophic transfer of energy (i.e., food

chain) and ultimately result in decreased growth and survival of fish. The NGPC confirmed the presence of zebra mussels in the base lake in April 2006. In 2008 and 2009, a copper sulfate chemical treatment was used to attempt to eradicate zebra mussels from the lake and after repeated sampling, zebra mussels were not detected in the lake after the chemical treatment was completed. However, their presence was again suspected in 2013 and then confirmed by the USFWS in the spring 2014 (James, et. al, 2015).

Beaver are also considered a nuisance species when present on the main base and Offutt Base Lake. Based on their forage and habitat needs, beaver will likely cause safety hazards with tree felling around Offutt Base Lake and block drainage necessary to reduce wetland habitat near the airfield. Permit authorization for beaver removal will be obtained from the NGPC and removal will be performed by USDA-APHIS-WS. If beaver activity is observed at the Elkhorn Communication Station the collaborating agencies will assist to determine nuisance status. Removal action may not be warranted if wetland habitat is enhanced.

Bat projects to identify populations are being evaluated to increase information on the species residing in or around Offutt AFB areas as well as potential for white nose syndrome affliction. Controlling bat populations not only helps maintain the ecosystem integrity, but also control insect numbers.

Wildlife requirements for wildlife are generally passively managed at Offutt AFB and will benefit generalist species that persist in highly manipulated ecosystems and urban/cropland interfaces. Sections 7.8 and 7.13 describe management of incidental habitat areas and mission related limitations to management.

7.2 Outdoor Recreation and Public Access to Natural Resources

Applicability Statement

This section applies to all AF installations that maintain an INRMP. Offutt AFB **IS** required to implement this element.

Program Overview/Current Management Practices

The 55th Force Services Squadron (FSS) manages the outdoor recreation assets of Offutt AFB. The 55 CES provides technical support to the FSS in project planning, design, and construction of outdoor recreation improvements. The goal the 55 FSS is to enhance combat readiness, retention and morale through programs promoting well-being and quality of life for Offutt AFB personnel and their dependents. The quality of the outdoor recreational experience will be achieved by the development, management, and maintenance of the improved, semi-improved, and unimproved multi-use lands on Offutt AFB.

Access Categories for Offutt AFB

Offutt outdoor recreation is highlighted by the Offutt Base Lake, a 113-acre lake and 70-acre park geographically separated from the main base. The facilities are restricted access but include a large indoor pavilion, four covered park shelters, disc golf course, archery range, sand volleyball courts, basketball court, horseshoe pits, and playground equipment. There is a parking area that offers hookups for water, sewer and electricity for RVs, but ORVs are not allowed within the natural resource areas of Offutt AFB. The access restriction is a prevention measure to reduce the spread of zebra mussels; restricting the participant category allows internal media outlets to ensure awareness of rules and restrictions not common to the rest of the state. Access is restricted to Active Duty Military, Department of Defense Civilians, Active Duty Military Dependents and Family Members, Military Retirees, Department of Defense Civilian Retirees, and Employees of Offutt AFB Prime Contractors. Willow Creek is the one 18-hole Robert Trent Jones designed golf course that is located off base across from the Rising View Communities.

Offutt AFB has operated as a restricted access base. The main base, Elkhorn Communication Annex 2, and Scribner Communication Annex are designated Off Limits Areas for recreational hunting, fishing, trapping and dispersed outdoor recreation by any person at any time. The unimproved lands on the main base are fragmented, inaccessible, or require mission related security. The unimproved areas are separated by the runway; hunting, trapping, or dispersed outdoor recreation activities in these areas would flush loafing wildlife increasing probability of BASH incidents. Impacts of hunting, trapping, and recreational outdoor access in Elkhorn and Scribner must be evaluated and added to the agricultural Outgrant contracts prior to authorizing access to the sites. If determined compatible with the Outgrant, operational security and safety must also be considered prior to approval of hunting and trapping. Nebraska fishing permits are required as well as Offutt AFB permits. Hunting permits will follow the same standards.

7.3 Conservation Law Enforcement

Applicability Statement

This section applies to all USAF installations that maintain an INRMP. The installation **IS** required to implement this element.

Program Overview/Current Management Practices

Enforcement of state fish and wildlife laws will be a cooperative effort between the NGPC and the 55th Security Forces Squadron (SFS). A formal cooperative agreement is not currently in place but if a situation presents itself the Air Force is committed to working in cooperation with the USFWS or NGPC conservation officers. The Wing Commander will provide reasonable access to federal and state conservation officers and may designate fish and wildlife enforcement authority to military or civilian personnel only if the person has either been certified in conservation law enforcement through training at the Federal Law Enforcement Training Center or by commission as a fish and wildlife conservation officer in Nebraska. Law enforcement personnel that do not possess such certifications may be used to supplement fish and wildlife law enforcement under the supervision of certified personnel.

The right to enter Offutt AFB or any Offutt AFB permit may be revoked at any time by the 55 WG/CC or designated representatives for violation of Offutt AFB regulations, federal or state law, or for any reason deemed necessary or advantageous to the United States Air Force.

The Director, 55 Civil Engineer Squadron (55 CES/CL) will be responsible for all aspects of the management of fish, wildlife, and dispersed outdoor recreation on Offutt AFB and the development of the INRMP. The 55 CES/CEIEC will carry out the day-to-day activities at the direction of 55 CES/CL.

The 55 SFS/CC and the 55 CES/CL will jointly coordinate law enforcement and 55 CES responsibilities for the protection of fish, wildlife, their habitats, and related natural resources. The 55 SFS will respond to notifications of violations to this regulation within the confines of Offutt AFB and will contact 55 CES/CEIEC for disposition of the situation and release for further actions (if necessary).

The 55 SFS will detain suspected violators of state and federal game regulations, when reported, until arrival of state/federal conservation enforcement agencies. The 55 SFS will release potential offenders after a sufficient wait period for the above named agencies to arrive on scene.

The Staff Judge Advocate ensures these regulations are in compliance with DoD, federal, state, and local laws.

7.4 Management of Threatened and Endangered Species, Species of Concern, and Habitats

Applicability Statement

This section applies to AF installations that have threatened and endangered species on AF property. This section **IS** applicable to Offutt AFB..

Program Overview/Current Management Practices

State and federal-supplied lists of protected species known to reside in Sarpy, Douglas, and Dodge County and the vicinity of Offutt AFB are provided and continually updated by the NGPC and the USFWS through annual INRMP coordination. Conservation work addressed in the Nebraska Natural Legacy Project from

NGPC give direction for work plans for the Natural Resource media at Offutt AFB. Nebraska Game and Parks created a State Wildlife Action Plan that helps identify projects for Biologically Unique Landscapes and Offutt AFB will use that leadership to move forward with such plans.

Contracted surveys for terrestrial federal and state T&E species occurred in 2015; the survey did not identify any T&E species or suitable habitat on Offutt AFB within current ranges of species (EMPSi, 2015). The contracted survey did not survey for Northern long-eared bat although a general habitat assessment was completed and determined there is low potential for occurrence due to limited forest habitat. The USFWS Great Plains Fish and Wildlife Conservation Office conducted an aquatic T&E species surveys in 2015 to determine the presence or absence of pallid sturgeon, lake sturgeon, river otter, and sturgeon chub.

An acoustic survey to identify the presence of Northern long-eared bats occurred in 2016 (CIRE, 2017). The survey did confirm acoustically that northern long-eared bats are present or are using perimeter areas of the main base and Offutt Base Lake. These surveys did not collect information from Elkhorn or Scribner.

Prior to 2015, records of Section 7 consultations, biological opinions, and other USFWS coordination have not been prepared for actions on Offutt AFB because federal action involving threatened and endangered species has never occurred on the base. There are no protected species recovery plans involving Offutt AFB.

Due to the 2 April 2015 threatened listing of the Northern long-eared bat, Offutt AFB enter into informal consultation with USFWS Ecological Services. It was determined there is a lack of suitable habitat on the main base area for the species. Based on the confirmation of the species presence in 2017 (CIRE), additional guidance beyond the 4(d) rule has been requested from the USFWS. As guidance is provided, projects will be incorporated into the INRMP. There is potential to plan critical habitat surveys in the future. The NRM will continue to provide guidance when assessing projects and initiate Section 7 consultation when necessary.

Based on a collaborative assessment between the NRM, AFCEC NRMM, and USDA-APHIS-WS Biologist it was determined any habitat modification that would increase bat habitat on base would increase the risk of aircraft strikes and potential mission degradation. The same mission related concerns do not exist at the Scribner Communication Annex 3 or Elkhorn Communication Annex 2; projects to benefit listed, candidate, and non-listed bat species may be considered at these locations in the future. The bat habitat will be programed in 2020 for future executed by the USFWS Ecological Services to inventory inherit habitat values and propose improvements to benefit bat and pollinator habitat near the A2 wetland area. Improvement projects in this area will be thoroughly coordinated with USDA-APHIS-WS prior to implementation.

Offutt AFB manages for bat and pollinator habitat in unimproved areas. These areas contain live trees and snags and pesticide use is generally limited to spot spraying of noxious weeds. Further surveys determining the existence of the Northern long-eared bat as well as the tricolored bat are needed.

The Northern Long-eared Bat (*Myotis septentrionalis*) has a 3-3.7 inch body length with a wingspan of 9-10 inches. The back fur is medium to dark brown while the underside is lighter brown. The bat is distinguished by longer ears than other bats.

The Tricolored Bat (*Perimyotis subflavus*), a smaller bat, weighing 0.2-0.3 ounces has a wingspan of 8-10 inches. The “tricolored” name refers to dark base and tips with a yellow-brown middle. The face and ears are pinkish with a more distinct pink color on skin at the radius bones.

Grassland management practices to benefit monarch butterflies on agricultural outlease sites are described in Section 7.10 of this plan. A project funded in 2017 assessed a baseline milkweed inventory along the south edge of Offutt AFB. Further observations are needed, but by controlling the vegetation and opening up some habitat, pollinator habitats could be created.

7.5 Water Resource Protection

Applicability Statement

This section applies to AF installations that have water resources. This section **IS** applicable to Offutt AFB.

Program Overview/Current Management Practices

The purpose of floodplain management is to manage floodplain resources to reduce the risk of flood loss, minimize impacts of floods on human safety, health, and welfare, and preserve and enhance the natural and beneficial values of floodplains. Development activities that will occur in, or could adversely affect floodplains, require compliance with the EIAP and E.O. 11988 "Floodplain Management" prior to implementing an action. Proponents shall, during initial planning and design, reduce the risk of flood loss; minimize the impact of floods on human safety, health and welfare and the Air Force mission; and restore or preserve the natural and beneficial values served by floodplains.

The recent flooding at Offutt AFB during the spring of 2019 has produced the necessity for aquatic surveys. The new lowlaying lands and wetlands created should be assessed to be able to accurately maintain the areas and the effects it will have on the mission The construction of levees by the USACE as well as updates from PMNRD has helped with flooding damage, but more information is needed to be better prepared in a flooding situation. Flooding impacts are more likely to occur with sustained high water levels on the Missouri River. There is a correlative groundwater interface with the Missouri River and the levee protected floodplain (Hedman and Jogensen, 1990).

7.6 Wetland Protection

Applicability Statement

This section applies to AF installations that have existing wetlands on AF property. This section **IS** applicable to Offutt AFB.

Program Overview/Current Management Practices

Significant federal statutes and orders relative to wetlands management for Offutt AFB include the CWA of 1977, as amended, E.O. 11990 entitled *Protection of Wetlands*, and E.O. 12372 entitled *Intergovernmental Review of Federal Programs*. Applicable regulations and instructions include AFI 32-7064. AFI 32-7064, Chapter 4, implements E.O. 11990 in the Air Force. Prior to any construction activity in a wetland area (as defined by E.O. 11990), proponents must first prepare a Finding of No Practicable Alternative, which documents that there are no practicable alternatives to such construction, and that the proposed action includes all practicable measures to minimize harm to wetlands. The proponent of any activity that may affect known or suspected wetlands must conduct a jurisdictional wetland delineation utilizing the criteria approved by the Environmental Protection Agency and affirmed by the USACE.

Jurisdictional wetlands are those wetlands connected to "waters of the United States," and regulated by the USACE under Section 404 of the CWA. Approximately 14 jurisdictional wetlands and water bodies that comprise approximately 147 acres are located on Offutt AFB main base property (jurisdictional

wetlands are located outside the fence line, as discussed in Section 7.6) and three jurisdictional wetlands and drainages comprising approximately 2 acres are located at the Rising View Communities. There are also two jurisdictional wetlands that comprise approximately 7 acres located on the Elkhorn Communication Annex 2. There are approximately 51 non-jurisdictional wetlands and water bodies that comprise approximately 37 acres located on Offutt AFB main base and 22 non-jurisdictional wetlands and drainages comprising approximately 6.6 acres located at the Rising View Communities. There are also two non-jurisdictional wetlands that comprise approximately 0.2 acre located on the Scribner Communication Annex. A functional assessment of wetlands at Elkhorn was conducted by the USDA/NRC in February 2018 to determine if wetlands at these locations could be enhanced to offset potential future impacts to wetlands. The grassed waterways were found to be designed to enhance and restore the areas.

The Section 404 permitting process gives full consideration to the views of other state and federal agencies when deciding whether to issue a permit. Section 401 of the CWA requires that states issue or deny water quality certification for federally permitted activities that result in a discharge into the waters of the US. If no practicable alternative to the proposed action can be identified, a finding of no practicable alternative (FONPA) must be prepared for signature by the delegated authorities before the water quality certification would be issued. No current 404 or 401 permits exist for Offutt AFB.

The purpose of wetlands program is to enhance function of wetlands resources in areas compatible with the military mission of Offutt AFB and to minimize the destruction and degradation of wetlands. These wetlands are managed to reduce habitat value and prevent BASH incidents. A component of Offutt AFB wetland management is to coordinate with public and private land managers within this corridor to ensure wetland habitat is not enhanced in areas that put the flight mission at risk or that may cause mortality to wildlife do to collision or active safety measures. An updated wetlands inventory is currently needed to identify the vast changes that have recently changed at Offutt AFB. Both the Elkhorn and Scribner wetland sites have assessments of the existing wetland and potential enhancement is programmed. If wetland enhancement can occur without adverse impact to the agricultural outleases, they would be priorities for wetland enhancement. Restoring the natural drainage by preventing excessive erosion and off-site sedimentation would improve wetland functions.

7.7 Grounds Maintenance

Applicability Statement

This section applies to AF installations that perform ground maintenance activities that could impact natural resources. This section **IS** applicable to Offutt AFB.

Program Overview/Current Management Practices

Land management activities must consider the protection and enhancement of desirable natural and man-made features in the landscape. Offutt AFB 55 CE land management programs include landscape design, grounds maintenance, urban forest management, BASH reduction, irrigation and water management, pest management, invasive species management, control of non-point source pollution, and soil erosion control.

For land management purposes, there are three primary classifications of land areas on the base: Improved, Semi-improved and Unimproved. Each has unique management practices and requirements. It is duly noted that it is DoD, Air Force, and ACC policy that the desired evolution of each land classification is downward, toward a less improved status. It will be the goal of Offutt AFB, whenever possible, to convert improved land to semi-improved or unimproved, and semi-improved to unimproved.

As a result of this policy, mission requirements, and other land use issues, actual acreage in each classification will remain dynamic, fluctuating on an annual or even monthly basis.

The improved lands designation refers to landscape which have experienced the greatest alteration of natural features. In some areas there are no natural characteristics and in other locations there is minor resemblance of the natural condition. Improved areas include buildings, asphalt areas, and flight lines, as well as green areas that are closely mowed and have high human usage. Residential yards, commons spaces, flower gardens, parade grounds, and golf course fairways and greens are examples of improved green areas.

Semi-improved lands are maintained for aesthetic and operational purposes, but the frequency of tailoring is less than for improved areas. Mowing is accomplished as needed and at heights considerably above residential standards. The ground adjacent to runways, taxiways, and aprons are examples. Other examples of semi-improved lands are safety zones, clear zones, rifle and pistol ranges, picnic areas, ammunition storage areas, antenna facilities, and golf course roughs.

Unimproved grounds are areas that require and receive no routine maintenance. There are two types of unimproved lands, natural and altered. Natural areas have evidence of human activity, but contain some habitat and contours indigenous to the area before there was a permanent human presence. There are no lands at Offutt AFB that would be considered natural. Land that is mowed annually at heights considerably above residential norms are identified as altered. Forested areas, the area beyond flight line safety zones, and land adjacent to water courses and ponds often are examples of altered lands. Strips of land around the base lake qualify as unimproved although they are maintained and impacted by man. The unimproved altered areas have more of the characteristics of the regional ecosystem model, which is the basis for the INRMP, than any other land classification.

Landscape design and maintenance activities must comply with the land management goals of the INRMP. The Air Force Landscape Design Guide recognizes three landscaping zones for which there are varied requirements and characteristics; primary, intermediate, and tertiary. Landscape development zoning defines the level of landscape treatment a particular area or facility should receive. It is the basis for budgeting for future landscape development.

Golf course management activities must comply with the land management goals of the INRMP and the golf course environmental management (GEM) plan. Offutt AFB does not have an approved golf course management plan but uses the Green Book as a managing guide.

The Urban Forest Management Plan, developed in 1999 was revised in 2017. The prior plan primarily addressed pruning and silvicultural practices. New management guidance was developed (Atkins, 2017) to address stakeholder concerns with tree management on the base and to provide recommendations for establishing and maintaining trees and address imminent pest threats.

Stakeholders and contributors to the 2017 plan were Nebraska Forest Service, Community Forester; 55 CES/CEOIE, Entomologist; 55 WG/SEG-BASH, Biologist; 55 CES/CEOES, Construction Control Inspector; 55 SFS; in addition to AFCEC and 55 CES/CEIE Natural Resources. The plan considered BASH, Security, Flight Safety, and Ecological and Hydrological factors.

Forest management areas to reduce BASH risks were developed based on AFI Manuals 32-7063 and 32-7064 for Air Installation Compatible Use Zones to restrict and stop planting trees. Forest management areas to reduce security risks were based on AFI Manual 31-101, requiring that no objects (including trees) shall be placed in such a way that would aid intruders in climbing and/or breaching barriers (i.e., OAFB boundary) with planting restrictions or completely stopping planting.

Wet-tolerant (mesic) and drought-tolerant (xeric) habitats were identified on OAFB to aid in identifying areas suitable for planting certain types of trees.

Common Name	Scientific Name	Height/radiu	Wet/Dr	Notes
Rocky Mountain	*Pseudotsuga menziesii var.*	50’ x 30’	Dry	Avoid open sites
Eastern white pine	*Pinus strobus*	40’ x 30’	Wet	
Jack pine	*Pinus banksiana*	40’ x 25’	Dry	Native
Red pine	*Pinus resinosa*	40’ x 30’		Native
White spruce	*Picea glauca*	50’ x 30’		
Concolor fir	*Abies concolor*	50’ x 25’		
American elm (resistant variety)	*Ulmus americana*	50’ x50’	Wet	
Ginko	*Ginkgo biloba*	45’ x 35’		Very resistant to
Black oak	*Quercus velutina*	50’ x 45’		Native
Chinkapin oak	*Quercus*	50’ x 40’		Native
Red oak	*Quercus rubra*	50’ x 50’		Native
White oak	*Quercus alba*			Native
Bald cypress	*Taxodium distichum*	50’ x 30’	Wet	
Red maple	*Acer rubrum*	40’ x 30’	Wet	
Sugar maple	*Acer saccharum*	50’ x 50’		
Japanese tree lilac	*Syringa reticulata*			
Callery pear	*Pyrus calleryana*	30’ x 25’		
Ussurian pear	*Pyrus ussuriensis*	25’ x 20’		
American beech	*Fagus grandifolia*	40’ x 30’		Native
Sweet birch	*Betula lenta*	30’ x 3		Native
Redbud	*Cercis canadensis*	20’ x 15’		Native

List of Suitable Tree Species for Planting on OAFB

Supporting documents for the grounds maintenance include the Offutt Integrated Pest Management (IPM) Plan in Section 7.11 that uses non-chemical strategies to counter nuisance species. The BASH plan in Section 7.12 is management to avoid flight safety concerns and to prevent incidental or reactive wildlife take. Significant efforts must be made to vegetate bare soil, control broadleaf weeds, reduce insect populations, eliminate rodent populations, and manage grass height and density within this area to prevent habitat establishment.

All Improved, Semi-improved, and Unimproved areas will contain rodent habitat and insect habitat. It is not reasonable to expect active and intensive pest control in all of these areas. Passive actions such as allowing canine predators to persist within the installation boundary may benefit pest management while reducing the overall risk to flight safety. Native canine predators in Nebraska (coyote and fox) forage primarily on rodents. Presence of these predators may be an indicator of high rodent populations; allowing the canine predators to persist may lower prey populations and reduce the occurrence of avian predators.

The Offutt Pest Management Coordinator and USDA-APHIS-WS Biologist should regularly coordinate with the NRM concerning insect, rodent, bird, and predator pest concerns in Semi-improved and Unimproved areas to evaluate and recommend integrated solutions to benefit natural resources and control pests.

7.8 Forest Management

Applicability Statement

This section applies to AF installations that maintain forested land on AF property. This section **IS** applicable to Offutt AFB.

Program Overview/Current Management Practices

Forest management primary objective is to maintain and enhance the ecological integrity of forest landscapes while supporting the military mission. AFI32-7064 describes a forest inventory unit as land capable of producing more than 20 cubic feet/acre/year in wood biomass. The Urban Forest Inventory and Management Report addresses tree conditions, identifies trees suitable for habitation, and recommendations for management of trees in the Offutt AFB facilities (Tab 5).

Commercial forestry is a management issue for Offutt AFB since the collection of trees began at the Scribner and Elkhorn sites. The Firewood Sales Permit (Tab 6) outlines the information needed to permit lumber sales. Managing the forestry sites are accomplished by the DOD preparing cooperatively among shareholders including the USFWS and state natural resource agencies.

The only on-base contiguous natural area with potential to manage as a forest for wildlife is the forested wetland (A2) south of the STRATCOM entrance gate. If management occurs in this area it will be guided by functional wetland principals.

The existing network of forest access roads is simplistic. The Elkhorn and Scribner sites have roads and parking all along the barrier of the forests. There are no trails at Offutt AFB facilities.

Any forest products, including firewood from landscape trees, will not be given away, destroyed, or abandoned if they have a marketable value. Payments are to be collected for all forest products with economic value in accordance with DoD Financial Management Regulation, 7000.14-R, Volume 11A, Chapter 16. Forest products may not be traded for goods or services nor used to offset contract costs associated with construction, land clearing, or other contracted activity. Lessees of government property will not remove or destroy commercial timber unless the forest products have specifically been conveyed in the lease and fair market value has been paid to the government.

Forest management on base is challenging because of potential BASH interactions. Expanding tree sites would attract more nuisance wildlife to the area and thus the flight line. By restricting the amount of trees on base, the military mission is supported. Offutt AFB surveys for diseased pines to remove and chip on base and is currently focusing on the entryway. Other tree problems on OAFB included Japanese beetles and emerald ash borer beetles effecting 5% of the tree population.

Ellsworth AFB fire team has helped manage the Elkhorn and Scribner sites forested areas as they train on falling trees. The Scribner Communication Annex has transitioned from cottonwood removal to cutting and chipping the Siberian elm. The Elkhorn Communication Annex 2 site is removing the bush from the fence line at the entrance of the facility to increase visibility. Agricultural leases in the annexed sites contain the amount of plant expansion.

7.9 Wildland Fire Management

Applicability Statement

This section applies to AF installations with unimproved lands that present a wildfire hazard and/or installations that utilize prescribed burns as a land management tool. This section **IS** applicable to Offutt AFB.

Program Overview/Current Management Practices

The potential for wildland fire at OAFB is minimal. The use of prescribed burning is not a management tool used at OAFB and therefore a Wildland Fire Management Plan (WFMP) has not been completed. Prescribed burning could be programmed in the future as it may benefit several difference resources.

7.10 Agricultural Outleasing

Applicability Statement

This section applies to AF installations that lease eligible AF land for agricultural purposes. This section **IS** applicable to Offutt AFB.

Program Overview/Current Management Practices

The Elkhorn Communications Annex 2 is managed by Offutt AFB through a multiple-use sustained yield approach to land management in conjunction with performing the primary Air Force mission. Management of this site is described in the Integrated Grazing and Cropland Management Plan, which is included in Appendix Grazing and Cropland Management Plan. Cropland usage is also performed at the Scribner Communication Annex; management protocols would be similar to those outlined in the Elkhorn plan.

Each of the outgrant sites contain small wetlands that may potentially be enhanced if desired for ecosystem improvement or as mitigation sites. An evaluation of erosion control structures and equipment size is complete for Elkhorn. Agricultural Outgrant Program Reimbursements may be used to upgrade structures to increase productivity of the land.

A conservation plan is developed to upgrade erosion control structures and refurbish vegetative conservation practices in phases at Elkhorn. Tree removal, grassed waterway construction, and drainage tile was installed in 2018. Terrace construction began in 2018 as described in the Ag Lease (Tab 7). The two primary grassed waterways on the south slopes of the farm will be refurbished, by removing sediment, stabilizing with erosion control fabric, removing invasive grasses, and removing trees for permanent grassland management. The plan will also include vegetated field borders on steep slopes with terrace ends. All vegetation will include milkweed and other pollinator species to benefit monarch butterflies.

The Scribner Hay lease area contains invasive trees such as eastern redcedar, red mulberry, and Siberian elm. The site also has native trees that are in poor condition or senescing such as cottonwoods. Tree removal will improve grassland function to include beneficial management for monarch butterflies. Tree removal has initially be mechanical, but sustainment and improvement of native species in the hayed grassland may be accomplished through prescribed fire if a WFMP and prescribed burn plan are approved.

7.11 Integrated Pest Management Program

Applicability Statement

This section applies to AF installations that perform pest management activities in support of natural resources management, e.g. invasive species, forest pests, etc. This section **IS** applicable to Offutt AFB.

Program Overview/Current Management Practices

E.O. 13112, *Invasive Species*, 3 February 1999, as continued by E.O. 13708, *Continuance or Reestablishment of Certain Federal Advisory Committees*, 30 September 2015, and as amended by E.O. 13751, *Safeguarding the Nation From the Impacts of Invasive Species*, 5 December 2016, requires all federal agencies to prevent the introduction of invasive species, provide for their control and minimize their economic, ecological, and human health impacts. Under E.O. 13112, installations will, to the extent practicable and permitted by law, not authorize, fund, or carry out management actions that are likely to cause the introduction or spread of invasive species. Furthermore, Title 7 U.S.C. §2814 states that each federal agency shall establish and adequately fund an undesirable plants management program through the agency's budgetary process.

Offutt AFB is committed to implement the IPM that emphasizes the use of non-chemical strategies, as well as to strive to use the least toxic chemical control. The IPM applies four principles that OAFB follows: mechanical and physical control, cultural control, biological control, and chemical control. Including natural resource management into IPM strategies is projected to have a significant impact on avoidance and reduction efforts. Many invasive species, especially plants, are opportunistic and looking for voids in natural habitats to colonize. When the recurring pest management requirements are identified, the NRM or NRMM may be able to provide prevention strategies to reduce active treatment requirements.

Zebra mussels

The primary invasive animal species of concern to Offutt AFB is the zebra mussel (*Dreissena polymorpha*). Past removal projects include contracting URS Group, Inc. (URS) to complete the treatment of a chemical copper sulfate (1 ppm lake-wide). The USEPA Special Local Need Label was acquired and on 17-18 September 2008 and 7-8 April 2009 before the chemical was used to attempt to eradication of zebra mussels from the base lake. Repeat sampling for the presence of zebra mussels was then conducted and they were not detected in the lake. Their presence was later suspected in 2013 and confirmed by the USFWS in the spring 2014. Surveys in subsequent years have found an increase of mussels as time continued. After the flood in May 2019, the population survey in September 2019 yielded fewer zebra mussels, but they were still inhabiting the lake. A possible reason for lower zebra mussel count is that the silt from the flood covered habitable substrate.

The Aquatics Subcommittee of the Nebraska Invasive Species Advisory Council (Subcommittee) provided Offutt AFB with recommended actions to manage and contain zebra mussels in 2014. Zebra mussel surveys were conducted in 2014, 2016, and 2018 (James, et. al, 2015, James, et. al, 2016, James, et. al, 2018). The surveys provide management recommendations, including mission related and interdisciplinary concerns with fully implementing Subcommittee actions. Subsequent years of zebra mussel surveys from USFWS are occurring to refine a holistic management plan for zebra mussel containment and control. Recommendations from USFWS have included: stocking fish thought to consume zebra mussels such as redear sunfish and freshwater drum, reducing hard substrate on the shoreline, purchase hot water sprayer for cleaning watercrafts, and continue monitoring to determine cause of special variability with populations. Offutt AFB currently restricts motorized, private boats from being used on Offutt Base Lake as another

preventative measure. Boat use is limited to rental boats provided by Offutt AFB, and privately owned kayaks and canoes.

Stocking of fingerling redear sunfish is ongoing; approximately 60,000 redear sunfish have been introduced to Offutt Base Lake since 2014. Stocking at a desired rate of 20,000 redear sunfish per year will continue with assistance and monitoring from the USFWS.

A water level control design project is underway by Colorado State University (CSU) to control the aquatic invasive species by reducing hard substrate on the shorelines. The detailed design project will include drawings, specifications and quantities for filling rip rap voids with various materials to reduce surface area and water level control. Water level control would replace the functionality of the overflow from Offutt Base Lake to the Bellevue Drain, a tributary to the Missouri River. Initial concepts include a direct conduit with backflow gates or groundwater interface lift stations. Since flooding of the base lake occurred in 2019, zebra mussel projects have been pushed back.

Invasive plants

The best defense against the spread of invasive plants at Offutt AFB includes land management strategies of prevention, early detection, and control of established populations. Leafy spurge, Canada thistle, spotted knapweed, and diffuse knapweed are not expected to occur on Offutt AFB. Management of these species include continual monitoring to ensure populations do not become established. Control of established populations of the remaining species is discussed in this section. All control methods would be performed in conjunction with the IPMP.

A noxious weed survey was completed in 2014 for Offutt AFB, including Elkhorn and Scribner sites (SWCA Environmental Consultants, 2015). Four noxious weed species, in the State of Nebraska, were inventoried and mapped.

Common Name	Species	PLANTS Code*	2014 Infestation Points
Plumeless thistle	*Carduus acanthoides*	CAAC	3
Musk thistle	*Carduus nutans*	CANU4	33
Canada thistle	*Cirsium arvense*	CIAR4	1
Common reed	*Phragmites australis*	PHAU7	2

Invasive Species Occurrences found within Offutt AFB (SWCA Environmental Consultants, 2015)

The 2014 survey results were provided to the Offutt AFB Pest Management Coordinator for further monitoring and treatment.

A vegetation survey was conducted by URS Corporation in 2005 with inconclusive results concerning noxious weed presence. A previous wetland survey (TEC 2005) identified purple loosestrife (*Lythrum salicaria*) and a thistle species (*Cirsium* spp.) at Offutt AFB. Based on this survey and the potential habitat on and near Offutt AFB, purple loosestrife is likely to occur at Offutt AFB. Although the identified *Cirsium* spp. is in the same genus as Canada thistle, a positive identification for Canada thistle at Offutt AFB was not verified.

Selection of control methods for non-native common reed depends largely on the characteristics of the infested area and the funding available (Knezevic, et. al, 2008). OAFB approved measures to counter invasive plant species include seasonal mowing reduces seed production (Hilgenfield, et. al, 2010); cultivation, digging, and cutting restricts plant development (Hilgenfield, et. al, 2010); herbicides administered at specific times depending on the plant species effectively stunts the growth (Hilgenfield, et. al, 2010); and planting competitive grass species with growth supplements (Wilson, 2009).

7.12 Bird/Wildlife Aircraft Strike Hazard (BASH)

Applicability Statement

This section applies to AF installations that maintain a BASH program to prevent and reduce wildlife-related hazards to aircraft operations. This section **IS** applicable to Offutt AFB.

Program Overview/Current Management Practices

The INRMP must support the BASH Plan. Natural resource management currently supports wildlife hazard reduction though IPM recommendations to encourage competitive grass establishment and fertility management, fisheries management that implements aquatic habitat improvement while not providing additional avian or terrestrial habitat, and encouraging active grounds management that reduces habitat in areas that may impact the flight mission. Bird and wildlife hazards to the flying mission are considered biological problems that often have biological solutions. As previously mentioned in Section 7.7, rodent and bird pest problems may be at a scale and scope greater than what can feasibly or practically be controlled; allowing predators, especially canines, that pose a low risk to flight safety to persist may be a tolerable passive control method. Wildlife hazards can be reduced by knowledgeable natural resources management on and adjacent to installation airfields. The Offutt Pest Management Coordinator and USDA-APHIS-WS Biologist should regularly coordinate with the NRM concerning insect, rodent, bird, and predator pest concerns in semi-improved and unimproved areas to evaluate and recommend integrated solutions to benefit natural resources and control pests.

The NRM will ensure that accurate biological data pertinent to the BASH program is available at all times. The NRM must be an active member of the Offutt Bird/Wildlife Hazard Working Group (BHWG). Offutt AFB has a cooperative agreement with the USDA for the BASH program. The US Air Force also works in cooperation with the Federal Aviation Administration, DoD, USFWS, and USACE for BASH management programs.

Wetland areas near an airfield may create potential hazards to aircraft operations. Innovative techniques to manage wildlife in wetlands should be explored and implemented. Legally defensible actions to reduce the amount of wetlands on the airfield to the maximum extent possible must be explored and pursued when their presence conflicts with the flight mission. While “no net loss” of wetlands is an important AF goal, priority must be given to flight safety. The wetland configuration, composition, and hydrology near the airfield provide little environmental benefit considering the intensive management that must occur to reduce BASH.

The proposed invasive species project to manipulate water levels at Offutt Base Lake will support BASH objectives by reducing artificial wetlands in the “L-shaped” pond area and drains.

Landscape plant materials are avoided on and around the airfield since these materials could attract birds or animals. Remove any landscape plants in the vicinity of the airfield that are known to attract birds or wildlife. Implementation of the Urban Forest Management Plan in 7.7 will reduce landscape hazards should occur.

7.13 Coastal Zone and Marine Resources Management

Applicability Statement

This section applies to AF installations that are located along coasts and/or within coastal management zones. This section **IS NOT** applicable to Offutt AFB.

Program Overview/Current Management Practices

N/A

7.14 Cultural Resources Protection

Applicability Statement

This section applies to AF installations that have cultural resources that may be impacted by natural resource management activities. This section **IS NOT** applicable to Offutt AFB.

Program Overview/Current Management Practices

Offutt AFB does not have any elements of natural resources that relate to or affect cultural resources.

7.15 Public Outreach

Applicability Statement

This section applies to all AF installations that maintain an INRMP. Offutt AFB **IS** required to implement this element.

Program Overview/Current Management Practices

The Offutt AFB 55 FSS maintains a website (http://offutt55fss.com/) to describe the outdoor recreation opportunities for Offutt AFB. In addition, public outreach is accomplished through a 55 FSS Facebook page, a 55 FSS Instagram page, 55 FSS Twitter account, Offutt Public Affairs Air Pulse weekly and monthly Warhawk newsletters, base paper, 55 FSS On- Offutt monthly e-bulletin, marketing monitors at 55 FSS facilities, Offutt AFB Gate scrolling marquees, posters/flyers etc. at 55 FSS facilities across base, and e-mail groups of previous customers. Finally, Offutt AFB hosts an annual open house for each of its facilities and attends 4-5 community events per year where they host discussion of the programs with the public.

The most active natural resources management occurs at Offutt Base Lake. Tri-fold pamphlets of fishery survey results are provided to MWR for distribution to patrons. Signage concerning regulations and best management practices to control the spread of zebra mussels are posted around Offutt Base Lake.

7.16 Climate Change Vulnerabilities

Applicability Statement

This section applies to USAF installations that have identified climate change risks, vulnerabilities, and adaptation strategies using authoritative region-specific climate science, climate projections, and existing tools. This section **IS/IS NOT** applicable to this installation.

Program Overview/Current Management Practices

At OAFB, climate change is a vulnerability. Climate change will effect mission operations in several ways, including the severe storms and unprecedented flooding in the recent past. The need to combat the changing environment has been recognized so more projects will be implemented in the future.

7.17 Geographic Information Systems (GIS)

Applicability Statement

This section applies to all AF installations that maintain an INRMP, since all geospatial information must be maintained within the AF GeoBase system. Offutt AFB **IS** required to implement this element.

Program Overview/Current Management Practices

The mission of the Air Force Environmental GIS Projects is to collect, develop and maintain spatial data included in the Functional Data Sets (FDS) supporting the environmental programs. The NRM and others access GIS information via the Offutt Geo Map Viewer in the AF Portal. The GeoSpatial software used at Offutt AFB is ESRI ArcGIS (ArcInfo, software version ESRI ArcGIS 10.1). The coordinate reference system used for Offutt AFB is: Geographic: GCS_WGS_1984; Projected: WGS_1984_UTM_Zone_15N. GIS coverages important to natural resource management at Offutt AFB include current and future land use (greenbelts, recreation areas, landscaped areas, tree locations, and open spaces), soil survey results, jurisdictional waters and wetland delineations, and vegetation coverage.

GIS inventory is currently being standardized and completed by AFCEC through a contract with Colorado State University Center for Environmental Management on Military Lands (CEMML). FDS spatial data will be standardized to the Spatial Data Standards for Facilities, Infrastructure and Environment (SDSFIE) 3.1 Air Force Adaptation as developed in accordance with AFCEC subject matter experts and as approved by Defense Installation Spatial Data Infrastructure as the standard for environmental spatial data.

Currently, the following are GIS data (or feature classes) in GeoBase:

- AgriculturalTract_A: Boundaries of the Scribner and Elkhorn agricultural leases
- FloodPlainArea_A: Pulled from FEMA dFIRM
- ForestMgtArea_A: Identifies woodlands in unimproved areas
- LandCover_A: The observed physical and biological cover of the land as vegetation or man-made features.
- NatResSurvey_P: Identifies where natural resources surveys occurred or monitoring stations were positioned.
- NoxiousOrInvasiveSpecies_A: Identifies large areas of herbaceous invasive or noxious plants.
- NoxiousOrInvasiveSpecies_P: Identifies invasive woody plants.
- SoilSurveyArea_A: Pulled from USDA SSURGO data.
- SpecialStatusSpecies_P: Indicates existence of a special status species by the geographically described geometry either currently, historically, or the species is being recruited into the area. Only those species that have a legal designation under the ESA.
    - Northern Long-eared bat occurrences are identified in this layer
- SpeciesPoint_P: Most recent urban tree survey recorded in this layer.
- Vegetation_A: Terrestrial Ecological Systems and Natural Communities of Nebraska classified in this layer.
- WaterBody_A: Identifies the Offutt Base Lake boundary
- Watershed_A: The land area that drains water to a particular stream, river, or lake.
- Wetland_A: Most current data is from 2010 contracted survey.

These are the following GIS needs:

- FaunaIncidentPoint_P: Include any GIS records from BASH.
- LandCover_A: Should be reviewed and updated annually or when imagery is available.
- NatResSurvey_P: Zebra mussel sampling points should be added. All NR surveys should be reviewed annually to determine if updates are required.

- NaturalResourcesRecreationFeature_P: Add fishing piers and other priority fishing spots.
- NoxiousOrInvasiveSpecies_A: Treatments should be identified from contracts, pest management, and agricultural leases. New inventory added as projects are completed.
- NoxiousOrInvasiveSpecies_P: Treatments should be identified from contracts, pest management, and agricultural leases. New inventory added as projects are completed.
- SpeciesPoint_P: Review annually with CEO to determine status update of trees.
- SpecialStatusSpecies_P: Additional Northern long-eared bat monitoring locations to include GSUs
- Wetland_A: Data needs to be updated due to construction. Additional surveys should identify wetland function.

8.0 MANAGEMENT GOALS AND OBJECTIVES

The installation establishes long term, expansive goals and supporting objectives to manage and protect natural resources while supporting the military mission. Goals express a vision for a desired condition for the installation's natural resources and are the primary focal points for INRMP implementation. Objectives indicate a management initiative or strategy for specific long or medium range outcomes and are supported by projects. Projects are specific actions that can be accomplished within a single year. Also, in cases where off-installation land uses may jeopardize USAF missions, this section may list specific goals and objectives aimed at eliminating, reducing, or mitigating the effects of encroachment on military missions. These natural resources management goals for the future have been formulated by the preparers of the INRMP from an assessment of the natural resources, current condition of those resources, mission requirements, and management issues previously identified. Below are the integrated goals for the entire natural resources program.

The installation goals and objectives are displayed in the 'Installation Supplement' section below in a format that facilitates an integrated approach to natural resource management. By using this approach, measurable objectives can be used to assess the attainment of goals. Individual work tasks support INRMP objectives. The projects are key elements of the annual work plans and are programmed into the conservation budget, as applicable.

Installation Supplement – Management Goals and Objectives

GOAL 1: REMAIN IN COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS GOVERNING NATURAL RESOURCES

- OBJECTIVE 1.1: Cooperatively support USFWS and state protection goals.
  - PROJECT 1.1.1: Annually review and update the INRMP, incorporating management changes as necessary IAW adaptive management and any newly identified information.
  - PROJECT 1.1.2: Maintain correspondence with USFWS, state and Natural Heritage Inventory regarding updates to federal and state threatened, endangered, and species of concern lists.
- OBJECTIVE 1.2: Maintain appropriate state and federal permits to enable necessary wildlife control.
  - PROJECT 1.2.1: Maintain Depredation at Airports Permit under the Migratory Bird Treaty Act. Assess BASH-related populations annually and apply for depredation permit for appropriate species.

- OBJECTIVE 1.3: Maintain partnership with USDA-APHIS-Wildlife Services, USFWS, and NGPC for the management of fish, wildlife and their habitats.
    - PROJECT 1.3.1: Host annual field day to highlight project accomplishments and seek feedback from partners.
    - PROJECT 1.3.2: Provide annual INRMP Summary to stakeholders
- OBJECTIVE 1.4: Develop a program to monitor climate change and propose a plan to balance the effects at OAFB.

GOAL 2: IMPROVE MANAGEMENT OF NATURAL HABITATS

- OBJECTIVE 2.1: Enhance wetland habitat.
    - PROJECT 2.1.1: Develop a program to monitor long-term trends in habitat value of wetlands at geographically separate units.
    - PROJECT 2.1.2: Implement program to monitor long-term trends in habitat value of wetlands at geographically separate units.
    - PROJECT 2.1.3: Enhance wetland function in cropland grassed waterway at Elkhorn Communications Annex 2
    - PROJECT 2.1.5: Improve wetland functions by restoring natural drainage to prevent excessive erosion and off-site sedimentation.
- OBJECTIVE 2.2: Effectively manage invasive and noxious weeds on Offutt AFB.
    - PROJECT 2.2.1: Identify invasive plant species on Offutt AFB lands and develop an invasive plant species strategy.
    - PROJECT 2.2.2: Survey and document location, quantify area, and identify species of noxious weeds on Offutt AFB and develop a strategy for control.
    - PROJECT 2.2.3: Utilize lessees to control invasive and noxious weeds at Elkhorn Communication Annex and Scribner Communication Annex through land use requirements for agricultural outleases or prescribed burning.
    - PROJECT 2.2.4: Develop a project to restore prairie lands using methods such as prescribed burning.
- OBJECTIVE 2.3: Effectively manage invasive species on Offutt AFB.
    - PROJECT 2.3.1: Develop information materials and protocols to educate public about preventing the spread of the zebra mussel.
    - PROJECT 2.3.2: Monitor zebra mussel population using a method that includes measures of relative abundance and water quality.
    - PROJECT 2.3.3: Develop and investigate biological control options to provide additional control of zebra mussels.
    - PROJECT 2.3.4: Develop and investigate habitat modification options to provide additional control of zebra mussels.
    - PROJECT 2.3.5: Implement habitat modification projects to include interstitial void fill and water level control.
- OBJECTIVE 2.4: Increase and manage tree and shrub vegetation at the Offutt base lake.
    - PROJECT 2.4.1: Manage replacement and natural recruitment of trees to improve recreation opportunities while not increasing BASH.
    - PROJECT 2.4.2: Establish a climate change assessment on the changes around the base lake.
- OBJECTIVE 2.5: Develop collaboration with Grounds Maintenance to develop urban forestry plan.

- PROJECT 2.5.1: Conduct base-wide urban forestry survey to assess tree species composition, status, and location with special interest for after the tornado of 2017 and the flooding of 2019.
- PROJECT 2.5.2: Monitor wildlife and pest use of trees. Coordinate management activities to reduce impacts to Flight Safety and Entomology Shops.
- PROJECT 2.5.3 Update GIS inventory to reflect removal, planting, treatments, and disease.

- OBJECTIVE 2.6: Implement the Grassland Restoration Plan for the Scribner Annex by restoring 90 acres of native grassland and cottonwood areas to include providing habitat for at-risk species.

GOAL 3: EFFECTIVELY MANAGE FISH AND WILDLIFE POPULATIONS

- OBJECTIVE 3.1: Monitor and maintain recreational fishing opportunities at Offutt Base Lake.
  - PROJECT 3.1.1: Conduct trap net, gill net, and electrofishing surveys at the lake to evaluate changes to the fisheries.
  - PROJECT 3.1.2: Prepare two annual reports that include 1) technical fisheries survey report and, 2) fisheries report intended for layperson audience.
  - PROJECT 3.1.3: Accomplish long-term planning for fishing license fee revenues.
  - PROJECT 3.1.4: Implement long-term planning procedures for fishing license fee revenues.
  - PROJECT 3.1.5: Conduct habitat quality assessment in the lake that includes water quality, aquatic vegetation, and associated habitat features in the lake.
  - PROJECT 3.1.6: Develop Offutt Base Lake Management Plan.
- OBJECTIVE 3.2: Maintain current inventory and database of federal and state listed species and species at risk.
  - PROJECT 3.2.1: Conduct survey to inventory species at Offutt AFB and associated lands to determine presence of any federal threatened or endangered species.
  - PROJECT 3.2.2: Manage areas to promote and sustain Northern Long-eared Bat habitat.
  - PROJECT 3.2.3: Manage areas to promote and sustain pollinator habitat.
  - PROJECT 3.2.4: Conduct survey to inventory occupancy of tricolored bat.

GOAL 4: ENHANCE PUBLIC OUTREACH ACTIVIES ON OFFUTT AFB AND NON-CONSUMPTIVE USES OF NATURAL RESOURCES

- OBJECTIVE 4.1: Encourage base personnel to become more involved with natural resources on Offutt AFB.
  - PROJECT 4.1.1: Develop project for Department of Defense Legacy Awards for National Public Lands Day.
  - PROJECT 4.1.2: Develop base lake habitat improvement project using discarded Christmas trees.
  - PROJECT 4.1.3: Implement base lake habitat improvement project using discarded Christmas trees.
- OBJECTIVE 4.2: Increase public awareness of natural resources on base through educational efforts.
  - PROJECT 4.2.1: Coordinate with Outdoor Recreation to participate with newsletter and social media to share information.
- OBJECTIVE 4.3: Establish nature trail system on Offutt AFB.
  - PROJECT 4.3.1: Select suitable areas for a nature trail system on Offutt AFB.
  - PROJECT 4.3.2: Construct nature trail(s) on Offutt AFB.

9.0 INRMP IMPLEMENTATION, UPDATE, AND REVISION PROCESS

9.1 Natural Resources Management Staffing and Implementation

The Wing Commander is responsible for ensuring that base assigned and tenant units comply with laws and requirements associated with the management of natural resources. The WC approves the INRMP and any necessary revisions, provides appropriate funding and staffing to ensure implementation of the INRMP, controls access to and use of installation natural resources, and signs cooperative agreements entered into between the installation and other entities pursuant to the Sikes Act.

The Civil Engineer Director is responsible for the preparation, maintenance, and day-to-day implementation of the INRMP and is the focal point for all plan actions and issues. On the basis of findings determined through the EIAP, the BCE makes recommendations to the ESOH Council for approval or disapproval of proposed actions.

The Installation Management Flight prepares, implements and updates the INRMP. The Installation Management Flight provides technical advice on natural resource matters to the Wing Commander, ESOH Council, the Civil Engineer Director, and the Offutt AFB community planner. In addition, the Installation Management Flight is responsible for budgeting and advocating for natural resources conservation programs and for developing partnerships with other federal, state, tribal, local, academic and non-governmental organizations.

Commanders of assigned and tenant units are required to be familiar with the contents of the INRMP and comply with its provisions.

Natural Resources Management Staffing

As defined in DoDI 4715.03, professionally trained natural resources management personnel with a degree in the natural sciences are necessary to develop and implement the installation INRMP. In addition, the USFWS provides a liaison to Offutt AFB to assist with natural resource management. Currently, the liaison is stationed at the Great Plains Fish and Wildlife Conservation Office in Pierre, SD.

9.2 Monitoring INRMP Implementation

To measure the extent of INRMP implementation, the INRMP will be annually updated and adaptive management strategies will be programmed for subsequent years.

9.3 Annual INRMP Review and Update Requirements

The Sikes Act, as amended, requires the preparation and implementation of an Integrated Natural Resources Management Plan on military installations. This INRMP is a five-year rewrite and revision of the 2015 INRMP as directed by AFI 32-7064. This INRMP will be implemented by actions to achieve the goals and objectives stated in Chapter 8 and will result in no net loss of the military mission or operational capability. Projects, focused on the accomplishment of these goals and objectives, will form the foundation for budget requests from AFCEC. Each goal will be accomplished to the maximum extent possible when and if funding is available. Projects have been given a Priority of High, Medium, or Low as indicated in Chapter 10 – Work Plans. High Priority projects are the most critical to the Installation Management Flight; therefore, funding for these projects will be requested first followed by Medium and Low. AF programming procedures will be accomplished by contractors, in-house staff, volunteers, or through cooperative agreements with state and federal agencies or other private organizations.

As the INRMP is implemented, NEPA compliance for projects will be assured through appropriate analysis pursuant to AFI 32-7061, including categorical exclusions, environmental assessments, or environmental impact statements.

The annual INRMP review is completed to identify and validate required INRMP updates as necessary with final approval by the Offutt AFB Wing Commander or designee. A complete revision of the INRMP will be warranted if major format changes are necessary, substantial changes to the natural resources on Offutt AFB occur, or the goals and objectives become inappropriate.

10.0 ANNUAL WORK PLANS

The INRMP Annual Work Plans are included in this section. These projects are listed by fiscal year, including the current year and four succeeding years. For each project and activity, a specific timeframe for implementation is provided (as applicable), as well as the appropriate funding source and priority for implementation. The work plans provide all the necessary information for building a budget within the USAF framework. Priorities are defined as follows:

- High: The INRMP signatories assert that if the project is not funded the INRMP is not being implemented and the USAF is non-compliant with the Sikes Act; or that it is specifically tied to an INRMP goal and objective and is part of a "Benefit of the Species" determination necessary for Endangered Species Act (ESA) Sec 4(a)(3)(B)(i) critical habitat exemption.
- Medium: Project supports a specific INRMP goal and objective and is deemed by INRMP signatories to be important for preventing non-compliance with a specific requirement within a natural resources law or by EO 13112, *Exotic and Invasive Species*. However, the INRMP signatories would not contend that the INRMP is not being implemented if not accomplished within the programmed year due to other priorities.
- Low: Project supports a specific INRMP goal and objective, enhances conservation resources or the integrity of the installation mission, and/or supports long-term compliance with specific requirements within natural resources law; but is not directly tied to specific compliance within the proposed year of execution.

5 Year Work Plan

PLAN YEARS	INRMP PROJECT NUMBER AND DESCRIPTION	AIR FORCE FUNDS REQUEST NUMBER OR IN-HOUSE OPR	PROPOSED FUNDS EXECUTION	PRIORITY	SWAP and/or SPSOC LINK
GOAL 1– REMAIN IN COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS GOVERNING NATURAL RESOURCES					
Objective 1.1: Cooperatively support USFWS and state protection goals.					
2020-2025	Project 1.1.1: Annually review and update the INRMP, incorporating management changes as necessary IAW adaptive management and any	NRM SGBP196001	2021 Climate assessment by CSU CEMML	High	No

	newly identified information.				
2020-2025	Project 1.1.2: Maintain correspondence with USFWS, state and Natural Heritage Inventory regarding updates to federal and state threatened, endangered, and species of concern lists.	NRM		Medium	Yes
Objective 1.2: Maintain appropriate state and federal permits to enable necessary wildlife control.					
2020-2025	Project 1.2.1: Maintain Depredation at Airports Permit under the Migratory Bird Treaty Act. Assess BASH-related populations annually and apply for depredation permit for appropriate species.	OSS		Medium	No
Objective 1.3: Maintain partnership with USDA-APHIS-Wildlife Services, USFWS, and NGPC for the management of fish, wildlife and their habitats.					
2020-2025	Project 1.3.1: Host annual field day to highlight project accomplishments and seek feedback from partners	NRM		Low	No
2020-2025	Project 1.3.2: Provide annual INRMP Summary to stakeholders.	NRM		Medium	No
GOAL 2– IMPROVE MANAGEMENT OF NATURAL HABITATS					
Objective 2.1: Enhance wetland habitat.					
Delayed	Project 2.1.1: Develop a program to monitor long-term trends in habitat value of wetlands.			Low	Yes
Funded 2017	Project 2.1.2: Develop management program to monitor long-term trends in habitat value of wetlands.	SGBP557065	USFWS Partners	Low	Yes

2020-2021	Project 2.1.3: Enhance wetland function in cropland grassed waterway at Elkhorn Communications Annex 2	Ag Lease Funds	Lessee	Low	Yes
Objective 2.2: Effectively manage invasive and noxious weeds on Offutt AFB.					
2020-2025	Project 2.2.1: Identify invasive plant species on Offutt AFB lands and develop an invasive plant species control strategy.	CEOIE and SGBP207640M	USFWS in 2020	Medium	Yes
2020-2025	Project 2.2.2: Survey and document location, quantify area, and identify species of noxious weeds on Offutt AFB and develop a strategy for control.	CEOIE		Medium	No
2020-2025	Project 2.2.3: Utilize lessees to control invasive and noxious weeds at Elkhorn Communication Annex and Scribner Communication Annex through land use requirements for agricultural outleases.	NRM through Ag Lease	Lessee	Medium	No
Objective 2.3: Effectively manage invasive species on Offutt AFB.					
2020-2025	Project 2.3.1: Develop information materials and protocols to educate public about preventing the spread of the zebra mussel.	SGBP5560200, SGBP5560210, SGBP5560220, SGBP5560230, SGBP5560240, SGBP5560250	USFWS	Medium	No
2020-2025	Project 2.3.2: Monitor zebra mussel population using a method that includes measures of relative abundance and water quality.	SGBP5560200, SGBP5560210, SGBP5560220, SGBP5560230, SGBP5560240, SGBP5560250	USFWS	Medium	No

2020-2025	Project 2.3.3: Develop and investigate biological control options to provide additional control of zebra mussels.	SGBP5560200, SGBP5560210, SGBP5560220, SGBP5560230, SGBP5560240, SGBP5560250	USFWS	Medium	No
2020-2025	Project 2.3.4: Develop and investigate habitat modification options to provide additional control of zebra mussels.	SGBP5560200, SGBP5560210, SGBP5560220, SGBP5560230, SGBP5560240, SGBP5560250	USFWS	Medium	No
2020-2025	Project 2.3.5: Implement habitat modification projects to include interstitial void fill and water level control.	SGBP5560200, SGBP5560210, SGBP5560220, SGBP5560230, SGBP5560240, SGBP5560250	USFWS & Colorado State University CEMML	Medium	No
Objective 2.4: Increase and manage tree and shrub vegetation at the Offutt base lake.					
2019-2024	Project 2.4.1: Manage replacement and natural recruitment of trees to improve recreation opportunities while not increasing BASH.	OSS & FSS		Low	Yes
2020-2025	Project 2.4.2: Establish a climate change assessment on the changes around the base lake.			Low	No
Objective 2.5: Develop collaboration with Grounds Maintenance to develop urban forestry plan					
Complete 2017	Project 2.5.1: Conduct base-wide urban forestry survey to assess tree species composition, status, and location.			Low	No
2020-2025	Project 2.5.2: Monitor wildlife and pest use of trees. Coordinate management activities to reduce impacts to Flight Safety and Entomology Shops.	NRM		Low	No
2020-2025	Project 2.5.3 Update GIS inventory to reflect removal, planting, treatments, and disease.	CENMED, CEOHP, & CEOIE		Low	No
GOAL 3 – EFFECTIVELY MANAGE FISH AND WILDLIFE POPULATIONS					

Objective 3.1: Monitor and maintain recreational fishing opportunities at the base lake.					
2020-2025	Project 3.1.1: Conduct trap net, gill net, and electrofishing surveys at the lake to evaluate changes to the fisheries.	SGBP556055AI, SGBP556055AJ, SGBP556055AK, SGBP556055AL, SGBP556055AM, SGBP556055AN	USFWS	Low	No
2020-2025	Project 3.1.2: Prepare two reports that include 1) technical fisheries survey report and, 2) fisheries report intended for layperson audience.	SGBP556055AI, SGBP556055AJ, SGBP556055AK, SGBP556055AL, SGBP556055AM, SGBP556055AN	USFWS	Low	No
Planned in 2017	Project 3.1.3: Accomplish long-term planning for fishing revenues.			Low	
2020-2025	Project 3.1.4: Implement fishing revenue utilization plan.	SGBP556055AI, SGBP556055AJ, SGBP556055AK, SGBP556055AL, SGBP556055AM, SGBP556055AN	USFWS	Low	No
2020-2025	Project 3.1.5: Conduct habitat quality assessment in the lakes that includes water quality, aquatic vegetation, and associated habitat features in the lake.	SGBP556055AI, SGBP556055AJ, SGBP556055AK, SGBP556055AL, SGBP556055AM, SGBP556055AN	USFWS	Low	No
Funded 2017	Project 3.1.6: Develop a fisheries management plan for each of the base lake to include: target population goals, sampling plans, and evaluations for each fishery.		USFWS	Low	No
Objective 3.2: Maintain current inventory and database of federal and state listed species and species at risk.					
2020-2025	Project 3.2.1: Conduct survey to inventory species at Offutt AFB and associated lands to determine presence of any federal threatened	SGBP550265, SGBP551265, SGBP552265, SGBP553265, SGBP554265, SGBP555265	USFWS ES (UN-O)	Medium	Yes

	or endangered species.				
2021-2025	Project 3.2.2: Manage areas to promote and sustain Northern Long-eared Bat habitat.	SGBP551265, SGBP552265, SGBP553265, SGBP554265, SGBP555265	Cooperative Agreement (CESU Institution)	Medium	Yes
2020-2025	Project 3.2.3: Manage areas to promote and sustain pollinator habitat.	NRM	Ag Lease Fund	Medium	Yes
GOAL 4 – ENHANCE PUBLIC OUTREACH ACTIVIES ON OFFUTT AFB AND NON-CONSUMPTIVE USES OF NATURAL RESOURCES					
Objective 4.1: Encourage base personnel to become more involved with natural resources on Offutt AFB.					
2020-2025	Project 4.1.1: Develop project for Department of Defense Legacy Awards for National Public Lands Day.	NRM		Low	No
Not Scheduled	Project 4.1.2: Develop base lake habitat improvement projects using discarded Christmas trees.		USFWS	Low	No
2020-2025	Project 4.1.3: Implement base lake habitat improvement project using discarded Christmas trees.	SGBP556055AI, SGBP556055AJ, SGBP556055AK, SGBP556055AL, SGBP556055AM, SGBP556055AN	USFWS	Low	No
Objective 4.2: Increase public awareness of natural resources on base through educational efforts.					
2020-2025	Project 4.2.1: Coordinate with Outdoor Recreation to participate with newsletter and social media to share information.	CEI		Low	Yes
Objective 4.3: Establish nature trail system on Offutt AFB.					
2024	Project 4.3.1: Select suitable areas for a nature trail system on Offutt AFB.	CEI		Low	Yes

Not Scheduled	Project 4.3.2: Construct nature trail(s) on Offutt AFB.	CEI		Low	Yes

Key
SWAP = State Wildlife Action Plan
SPSOC = State Plant Species of Concern
NRM = Natural Resources Manager
CEI = 55th Civil Engineer Environmental
CES = 55th Civil Engineer Squadron
AFCEC = Air Force Civil Engineer Center
CEO = 55th Civil Engineer Operations
AFI = Air Force Instruction
USFWS = United States Fish and Wildlife Service (Great Plains Fish and Wildlife Conservation Office)
USFWS ES = United States Fish and Wildlife Service, Nebraska Ecological Services Office
USFWS Partners = United States Fish and Wildlife Service, Nebraska Partners for Fish and Wildlife Office
CZOF = Air Force Wildland Fire Branch
OPR = Office of Primary Responsibility
USACE = US Army Corp of Engineers

11.0 REFERENCES

11.1 Standard References *(Applicable to all USAF installations)*

- AFI 32-7064, *Integrated Natural Resources Management*
- Sikes Act
- eDASH Natural Resources Program Page
- Natural Resources Playbook
- DoDI 4715.03, *Natural Resources Conservation Program*

11.2 Installation References

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12.0 ACRONYMS

12.1 Standard Acronyms (Applicable to all USAF installations)

- eDASH Acronym Library
- Natural Resources Playbook – Acronym Section
- U.S. EPA Terms & Acronyms

12.2 Installation Acronyms

- **ACC** – Air Combat Command
- **bgs** – below ground surface
- **FIRM** – Flood Insurance Map
- **msl** – mean sea level
- **NAAQS** – National Ambient Air Quality Standards
- **NDA** – Nebraska Department of Agriculture
- **NDEE** – Nebraska Department of Environmental Energy
- **NESHAP** – National Emissions Standards for Hazardous Air Pollutants
- **NGPC** – Nebraska Game and Parks Commission
- **NRCS**- Natural Resources Conservation Service
- **NSPS** – New Source Performance Standards
- **OSS –** Operation Support Squadron
- **pCi/l** – pico Curies per liter
- **PSD** – Prevention of Significant Deterioration
- **SAC** – Strategic Air Command
- **USSTRATCOM** – United States Strategic Command
- **VOC** – Volatile Organic Compound

13.0 DEFINITIONS

13.1 Standard Definitions (Applicable to all USAF installations)

- Natural Resources Playbook – Definitions Section

13.2 Installation Definitions

A**gricultural outleasing** is the use of DoD lands under a lease to an agency, organization, or person for the purpose of growing crops or grazing animals.

Biological diversity is the variety of life forms, the ecological roles they perform, and the genetic variability they contain within any defined time and space.

Commercial forestland is land under management capable of producing at least 20 cubic feet of merchantable timber per acre a year. It must be accessible and programmed for silvicultural prescriptions. The smallest area for this classification is 5 acres. Roadside, stream, and shelterbelt strips of timber must have or be capable of producing a crown with at least 120 cubic feet to be classified as a commercial forest.

Cooperative agreement is a written agreement between an Air Force installation and one or more outside agencies (federal, state, or local) that coordinates planning strategies. It is a mechanism for obtaining assistance in developing natural resources programs.

Critical habitat is any air, land, or water area (excluding existing synthetic structures or settlements that are not necessary to the survival and recovery of a listed species) and constituents thereof that the USFWS has designated as essential to the survival and recovery of an endangered or threatened species or a distinct segment of its population.

Cropland is land primarily suited for producing farm crops, including grain, hay, and truck crops.

Ecosystem management is an approach to natural resources management that recognizes the interrelationships of ecological processes linking soils, plants, animals, minerals, climate, water, and topography as a living system that has importance to and is affected by human activity beyond traditional commodity services such as water conservation, oxygen recharge, and nutrient recycling.

Endangered species are all plants and animals listed or proposed for listing as threatened or endangered by agencies of the federal and/or state governments.

Fish are any fresh and salt water fin-fish, other aquatic vertebrate organisms, and crustaceans and mollusks.

Floodplains are defined as 100-year floodplains or areas with a 1 percent chance of inundation in any given year.

Forest land is land on which forest trees of various sizes constitute at least 10 percent of the area. This category includes open land that is capable of supporting trees and is planned for forest regeneration and management.

Forest management is developing, conserving, and protecting forest resources to ensure that they provide sustained yield and multiple uses.

Forest products are plant materials in wooded areas that have commercial value, such as sawlogs, veneer (peeler) logs, poles, pilings, pine needles, cordwood (for pulp, paper, or firewood), fence posts, mine timber, Christmas trees (from unsheared trees cut during intermediate harvests), and similar wood or chemical products.

Game is any species of fish or wildlife for which state or federal laws and regulations prescribe hunting seasons and bag or creel limits.

Grazing land is land with vegetative cover that consists of grasses, forbs, and shrubs valuable as forage.

Grazing systems are specialized methods of grazing management (the manipulation of livestock grazing to accomplish a desired result) that define systematically recurring periods of grazing and deferment for pastures or management units.

Habitat is an area that provides the environmental elements of air, water, food, cover, and space necessary for a given species to survive and reproduce.

Highly erodible soils are soils that because of their physical properties or slope, the U.S. Department of Agriculture, Natural Resources Conservation Service, identifies as being highly susceptible to wind or water erosion.

Improved grounds are grounds on which intensive maintenance activities are annually planned and performed. These are developed areas of an installation that have lawns and landscape plantings that require intensive maintenance. These typically include the athletic areas, golf courses (excluding roughs), housing and dormitory areas, general office and command buildings, etc.

Integrated Natural Resources Management Plan (INRMP) is a natural resources management plan based on ecosystem management that shows the interrelationships of all individually-addressed component plans such as forestry plans, fish and wildlife plans, and outdoor recreation plans, as well as other mission and adjacent land use activities to the basic land management plans.

Integrated Pest Management Plan (IPMP) is a planned program incorporating continuous monitoring, education, record-keeping, and communication to prevent pests and disease vectors from causing unacceptable damage to operations, people, property, material, or the environment. IPM includes methods such as habitat modification, biological control, genetic control, cultural methods, mechanical control, physical control, regulatory control, and the judicious use of least- hazardous pesticides.

Invasive species are any plant or animal not native to a region, state, or country. This definition excludes certain game species that have become established, such as pheasants.

Land management unit is the smallest land management division that planners use in developing specific strategies to accomplish natural resources management goals. Land management units may correspond to grazing units on agricultural out-leased lands, stands or compartments on commercial forest lands, various types of improved grounds (for example, athletic fields, parks, yards in family housing, or landscaped areas around administrative buildings), or identifiable semi-improved grounds (for example, airfield areas, utility rights-of- way, or roadside areas).

Land-use regulation is a document that prescribes the specific technical actions or land use and restrictions with which lessees, permittees, or contractors must comply. It derives from the grazing or cropland management plan and forms a part of all outleases, land use permits, and other contracts.

Livestock are domestic animals kept or raised for food, by-products, work, transportation, or recreation.

Multiple-use is the integrated, coordinated, and compatible use of various natural resources to derive the best benefit while perpetuating and protecting those resources.

Multiple-use and sustained yield management is the care and use of natural resources so as to best serve the present and future needs of the United States and its people without impairing the productivity of the land and water.

Natural resources management professional is an individual with a degree in the natural sciences who has responsibility for managing natural resources on a regular basis and receives periodic training to maintain proficiency in managing natural resources.

Non-commercial forest land is land not capable of yielding forest products of at least 20 cubic feet per acre a year because of adverse site conditions. The classification also includes productive forestland on which mission requirements, accessibility, or non-compatible uses preclude forest management activities.

Outdoor recreation is recreation that relates directly to and occurs in natural, outdoor environments.

Outdoor recreation resources are land and water areas and associated natural resources that provide, or have the potential to provide, opportunities for outdoor recreation for present and future generations.

Rangeland is land on which the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs suitable for grazing or browsing use. It includes lands vegetated naturally or artificially to provide forage cover that is managed like native vegetation and includes natural grasslands, savannas, shrubland, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

Recreation carrying capacity is the level of recreational use that an area can sustain without damage to the environment.

Reforestation is the renewal or regeneration of a forest by natural or artificial means.

Semi-improved grounds are grounds where periodic maintenance is performed primarily for operational and aesthetic reasons (such as erosion and dust control, bird control, and visual clear zones). These typically include grounds adjacent to runways, taxiways, and aprons, runway clear zones, lateral safety zones (Air Force Regulation [AFR] 86-14), rifle and pistol ranges, picnic areas, ammunition storage areas, antenna facilities, golf course roughs, etc.

Silviculture is a branch of forestry dealing with the development of care of forests.

Stewardship is the management of a resources base with the goal of maintaining or increasing resource value indefinitely into the future.

Survey is an enumeration or index of the number of individuals in an area from which inferences about the population can be made.

Threatened species are those federal- or state-listed species of flora and fauna that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range and that have been designated for special protection and management pursuant to the Endangered Species Act.

Unimproved grounds are all grounds not classified as improved or semi-improved and usually not mowed more than once per year. These include weapons ranges, forestlands, cropland and grazing lands, wetlands, and areas in the airfield beyond the safety zone (AFRs 86-5 and 86-14).

Unique farmland is land, other than prime farmland, used for producing specific high-value food and fiber crops at the time of designation. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high-quality or high yields of a specific crop under modern farming methods.

Urban forests are planted or remnant native trees species existing within urbanized areas such as parks, tree-lined residential streets, scattered tracts of undisturbed woodlands, and cantonment areas.

Watchable wildlife areas are areas identified under the Watchable Wildlife Program as suitable for passive recreational uses such as bird watching, nature study, and other non-consumptive uses of wildlife resources.

Wetlands are areas inundated or saturated by surface or ground water at a frequency and duration to support (under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions.

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14.0 APPENDICES

14.1. Standard Appendices

Appendix A. Annotated Summary of Key Legislation Related to Design and Implementation of the INRMP

Federal Public Laws and Executive Orders	
National Defense Authorization Act of 1989, Public Law (P.L.) 101-189; Volunteer Partnership Cost-Share Program	Amends two Acts and establishes volunteer and partnership programs for natural and cultural resources management on DoD lands.
Defense Appropriations Act of 1991, P.L. 101-511; Legacy Resource Management Program	Establishes the "Legacy Resource Management Program" for natural and cultural resources. Program emphasis is on inventory and stewardship responsibilities of biological, geophysical, cultural, and historic resources on DoD lands, including restoration of degraded or altered habitats.
EO 11514, *Protection and Enhancement of Environmental Quality*	Federal agencies shall initiate measures needed to direct their policies, plans, and programs to meet national environmental goals. They shall monitor, evaluate, and control agency activities to protect and enhance the quality of the environment.
EO 11593, *Protection and Enhancement of the Cultural Environment*	All Federal agencies are required to locate, identify, and record all cultural resources. Cultural resources include sites of archaeological, historical, or architectural significance.
EO 11987, *Exotic Organisms*	Agencies shall restrict the introduction of exotic species into the natural ecosystems on lands and waters which they administer.
EO 11988, *Floodplain Management*	Provides direction regarding actions of Federal agencies in floodplains, and requires permits from state, territory and Federal review agencies for any construction within a 100-year floodplain and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for acquiring, managing and disposing of Federal lands and facilities.
EO 11989, *Off-Road vehicles on Public Lands*	Installations permitting off-road vehicles to designate and mark specific areas/trails to minimize damage and conflicts, publish information including maps, and monitor the effects of their use. Installations may close areas if adverse effects on natural, cultural, or historic resources are observed.
EO 11990, *Protection of Wetlands*	Requires Federal agencies to avoid undertaking or providing assistance for new construction in wetlands unless there is no practicable alternative, and all practicable measures to minimize harm to wetlands have been implemented and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's

Federal Public Laws and Executive Orders	
	responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.
EO 12088, *Federal Compliance with Pollution Control Standards*	This EO delegates responsibility to the head of each executive agency for ensuring all necessary actions are taken for the prevention, control, and abatement of environmental pollution. This order gives the U.S. Environmental Protection Agency (US EPA) authority to conduct reviews and inspections to monitor federal facility compliance with pollution control standards.
EO 12898, *Environmental Justice*	This EO requires certain federal agencies, including the DoD, to the greatest extent practicable permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations.
EO 13112, *Exotic and Invasive Species*	To prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.
EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*	The USFWS has the responsibility to administer, oversee, and enforce the conservation provisions of the Migratory Bird Treaty Act, which includes responsibility for population management (e.g., monitoring), habitat protection (e.g., acquisition, enhancement, and modification), international coordination, and regulations development and enforcement.
United States Code	
Animal Damage Control Act (7 U.S.C. § 426-426b, 47 Stat. 1468)	Provides authority to the Secretary of Agriculture for investigation and control of mammalian predators, rodents, and birds. DoD installations may enter into cooperative agreements to conduct animal control projects.
Bald and Golden Eagle Protection Act of 1940, as amended; 16 U.S.C. 668-668c	This law provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the Act.
Clean Air Act, (42 U.S.C. § 7401– 7671q, July 14, 1955, as amended)	This Act, as amended, is known as the Clean Air Act of 1970. The amendments made in 1970 established the core of the clean air program. The primary objective is to establish Federal standards for air pollutants. It is designed to improve air quality in areas of the country which do not meet federal standards and to prevent significant deterioration in areas where air quality exceeds those standards.
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (Superfund) (26	Authorizes and administers a program to assess damage, respond to releases of hazardous substances, fund cleanup, establish clean-up standards, assign liability, and other efforts to address environmental contaminants. Installation Restoration Program guides cleanups at DoD installations.

Federal Public Laws and Executive Orders	
U.S.C. § 4611–4682, P.L. 96-510, 94 Stat. 2797), as amended	
Endangered Species Act (ESA) of 1973, as amended; P.L. 93-205, 16 U.S.C. § 1531 et seq.	Protects threatened, endangered, and candidate species of fish, wildlife, and plants and their designated critical habitats. Under this law, no federal action is allowed to jeopardize the continued existence of an endangered or threatened species. The ESA requires consultation with the USFWS and the NOAA Fisheries (National Marine Fisheries Service) and the preparation of a biological evaluation or a biological assessment may be required when such species are present in an area affected by government activities.
Federal Aid in Wildlife Restoration Act of 1937 (16 U.S.C. § 669–669i; 50 Stat. 917) (Pittman-Robertson Act)	Provides federal aid to states and territories for management and restoration of wildlife. Fund derives from sports tax on arms and ammunition. Projects include acquisition of wildlife habitat, wildlife research surveys, development of access facilities, and hunter education.
Federal Environmental Pesticide Act of 1972	Requires installations to ensure pesticides are used only in accordance with their label registrations and restricted-use pesticides are applied only by certified applicators.
Federal Land Use Policy and Management Act, 43 U.S.C. § 1701–1782	Requires management of public lands to protect the quality of scientific, scenic, historical, ecological, environmental, and archaeological resources and values; as well as to preserve and protect certain lands in their natural condition for fish and wildlife habitat. This Act also requires consideration of commodity production such as timbering.
Federal Noxious Weed Act of 1974, 7 U.S.C. § 2801–2814	The Act provides for the control and management of non-indigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health.
Federal Water Pollution Control Act (Clean Water Act [CWA]), 33 U.S.C. §1251–1387	The CWA is a comprehensive statute aimed at restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. Primary authority for the implementation and enforcement rests with the US EPA.
Fish and Wildlife Conservation Act (16 U.S.C. § 2901–2911; 94 Stat. 1322, PL 96-366)	Installations encouraged to use their authority to conserve and promote conservation of nongame fish and wildlife in their habitats.
Fish and Wildlife Coordination Act (16 U.S.C. § 661 et seq.)	Directs installations to consult with the USFWS, or state or territorial agencies to ascertain means to protect fish and wildlife resources related to actions resulting in the control or structural modification of any natural stream or body of water. Includes provisions for mitigation and reporting.
Lacey Act of 1900 (16 U.S.C. § 701, 702, 32 Stat. 187, 32 Stat. 285)	Prohibits the importation of wild animals or birds or parts thereof, taken, possessed, or exported in violation of the laws of the country or territory of origin. Provides enforcement and penalties for violation of wildlife related Acts or regulations.
Leases: Non-excess Property of Military Departments, 10 U.S.C. § 2667, as amended	Authorizes DoD to lease to commercial enterprises Federal land not currently needed for public use. Covers agricultural outleasing program.

Federal Public Laws and Executive Orders	
Migratory Bird Treaty Act 16 U.S.C. § 703–712	The Act implements various treaties for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds is unlawful without a valid permit.
National Environmental Policy Act of 1969 (NEPA), as amended; P.L. 91-190, 42 U.S.C. § 4321 et seq.	Requires federal agencies to utilize a systematic approach when assessing environmental impacts of government activities. Establishes the use of environmental impact statements. NEPA proposes an interdisciplinary approach in a decision-making process designed to identify unacceptable or unnecessary impacts on the environment. The Council of Environmental Quality (CEQ) created Regulations for Implementing the National Environmental Policy Act [40 Code of Federal Regulations (CFR) Parts 1500– 1508], which provide regulations applicable to and binding on all Federal agencies for implementing the procedural provisions of NEPA, as amended.
National Historic Preservation Act, 16 U.S.C. § 470 et seq.	Requires federal agencies to take account of the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP). Provides for the nomination, identification (through listing on the NRHP), and protection of historical and cultural properties of significance.
National Trails Systems Act (16 U.S.C. § 1241–1249)	Provides for the establishment of recreation and scenic trails.
National Wildlife Refuge Acts	Provides for establishment of National Wildlife Refuges through purchase, land transfer, donation, cooperative agreements, and other means.
National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. § 668dd–668ee)	Provides guidelines and instructions for the administration of Wildlife Refuges and other conservation areas.
Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. § 3001–13; 104 Stat. 3042), as amended	Established requirements for the treatment of Native American human remains and sacred or cultural objects found on Federal lands. Includes requirements on inventory, and notification.
Rivers and Harbors Act of 1899 (33 U.S.C. § 401 et seq.)	Makes it unlawful for the USAF to conduct any work or activity in navigable waters of the United States without a federal permit. Installations should coordinate with the U.S. Army Corps of Engineers (USACE) to obtain permits for the discharge of refuse affecting navigable waters under National Pollutant Discharge Elimination System (NPDES) and should coordinate with the USFWS to review effects on fish and wildlife of work and activities to be undertaken as permitted by the USACE.
Sale of certain interests in land, 10 U.S.C. § 2665	Authorizes sale of forest products and reimbursement of the costs of management of forest resources.
Soil and Water Conservation Act (16 U.S.C. § 2001, P.L. 95-193)	Installations shall coordinate with the Secretary of Agriculture to appraise, on a continual basis, soil/water-related resources. Installations will develop and update a program for furthering the conservation, protection, and enhancement of these resources consistent with other federal and local programs.

Federal Public Laws and Executive Orders	
Sikes Act (16 U.S.C. § 670a–670l, 74 Stat. 1052), as amended	Provides for the cooperation of DoD, the Departments of the Interior (USFWS), and the State Fish and Game Department in planning, developing, and maintaining fish and wildlife resources on a military installation. Requires development of an INRMP and public access to natural resources and allows collection of nominal hunting and fishing fees. NOTE: AFI 32-7064 sec 3.9. Staffing. As defined in DoDI 4715.03, use professionally trained natural resources management personnel with a degree in the natural sciences to develop and implement the installation INRMP. (T-0). 3.9.1. Outsourcing Natural Resources Management. As stipulated in the Sikes Act, 16 U.S.C. § 670 et. seq., the Office of Management and Budget Circular No. A-76, Performance of Commercial Activities, August 4, 1983 (Revised May 29, 2003) does not apply to the development, implementation and enforcement of INRMPs. Activities that require the exercise of discretion in making decisions regarding the management and disposition of government owned natural resources are inherently governmental. When it is not practicable to utilize DoD personnel to perform inherently governmental natural resources management duties, obtain these services from federal agencies having responsibilities for the conservation and management of natural resources.
DoD Policy, Directives, and Instructions	
DoD Instruction 4150.07 *DoD Pest Management Program* dated 29 May 2008	Implements policy, assigns responsibilities, and prescribes procedures for the DoD Integrated Pest Management Program.
DoD Instruction 4715.1, *Environmental Security*	Establishes policy for protecting, preserving, and (when required) restoring and enhancing the quality of the environment. This instruction also ensures environmental factors are integrated into DoD decision-making processes that could impact the environment, and are given appropriate consideration along with other relevant factors.
DoD Instruction (DoDI) 4715.03, *Natural Resources Conservation Program*	Implements policy, assigns responsibility, and prescribes procedures under DoDI 4715.1 for the integrated management of natural and cultural resources on property under DoD control.
OSD Policy Memorandum – 17 May 2005 – *Implementation of Sikes Act Improvement Amendments: Supplemental Guidance Concerning Leased Lands*	Provides supplemental guidance for implementing the requirements of the Sikes Act in a consistent manner throughout DoD. The guidance covers lands occupied by tenants or lessees or being used by others pursuant to a permit, license, right of way, or any other form of permission. INRMPs must address the resource management on all lands for which the subject installation has real property accountability, including leased lands. Installation commanders may require tenants to accept responsibility for performing appropriate natural resource management actions as a condition of their occupancy or use, but this does not preclude the requirement to address the natural resource management needs of these lands in the installation INRMP.
OSD Policy Memorandum – 1 November 2004 – *Implementation of Sikes Act*	Emphasizes implementing and improving the overall INRMP coordination process. Provides policy on scope of INRMP review, and public comment on INRMP review.

Federal Public Laws and Executive Orders	
Improvement Act Amendments: Supplemental Guidance Concerning INRMP Reviews	
OSD Policy Memorandum – 10 October 2002 – *Implementation of Sikes Act Improvement Act: Updated Guidance*	Provides guidance for implementing the requirements of the Sikes Act in a consistent manner throughout DoD and replaces the 21 September 1998 guidance Implementation of the Sikes Act Improvement Amendments. Emphasizes implementing and improving the overall INRMP coordination process and focuses on coordinating with stakeholders, reporting requirements and metrics, budgeting for INRMP projects, using the INRMP as a substitute for critical habitat designation, supporting military training and testing needs, and facilitating the INRMP review process.
USAF Instructions and Directives	
32 CFR Part 989, as amended, and AFI 32-7061, Environmental Impact Analysis Process (EIAP)	Provides guidance and responsibilities in the EIAP for implementing INRMPs. Implementation of an INRMP constitutes a major federal action and therefore is subject to evaluation through an Environmental Assessment or an Environmental Impact Statement.
AFI 32-7062, *Air Force Comprehensive Planning*	Provides guidance and responsibilities related to the USAF comprehensive planning process on all USAF-controlled lands.
AFI 32-7064, *Integrated Natural Resources Management*	Implements AFPD 32-70, *Environmental Quality;* DoDI 4715.03, *Natural Resources Conservation Program*; and DoDI 7310.5, *Accounting for Sale of Forest Products*. It explains how to manage natural resources on USAF property in compliance with Federal, state, territorial, and local standards.
AFI 32-7065, *Cultural Resources Management*	This instruction implements AFPD 32-70 and DoDI 4710.1, *Archaeological and Historic Resources Management.* It explains how to manage cultural resources on USAF property in compliance with Federal, state, territorial, and local standards.
AFPD 32-70, *Environmental Quality*	Outlines the USAF mission to achieve and maintain environmental quality on all USAF lands by cleaning up environmental damage resulting from past activities, meeting all environmental standards applicable to present operations, planning its future activities to minimize environmental impacts, managing responsibly the irreplaceable natural and cultural resources it holds in public trust and eliminating pollution from its activities wherever possible. AFPD 32-70 also establishes policies to carry out these objectives.
Policy Memo for Implementation of Sikes Act Improvement Amendments, HQ USAF Environmental Office (USAF/ILEV) on January 29, 1999	Outlines the USAF interpretation and explanation of the Sikes Act and Improvement Act of 1997.

14.2. Installation Appendices

Appendix B. State Listed At-Risk Species for Sarpy County, Nebraska

Scientific Name	Common Name
Actaea rubra	Red Baneberry
Aesculus glabra var. argute	Western Buckeye
Agastache scrophulariaefolia	Purple Giant Hyssop
Agrimonia pubescens	Soft agrimony
Ambystoma texanum	Smallmouth Salamander
Amelanchier arborea	Downy Serviceberry
Arabis canadensis	Sicklepod
Aralia racemosa	American Spikenard
Arisaema dracontium	Green Dragon
Arnoglossum atriplicifolium	Pale Indian-plantain
Asclepias amplexicaulis	Clasping Milkweed
Asimina triloba	Pawpaw
Brachyelytrum erectum	Bearded Short-husk
Bufo americanus	American Toad
Buteo lineatus	Red-shouldered Hawk
Caprimulgus vociferous	Whip-poor-will
Carex hitchcockiana	Hitchcock's Sedge
Carex saximontana	Rocky Mountain Sedge
Carex texensis	A Sedge
Carphophis amoenus	Worm Snake
Caulophyllum thalictroides	Blue Cohosh
Certhia americana	Brown Creeper
Claytonia virginica	Narrow-leaved Spring Beauty
Corallorhiza odontorhiza	Autumn Coral-root
Croton capitatus var. capitatus	Woolly Croton
Culaea inconstans	Brook Stickleback
Cycleptus elongatus	Blue Sucker
Cypripedium calceolus	Small Yellow Lady's-slipper
Dendroica cerulea	Cerulean Warbler
Dryocopus pileatus	Pileated Woodpecker
Equisetum fluviatile	Water Horsetail
Erythronium mesochoreum	Midland Fawnlily
Eupatorium serotinum	Late Boneset
Falco peregrinus	Peregrine Falcon
Fimbristylis autumnalis	Slender Fimbry
Galearis spectabilis	Showy Orchid
Helianthemum bicknellii	Plains Frostweed
Helianthus hirsutus	Stiff-hair Sunflower
Ichthyomyzon unicuspis	Silver Lamprey
Lampropeltis calligaster	Prairie Kingsnake
Leucospora multifida	Narrowleaf Paleseed
Lilium canadense	Turk's Cap Lily
Lonicera dioica var. glaucescens	Yellow Honeysuckle
Mimulus alatus	Sharp-wing Monkeyflower

Scientific Name	Common Name
Monotropa uniflora	Indian-pipe
Muhlenbergia tenuiflora	Slender Muhly
Nocomis biguttatus	Hornyhead Chub
Notropis shumardi	Silverband Shiner
Nymphaea odorata	American Water-lily
Oryzopsis racemosa	Black-fruit Mountain-ricegrass
Pedicularis lanceolata	Swamp Lousewort
Pipistrellus subflavus	Eastern Pipistrelle
Polioptila caerulea	Blue-gray Gnatcatcher
Protonotaria citrea	Prothonotary Warbler
Quercus prinoides	Dwarf Chinquapin Oak
Ranunculus hispidus var. caricetorum	Bristly Buttercup
Regina grahami	Graham's Crayfish Snake
Rubus allegheniensis	Allegheny Blackberry
Sanguinaria canadensis	Bloodroot
Seiurus motacilla	Louisiana Waterthrush
Senecio pseudaureus var. semicordatus	Streambank Ragwort
Staphylea trifolia	American Bladdernut
Strix varia	Barred Owl
Thamnophis proximus	Western Ribbon Snake
Ulmus thomasii	Rock Elm
Vireo bellii	Bell's Vireo
Vireo flavifrons	Yellow-throated Vireo
Vireo griseus	White-eyed Vireo
Zizania palustris	Indian Wild Rice

Appendix C. 2009 Wetland Summary for Offutt AFB, Nebraska

WETLAND ID	WETLAND TYPE	DESCRIPTION	JD STATUS	JD RATIONALE	JD (ac)	NON-JD	LAT	LONG	FIG NUM	PHOTO ID
MAIN BASE										
A1	Wetland	Edge of pond, emergent wetland	JD	Status prior to disturbance unknown, not specifically excluded by definition	0.13	0.00	41.114435	-95.929163	3-9	
A2	Wetland	Wet meadow, primarily emergent vegetation	JD	Status prior to disturbance unknown, not specifically excluded by definition	13.41	0.00	41.108768	-95.919771	3-9	1
A3	Wetland	Swale, primarily emergent vegetation	JD	Status prior to disturbance unknown, not specifically excluded by definition	0.34	0.00	41.109883	-95.919099	3-9	
A4	Drainage, Non-wetland	Papillion Creek, channelized with levees	JD	Major drainage for Main Base	6.71	0.00	41.104123	-95.917221	3-9; 3-10	
A5	Drainage, Non-wetland	Channel emerging from pipe	JD	Status prior to disturbance unknown, not specifically excluded by definition	0.04	0.00	41.110401	-95.923037	3-9	
A6	Drainage, Non-wetland	Channel connecting pipes	JD	Status prior to disturbance unknown, not specifically excluded by definition	0.03	0.00	41.109879	-95.921885	3-9	
A7	Wetland	Isolated topographic depression	Non-JD	Excluded based on USACE 1998 letter, near exclusion	0.00	0.04	41.111258	-95.924397	3-9	
A8	Wetland	Swale, primarily emergent vegetation	Non-JD	Excluded based on USACE 1998 letter, near exclusion	0.00	0.55	41.111010	-95.922416	3-9	
A9	Wetland	In highway cloverleaf	Non-JD	Excluded based on USACE 1998 letter, near exclusion	0.00	0.06	41.113807	-95.926400	3-9	2
A10	Wetland	In highway cloverleaf	Non-JD	Excluded based on USACE 1998 letter, near exclusion	0.00	0.14	41.113437	-95.925807	3-9	
A11	Wetland	Depression at end of pipe, Connects to A13	Non-JD	Excluded based on USACE 1998 letter, near exclusion	0.00	0.02	41.112330	-95.927111	3-9	
A12	Wetland	Primarily woodland with scrub/shrub, and	Non-JD	Excluded based on USACE 1998 letter, near exclusion	0.00	0.77	41.112632	-95.926543	3-9	

WETLAND ID	WETLAND TYPE	DESCRIPTION	JD STATUS	JD RATIONALE	JD (ac)	NON-JD	LAT	LONG	FIG NUM	PHOTO ID
MAIN BASE										
A13	Drainage, Non-wetland	Incised drainage channel, Connects to A11	Non-JD	Excluded based on USACE 1998 letter, near exclusion boundary	0.00	0.13	41.111968	-95.926468	3-9	3
A14	Wetland	Depression at toe of RR Bed	Non-JD	Feature likely a borrow area for RR	0.00	0.01	41.112525	-95.927958	3-9	
A15	Wetland	Swale, primarily emergent vegetation	Non-JD	Field drainage feature in cropland	0.00	0.07	41.102121	-95.913701	3-10	
B1	Wetland	Near drainage into the base lake	JD	The base lake meets definition of water of the US	0.10	0.00	41.111720	-95.889306	3-12	
B2	Wetland	Edge of the base lake, emergent and scrub/shrub vegetation	JD	The base lake meets definition of water of the US	1.54	0.00	41.114347	-95.888476	3-12; 3-13	4
B3	Wetland	Edge of the base lake, emergent and scrub/shrub vegetation	JD	The base lake meets definition of water of the US	1.13	0.00	41.113589	-95.880205	3-12; 3-13	
B4	Wetland	Edge of the base lake, emergent and scrub/shrub vegetation	JD	The base lake meets definition of water of the US	2.41	0.00	41.116532	-95.880992	3-13	
B5	Wetland	Edge of the base lake, emergent and scrub/shrub vegetation	JD	The base lake meets definition of water of the US	0.16	0.00	41.115119	-95.886486	3-13	
B6	Wetland	Northern drainage of the base lake, primarily emergent vegetation	JD	Engineered channel that likely diverted other waters of the US	0.92	0.00	41.118289	-95.880708	3-13	5
B7	Open Water, Non	The base lake	JD	The base lake meets definition of water of the US	119.33	0.00	41.114832	-95.884264	3-12; 3-13	6
B8	Wetland	Northern drainage of the base lake, primarily emergent vegetation	JD	Engineered channel that likely diverted other waters of the US	0.41	0.00	41.118613	-95.889043	3-8; 3-13	
C1	Wetland	"L-Pond" - wetland feature, w/ surrounding depressions, emergent	Non-JD	Excluded based on USACE 1998 letter	0.00	7.68	41.108599	-95.895758	3-11; 3-12	

WETLAND ID	WETLAND TYPE	DESCRIPTION	JD STATUS	JD RATIONALE	JD (ac)	NON-JD	LAT	LONG	FIG NUM	PHOTO ID
MAIN BASE										
C2	Wetland	Mowed drainage swale	Non-JD	Excluded based on USACE 1998 letter	0.00	0.68	41.106836	-95.896748	3-11	
C3	Wetland	Mowed drainage swale	Non-JD	Excluded based on USACE 1998 letter	0.00	0.18	41.105443	-95.898601	3-11	
C4	Wetland	Mowed drainage swale	Non-JD	Excluded based on USACE 1998 letter	0.00	0.57	41.105385	-95.900607	3-11	
C5	Wetland	Mowed drainage swale	Non-JD	Excluded based on USACE 1998 letter	0.00	0.24	41.105846	-95.903518	3-10; 3-11	
C6	Wetland	Fringe wetland associated with a major	Non-JD	Excluded based on USACE 1998 letter	0.00	0.24	41.104895	-95.904359	3-10; 3-11	
C7	Wetland	Mowed drainage swale	Non-JD	Excluded based on USACE 1998 letter	0.00	0.24	41.106494	-95.903829	3-11	
C8	Wetland	Mowed drainage swale	Non-JD	Excluded based on USACE 1998 letter	0.00	0.03	41.106643	-95.904160	3-11	
C9	Wetland	Topographic depression, emergent vegetation	Non-JD	Excluded based on USACE 1998 letter	0.00	0.13	41.107665	-95.903407	3-11	
C10	Wetland	Topographic depression, emergent vegetation	Non-JD	Excluded based on USACE 1998 letter	0.00	0.88	41.107532	-95.904187	3-11	7
C11	Filled in Wetland	Filled in during const. of 97th I-S Facility. Previously a 0.94 ac		No longer existing - filled in during construction of97th IS facility	0.00	0.00	41.110216	-95.909701	3-11	8
C12	Wetland	Mowed drainage swale	Non-JD	Excluded based on USACE 1998 letter	0.00	0.36	41.107785	-95.897333	3-11	
C13	Drainage, Non-wetland	Major southern drainage for Base	Non-JD	Excluded based on USACE 1998 letter	0.00	0.23	41.105028	-95.904371	3-10; 3-11	
C15	Wetland	Drainage swale, emergent wetland	Non-JD	Excluded based on USACE 1998 letter	0.00	0.66	41.108045	-95.906268	3-11	9
C16	Wetland	Drainage swale, emergent wetland	Non-JD	Excluded based on USACE 1998 letter	0.00	0.21	41.109281	-95.907916	3-11	

WETLAND ID	WETLAND TYPE	DESCRIPTION	JD STATUS	JD RATIONALE	JD (ac)	NON-JD	LAT	LONG	FIG NUM	PHOTO ID
MAIN BASE										
Cp1	Wetland	Fringe emergent wetland of Cp13, Willow Lakes Golf	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.08	41.126638	-95.938636	3-2	
Cp2	Wetland	Mowed swale, near Willow Lakes Golf Course -#4 tee box	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.30	41.124925	-95.938307	3-2	
Cp3	Wetland	Fringe emergent wetland of Cp14, Willow Lakes Golf	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.15	41.124328	-95.939173	3-2; 3-4	
Cp4	Wetland	Fringe emergent wetland of Cp15, Willow Lakes Golf	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.13	41.123389	-95.939865	3-4	
Cp5	Wetland	Emergent wetland, discharging to Cp15, Willow Lakes Golf Course	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.30	41.124137	-95.941387	3-2; 3-4	
Cp6	Wetland	Fringe emergent wetland of Cp16, Willow Lakes Golf	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.07	41.122478	-95.938816	3-4	
Cp7	Wetland	Mowed depression, Willow Lakes Golf Course - Backside #4	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.06	41.122110	-95.938320	3-4	
Cp8	Wetland	Fringe emergent wetland of Cp17, Willow Lakes Golf	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.17	41.121267	-95.940850	3-4	
Cp9	Wetland	Fringe emergent wetland of Cp18, Willow Lakes Golf	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.08	41.121254	-95.939875	3-4	
Cp10	Wetland	Fringe emergent wetland of Cp19, Willow Lakes Golf	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.09	41.121085	-95.938601	3-4	

WETLAND ID	WETLAND TYPE	DESCRIPTION	JD STATUS	JD RATIONALE	JD (ac)	NON-JD	LAT	LONG	FIG NUM	PHOTO ID
MAIN BASE										
Cp11	Wetland	Fringe emergent wetland of Cp20, Willow Lakes Golf	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.08	41.119592	-95.940434	3-4	
Cp12	Wetland	Fringe emergent wetland of Cp21, Willow Lakes Golf	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.06	41.119112	-95.939221	3-4	
Cp13	Open Water	Open Water, Willow Lakes Golf Course - #3	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.31	41.126602	-95.938615	3-2	
Cp14	Open Water	Open Water, Willow Lakes Golf Course - #4	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.41	41.124363	-95.939173	3-2; 3-4	
Cp15	Open Water	Open Water, Willow Lakes Golf Course - #7	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.41	41.123391	-95.939797	3-4	
Cp16	Open Water	Open Water, Willow Lakes Golf Course - #4	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.43	41.122567	-95.938817	3-4	
Cp17	Open Water	Open Water, Willow Lakes Golf Course -	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	1.01	41.121329	-95.940984	3-4	
Cp18	Open Water	Open Water, Willow Lakes Golf Course - #13, #6 Fairways	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.56	41.121350	-95.939847	3-4	
Cp19	Open Water	Open Water, Willow Lakes Golf Course - #5	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.73	41.121176	-95.938498	3-4	
Cp20	Open Water	Open Water, Willow Lakes Golf Course -	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.69	41.119580	-95.940502	3-4	
Cp21	Open Water	Open Water, Willow Lakes Golf Course - #5	Non-JD	Pond excavated in upland based on 1952 aerial photo	0.00	0.52	41.119209	-95.939243	3-4	
Cp22	Wetland, Mixed	Drainage swale, located parallel to Kennedy	JD	Drainage visible on 1952 aerial photo	0.78	0.00	41.127250	-95.953994	3-1	
Cp23	Wetland	Mowed swale, emergent vegetation, Lemay School playground	Non-JD	Excavated in upland based on 1952 aerial photo	0.00	0.06	41.130316	-95.952921	3-1	

WETLAND ID	WETLAND TYPE	DESCRIPTION	JD STATUS	JD RATIONALE	JD (ac)	NON-JD	LAT	LONG	FIG NUM	PHOTO ID
MAIN BASE										
Cp24	Wetland, Mixed	Drainage, emergent/ scrub- shrub, Willow Lakes Golf Course - Driving Range	JD	Drainage visible on 1952 aerial photo	0.62	0.00	41.128130	-95.945193	3-2	
Cp25	Drainage	Drainage channel, emergent/scrub-shrub, Willow Lakes Golf Course	JD	Drainage visible on 1952 aerial photo	0.51	0.00	41.127428	-95.941125	3-2	
D1	Wetland	Mowed depression receiving drainage from paved runways	Non-JD	Excluded based on USACE 1998 letter	0.00	4.20	41.116352	-95.900613	3-8	
D2	Wetland	Mowed depression receiving drainage from paved runways	Non-JD	Excluded based on USACE 1998 letter	0.00	2.24	41.113363	-95.894634	3-8; 3-11; 3-12	
D3	Wetland	Fringe wetland to D14, primarily emergent vegetation	Non-JD	Excluded based on USACE 1998 letter	0.00	1.17	41.111037	-95.890786	3-11; 3-12	10
D4	Wetland	Small topographic depression, primarily emergent vegetation	Non-JD	Excluded based on USACE 1998 letter	0.00	0.01	41.112692	-95.890946	3-11; 3-12	
D5	Wetland	Mowed drainage swale adjacent to Harlan Lewis Rd	Non-JD	Excluded based on USACE 1998 letter	0.00	1.56	41.113650	-95.890298	3-8; 3-11; 3-12	
D6	Wetland	Drainage swale surrounding ammo storage facility	Non-JD	Excluded based on USACE 1998 letter	0.00	2.66	41.116005	-95.892355	3-8	
D7	Wetland	Mowed drainage swale adjacent to Harlan Lewis Rd	Non-JD	Excluded based on USACE 1998 letter	0.00	1.09	41.116654	-95.890316	3-8	
D8	Wetland	Mowed drainage swale adjacent to Harlan Lewis Rd	Non-JD	Excluded based on USACE 1998 letter	0.00	0.11	41.118181	-95.890328	3-8	

WETLAND ID	WETLAND TYPE	DESCRIPTION	JD STATUS	JD RATIONALE	JD (ac)	NON-JD	LAT	LONG	FIG NUM	PHOTO ID
MAIN BASE										
D9	Wetland	Major drainage along north side of fire training /runways, emergent	Non-JD	Excluded based on USACE 1998 letter	0.00	3.17	41.119064	-95.898633	3-8	11
D10	Wetland	Mowed depression receiving drainage from paved runways	Non-JD	Excluded based on USACE 1998 letter	0.00	0.35	41.120296	-95.905914	3-8	
D11	Wetland	Northeastern Base drainage, adjacent to Modification Rd, emergent vegetation	Non-JD	Excluded based on USACE 1998 letter	0.00	0.10	41.128800	-95.906967	3-6	12
D12	Wetland	Northeastern Base drainage, adjacent to Modification Rd, emergent wetland	Non-JD	Excluded based on USACE 1998 letter	0.00	0.26	41.130443	-95.905364	3-6	13
D13	Drainage, Non-wetland	Northeastern Base drainage, adjacent to S. Calhoun St	Non-JD	Excluded based on USACE 1998 letter	0.00	0.51	41.132811	-95.905176	3-6	14
D14	Open Water	Open Water feature surrounded by D3, Gemini Blvd / Harlan Lewis Rd intersection	Non-JD	Excluded based on USACE 1998 letter	0.00	0.56	41.110818	-95.890835	3-11; 3-12	10
E1	Wetland	Forested wetland associated with drainage fromE4	Non-JD	Excluded based on USACE 1998 letter	0.00	0.32	41.133032	-95.923854	3-5	15
E2	Wetland	Mowed depression	Non-JD	Excluded based on USACE 1998 letter	0.00	0.05	41.133077	-95.925302	3-5	16
E3	Wetland	Mowed depression	Non-JD	Excluded based on USACE 1998 letter	0.00	0.02	41.133238	-95.924987	3-5	
E4	Drainage, Non-wetland	Drainage from pipe, discharges into E1	Non-JD	Excluded based on USACE 1998 letter	0.00	0.02	41.133060	-95.923181	3-5	

WETLAND ID	WETLAND TYPE	DESCRIPTION	JD STATUS	JD RATIONALE	JD (ac)	NON-JD	LAT	LONG	FIG NUM	PHOTO ID
MAIN BASE										
E5	Wetland, Mixed	Drainage for NW corner of Base, emergent and forested wetlands	Non-JD	Excluded based on USACE 1998 letter, near exclusion boundary	0.00	0.62	41.135626	-95.923336	3-5	
E6	Wetland	Mowed swale	Non-JD	Excluded based on USACE 1998 letter	0.00	0.01	41.136093	-95.921203	3-5	
F1	Wetland	Fringe wetland of Open water (F6), emergent vegetation	Non-JD	Excluded based on USACE 1998 letter	0.00	0.29	41.112220	-95.923798	3-9	
F2	Wetland	Swale, emergent wetland near Golf Maintenance shed	Non-JD	Excluded based on USACE 1998 letter	0.00	0.23	41.113907	-95.924636	3-9	17
F3	Wetland	Depressional swale adjacent to Capehart Rd, emergent vegetation	Non-JD	Excluded based on USACE 1998 letter	0.00	1.05	41.114326	-95.925360	3-9	18
F4	Filled in Wetland	Filled in wetland near Golf Maintenance shed, Brush pile		Excluded based on USACE 1998 letter	0.00	0.00	41.113850	-95.924331	3-9	
F5	Wetland	Forested / Scrub-shrub wetland	Non-JD	Excluded based on USACE 1998 letter	0.00	0.32	41.114654	-95.924383	3-9	
F6	Open Water	Open Water, Golf Course Pond	Non-JD	Excluded based on USACE 1998 letter	0.00	1.33	41.112231	-95.923886	3-9	
ELKHORN TRANSMITTER SITE										
EK1	Wetland	Drainage, Forested/ scrub- shrub, south of Elkhorn sewage lagoon	JD	Natural drainage in cultivated fields	4.55	0.00	41.342727	-96.243935	3-14	19; 20
EK2	Wetland	Drainage, Forested/ scrub- shrub, west of Elkhorn Towers	JD	Natural drainage in cultivated fields	6.52	0.00	41.343383	-96.248541	3-14	21
SCRIBNER RECEIVER SITE										
Sc1	Drainage, Non-wetland	Mowed swale, emergent vegetation, Scribner	Non-JD	Excavated in uplands	0.00	0.44	41.614365	-96.620477	3-15	22

WETLAND ID	WETLAND TYPE	DESCRIPTION	JD STATUS	JD RATIONALE	JD (ac)	NON-JD	LAT	LONG	FIG NUM	PHOTO ID
SCRIBNER RECEIVER SITE										
Sc2	Drainage, Non-wetland	Mowed swale, emergent vegetation, Scribner	Non-JD	Excavated in uplands	0.00	0.01	41.611397	-96.620755	3-15	

Notes: JD = Jurisdictional, Non-JD = Non-Jurisdictional

Appendix D. Environmental Assessment for the INRMP

The EIAP was performed as required by NEPA and AFI 32-7061 for the INRMP. Air Force Form 813 was completed for this action on 16 September 1997. This action qualified for Categorical Exclusion A2.3.5.

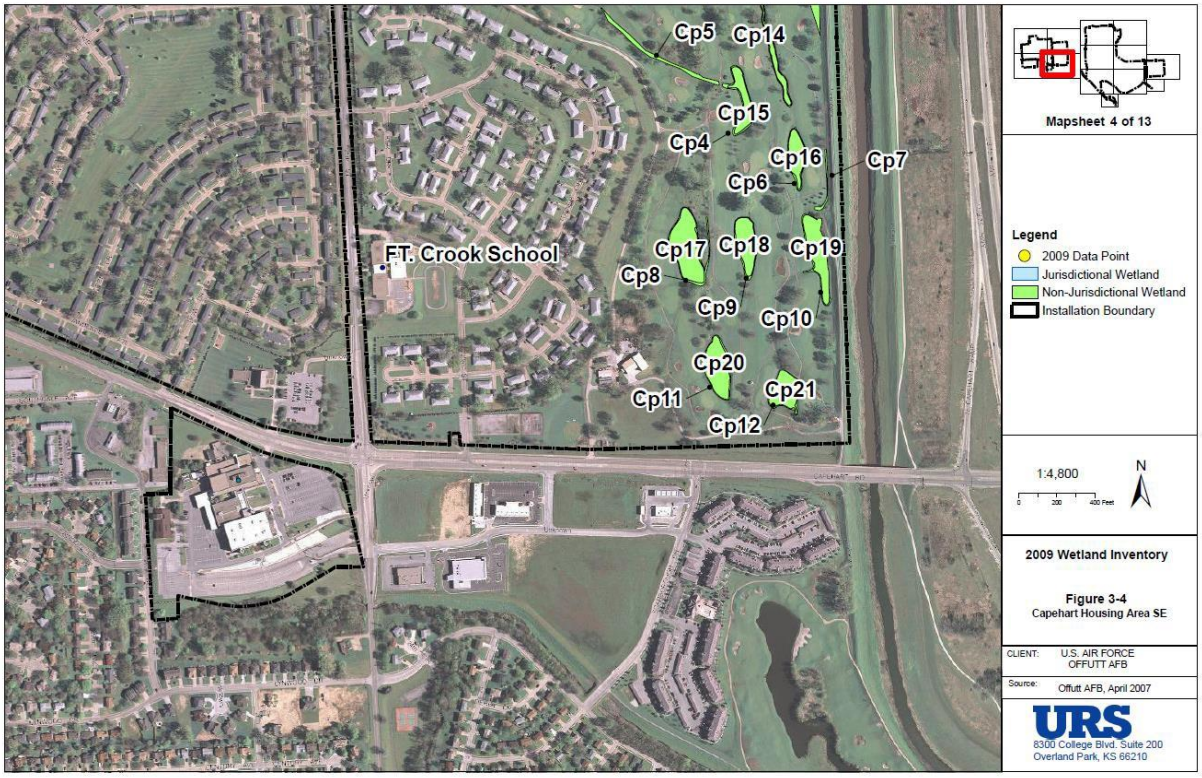
Appendix E. Wetland and Floodplain MAPS

The Rising View Communities are located west of Highway 75 and comprises several large tracts of housing, schools, large open areas, and 18-hole Willow Lakes Golf Course. Two wetland features (Cp23 and Cp22) are located in an area near the Lemay Elementary School (Figure Rising View Community NW). Site Cp23 is a small non-jurisdictional drainage area consisting of primarily emergent vegetation that runs through Lemay Elementary School playground. Site Cp22 is a jurisdictional drainage system that runs adjacent to Kennedy Boulevard. The golf course has numerous open water features (water hazards) with associated fringe wetlands and several drainage swales and ditches within its boundary (Figures Rising View Community NE and Rising View Community SE).

Rising View Community NW

Rising View Community NE

Rising View Community SW



Rising View Community SE

The Martin Bomber Building Area is located in the northwest corner of the Main Base near the Kenney Gate. Wetland features E1 through E6 are located in this area (Figure Martin Bomber Building). Drainage feature E4 and associated wetland E1 are well-defined by hydrophytic vegetation and located downstream from a culvert pipe. Features E2, E3 and E6 are topographic depressions that contain hydrophytic vegetation and hydric soils; they are mowed on a frequent basis. Feature E5 is a fringe wetland to a drainage ditch located in the extreme northwestern corner of the area. The drainage ditch is steep-sided and has a non-vegetated channel.

Martin Bomber Building

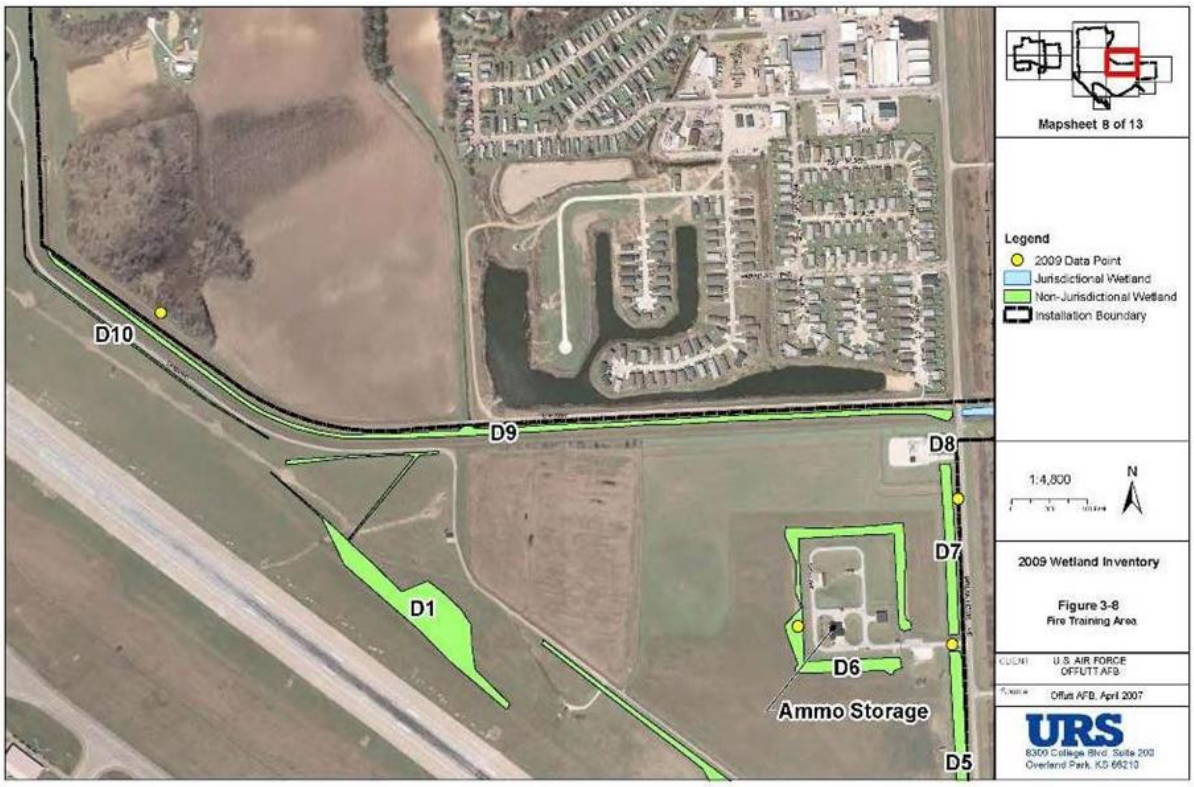
The Airman Leadership School Area is located near the northeastern corner of the Base boundary. The area is highly altered as a result of Base development and receives runoff from the runway and operational areas of the Base. Runoff from the area discharges into a major drainage channel which runs parallel to Modification Road. Wetland features D11, D12, and D13 are distinct segments of the drainage channel and each is considered non-jurisdictional (Figure Airman Leadership School Area).

Airman Leadership School Area

The Commissary Area of the Base is located in the west-central portion of the Main Base. Wetland features were not identified in this area of the Base (Figure Commissary Area).

Commissary Area

The Fire Training Area is located in the east-central portion of the Main Base. The area is an open area that receives frequent mowing. Hydrology for the area is a result of runoff from the airfield and runway. Fescue (Festuca arundinacea) is the prevalent vegetation although in wetter areas cattails (Typha latifolia) and spike rush (Eleocharis palustris) exist. The wetland features found in this area are generally mowed drainage swales and road-side ditches. The features include D1, D5, D6, D7, D8, D9 and D10 (Figure Fire Training Area).

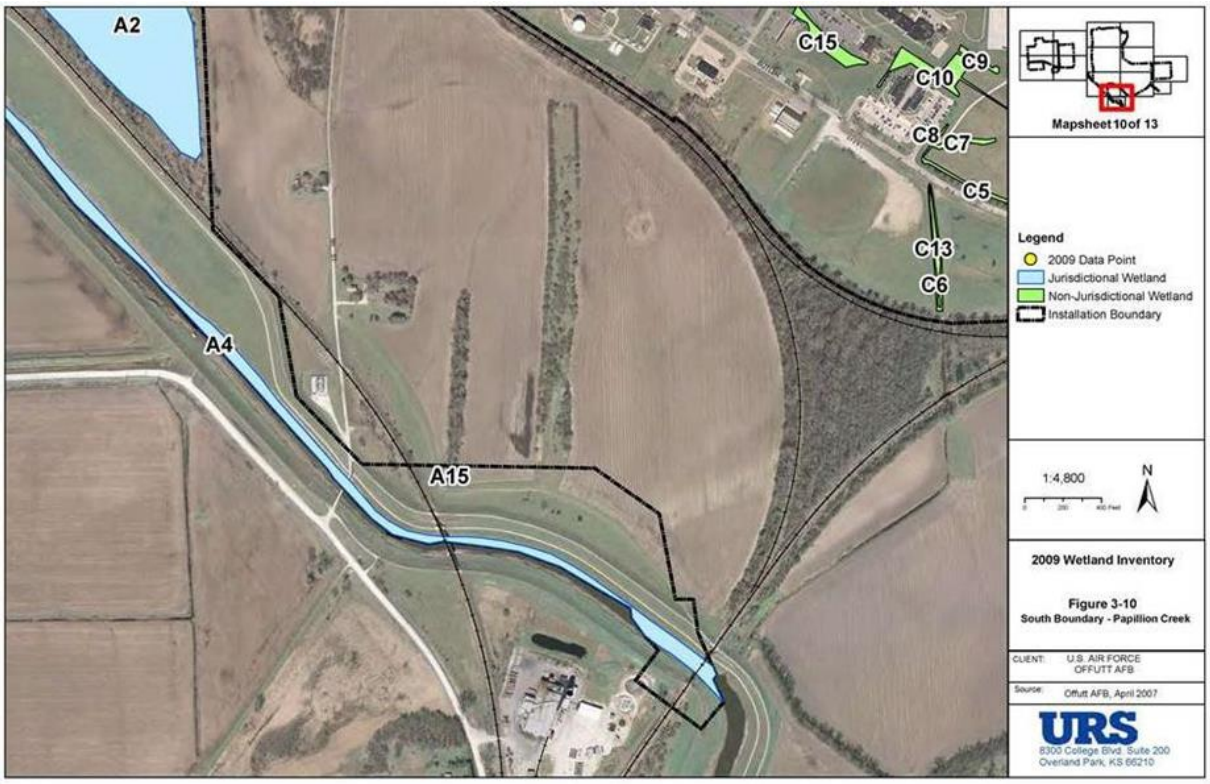


Fire Training Area

The USSTRATCOM Gate Area is located in the southwestern portion of the Main Base and includes several jurisdictional and non-jurisdictional drainages and wetlands (USSTRATCOM Entry Gate Area). The area contains both highly altered (cut and fill) zones and areas where relatively undeveloped land still exists. Wetland features found in the area had included wet meadows, a wet forested scrub/shrub wetland, swales/ditches, highway construction borrow areas, railroad construction borrow areas, and open water features (Warrior Golf Course ponds) with associated fringe wetlands. In previous surveys, researchers noted a small emergent wetland (F4) within the Warrior Golf Course. During the 2009 survey, feature F4 was found to be filled in with brush. In 2012, the Warrior Golf Course was closed and demolished for construction of a replacement USSTRATCOM Headquarters.

USSTRATCOM Entry Gate Area

The South Boundary – Papillion Creek Area lies southeast of the SAC Entry Gate Area. The significant feature associated with this area is Papillion Creek (A4), a jurisdictional stream (Figure South Boundary-Papillion Creek.). Papillion Creek is bounded on both sides by steep slopes of a levee. The creek's lower banks support emergent vegetation including smartweed (*Polygonum pensylvanicum*), giant ragweed (*Ambrosia trifida*), various species (spp.) of rushes (*Juncus spp*.), and reed canary grass (*Phalaris arundinacea*). The Base boundary follows Papillion Creek in this area.



South Boundary- Papillion Creek

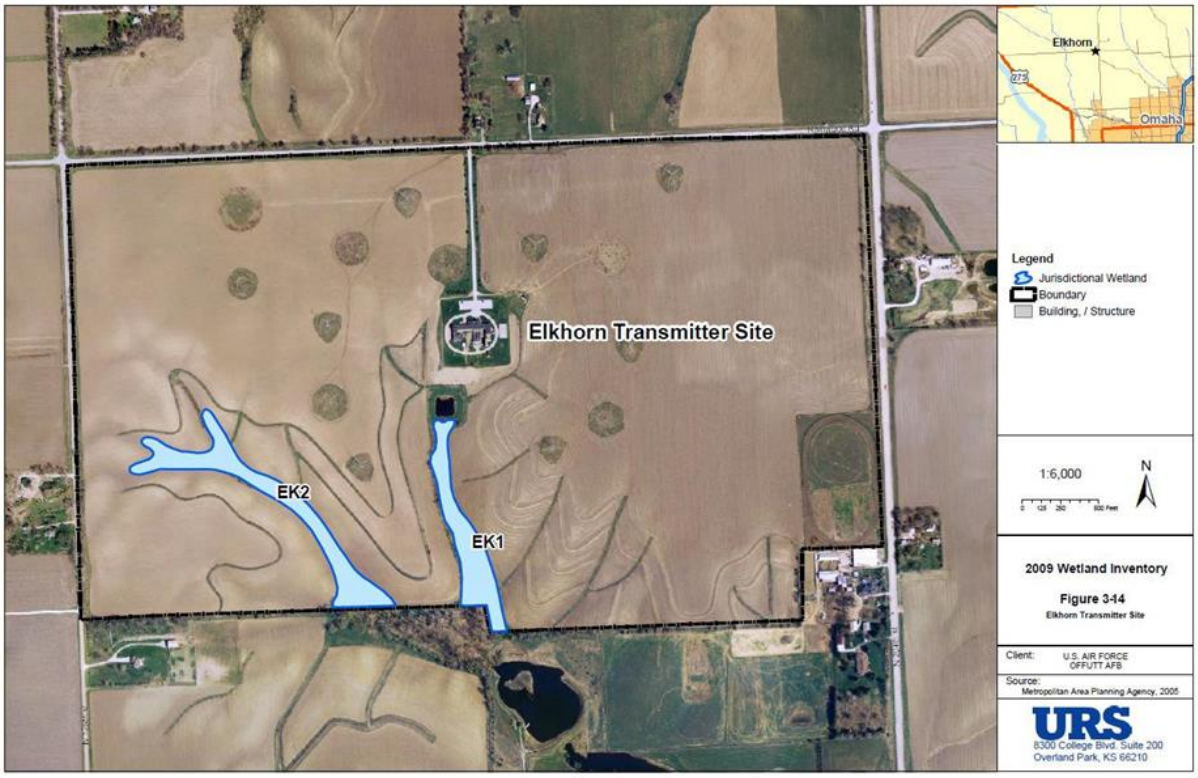
The E-4 Maintenance Hangar Area is located in the southeastern corner of the Main Base (Figure Maintenance Hangar Area). The area includes numerous small drainages and wetlands features that have been greatly altered by various operations on the Base. A prominent feature of the area is a 7.7 acre 'L-shaped' wetland (C1) that receives drainage from above and below-ground sources. The above-ground sources are generally depressional swales that receive frequent mowing and include sites C2, C3, and C12. Hydrology for this portion of the area is due to runoff from the airfield and associated operational areas. Other wetland features identified in the area include a network of depressional swales and road-side drainages that are mowed regularly (sites C4, C5, C7, C8, C9, C10, C15 and C16). Previous surveys of this area noted a depressional swale with emergent vegetation named C11. This feature was located upslope (northwest) of C16 and discharged into C16 during heavy rain events. During the 2009 survey, investigators found that site C11 is now filled in due to construction activities of the new 97th Intel Squadron Facility. During the 2009 survey, a vegetative difference was not noted between the former site C14, a plug hole near the end of the culvert that discharges into C1, and C1. Therefore, C1 now includes former site C14. A second primary drainage for the area is a drainage ditch and associated wetland (sites C6 and C13). These features collect water from parking lots, road- sides, and operational facilities located in the area. Drainage is directed to site C6 and then ultimately off Base property.

Maintenance Hangar Area

The Offutt base lake is a 119 acre open water feature (Figure Offutt Base Lake Area) and is considered a Waters of the United States (WOUS). Concrete rip-rap has been placed along most of the shoreline and in some areas, vegetation is not present. In areas with little or no rip-rap, vegetation primarily consists of a narrow band of willows (Salix spp.) with interspersed pockets of cattails (Typha latifolia) and spike rush (Eleocharis palustris). Wetland features identified within the vegetated zones include sites B2, B3, and B4. Several other WOUS are associated with the base lake; sites B6 and B8 are fringe wetlands to a constructed drainage channel. This channel is heavily vegetated with emergent vegetation and is considered a WOUS due to a significant nexus to the Missouri River.

Offutt Base Lake Area

The Elkhorn Transmitter Site Area is an upland site located in Douglas County, Nebraska. Two wetlands were identified at this site (Figure Elkhorn Transmitter Site) and both are associated with natural drainages surrounded by cropland.



Elkhorn Transmitter Site

The Scribner Receiver Site Area is a small upland site located in Dodge County, Nebraska. Two drainage swale features were identified at this site (Figure Scribner Receiver Site). The primary vegetation found in these features included fescue (*Festuca arundinacea*) and chufa (*Cyperus esculentus*). In both cases, these features are frequently mowed and are considered nonjurisdictional as they are isolated and exhibit no significant nexus to a WOUS.

Scribner Receiver Site

Appendix F. Grazing and Cropland Management Plans

Appendix G. Wetland Permits

15.0 ASSOCIATED PLANS

Tab 1 – Bird/Wildlife Aircraft Strike Hazard (BASH) Plan

Tab 2 – Integrated Cultural Resources Management Plan (ICRMP)

Tab 3 – Integrated Pest Management Plan (IPMP)

Tab 4 – Urban Forest Inventory and Management Report

Tab 5 – Firewood Sales Permit

Tab 6 – Agricultural Lease