Integrated Natural Resources Management Plan

Fort Smith Air National Guard Base

September 2020

Air National Guard
3501 Fetchet Avenue
Joint Base Andrews, MD 20762

Arkansas Air National Guard
Fort Smith Air National Guard Base
4850 Leigh Ave.
Fort Smith, AR 59035

Under Contract With:
Department of the Army
Corps of Engineers, Omaha District
1616 Capital Avenue
Omaha, NE 68102

Contract:

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SIGNATURE PAGE

The Integrated Natural Resources Management Plan (INRMP) has been prepared for the 188th Wing of the Arkansas Air National Guard (Arkansas ANG) at Fort Smith Air National Guard Base (hereafter Fort Smith ANGB), to manage significant natural resources in support of the training mission. Significant natural resources include the presence of federal and state-listed protected species, forested habitat, and Waters of the United States (WOTUS) including wetlands. The INRMP meets the intent of the Sikes Act (16 United States Code [USC] § 670a–670l, 74 Stat. 1052).

To the extent that resources permit, the US Fish and Wildlife Service (USFWS), Arkansas Game and Fish Commission (AGFC), and the Arkansas ANG, by signature of their agency representative, do hereby enter into an agreement for the conservation, protection, and management of the natural resources present on Fort Smith ANGB. This agreement may be modified and amended by mutual agreement of the authorized representatives of the three agencies. The agreement will become effective upon the date of the last signatory and shall continue in full force for a period of 5 years or until terminated by written notice to the other parties, in whole or in part, by any of the parties signing the agreement.

By their signatures below, or an attached sheet, all parties grant their concurrence with and acceptance of the following document.

Approving Officials:

Leon J Dodroe — Sept 3, 2020

Col. Leon J. Dodroe — Date
Fort Smith Air National Guard Base

MELVIN TOBIN Digitally signed by MELVIN TOBIN Date: 2020.08.24 16:04:12 -05'00'

Melvin Tobin, Field Supervisor — Date
US Fish and Wildlife Service

8-26-2020

Pat Fitts, Director — Date
Arkansas Game and Fish Commission

ANNUAL REVIEW DOCUMENTS

This page is used to certify the annual review and coordination of the INRMP.

With the signature below, this document acknowledges that the annual review and coordination of the INRMP has occurred for the specified year.

Year: 2021

Fort Smith Air National Guard Base	Date
US Fish and Wildlife Service	Date
Arkansas Game and Fish Commission	Date

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ACRONYMS

°C	degrees Celsius
°F	degrees Fahrenheit
ABB	American Burying Beetle
ADEQ	Arkansas Department of Environmental Quality
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFPAM	Air Force Pamphlet
AGFC	Arkansas Game and Fish Commission
amsl	above mean sea level
ANG	Air National Guard
ANGB	Air National Guard Base
ANHC	Arkansas Natural Heritage Commission
BA	Biological Assessment
BASH	Bird/Wildlife Aircraft Strike Hazard
BMP	Best Management Practice
CE	Civil Engineer
CECOS	Civil Engineer Corps Officers School
CEQ	Council on Environmental Quality
CES	Civil Engineer Squadron
CFR	*Code of Federal Regulations*
cm	centimeter(s)
CWA	Clean Water Act
DEPARC	Defense Environmental Programs Annual Report to Congress
DoD	Department of Defense
DoDI	Department of Defense Instruction
DoDM	Department of Defense Manual
DUSD	Deputy under Secretary of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EM	Environmental Manager
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Federal Insurance Rate Map
FSRA	Fort Smith Regional Airport
ft	feet
FTA	Fire Training Area
FW	Fish and Wildlife
FY	Fiscal Year
GIS	Geographic Information System
GM	Grounds Maintenance and Landscaping

ha	hectare(s)
IFAW	International Fund for Animal Welfare
IN	Invasive Species
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IPMC	Installation Pest Management Coordinator
IRP	Installation Restoration Program
JD	Jurisdictional Determination
km	kilometer(s)
LEDPA	Least Damaging Practicable Alternative
m	meter(s)
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NGB	National Guard Bureau
NGB/A4VN NRPM	NGB/A4VN Natural Resources Program Manager
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
OPR	Office of Primary Responsibility
PM	Program Management
SPCCP	Spill Prevention, Control, and Countermeasure Plan
STAA	Short Term Activity Authorization
SWAP	State Wildlife Action Plan
SWPPP	Stormwater Pollution Prevention Plan
TE	Threatened and Endangered
US	United States
USACE	US Army Corps of Engineers
USAF	US Air Force
USC	United States Code
USDA	US Department of Agriculture
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
VM	Vegetative Management
WA	Water Resource Protection
WMA	Wildlife Management Area
WNS	White-nose Syndrome
WOTUS	Waters of the United States
WQC	Water Quality Certification
WT	Waters of the US/Wetland Management and Protection

1.0 EXECUTIVE SUMMARY

The Sikes Act Improvement Act of 1997, 16 United States Code (USC) § 670a et seq., as amended, (herein referred to as the Sikes Act) requires federal military installations with significant natural resources to develop a long-range Integrated Natural Resources Management Plan (INRMP) and implement cooperative agreements with other agencies. The Sikes Act is implemented through Department of Defense (DoD) and US Air Force (USAF) instructions and manuals. The conservation measures discussed in the INRMP help manage water resources, reduce bird/wildlife aircraft strike hazard (BASH) risk, manage federal- and state-listed species, and sustain natural resources. The Fort Smith INRMP is intended to be in support of and consistent with the intent of the Sikes Act.

The Fort Smith INRMP is the primary guidance document and tool for managing natural resources on Fort Smith Air National Guard Base (ANGB). Fort Smith ANGB occupies approximately 142 acres (57.5 hectares [ha]) of leased land on Fort Smith Regional Airport (FSRA), in Sebastian County in the City of Fort Smith, Arkansas. The primary federal mission of the 188th Wing is to achieve and maintain the level of operational readiness that will provide trained and equipped combat-ready tactical units, capable of global deployment, ready for immediate integration into the active USAF to assure air offense, air defense, or joint action with ground forces. Fort Smith ANGB, due to its geographic location and the nature of the facility, contains limited, but important habitat and species that require active natural resource management.

Natural resource management activities on Fort Smith ANGB must be conducted in a way that provides for sustainable land use, complies with applicable environmental laws and regulations, real estate leases and licenses, and provides for "no net loss" in the capability to support the military mission. This INRMP provides a structure and plan to manage natural resources effectively and ensures that facilities remain available to support the installation's military mission into the future.

Specific goals in the Fort Smith INRMP are supported by its goals and objectives and work plans, as well as management strategies and specific actions. Goals and objectives are listed in **Section 8**, and work plans are summarized in **Section 9**. The Fort Smith INRMP provides a description of the installation, the military mission, the environment on the installation, and specific plans and strategies for natural resource management designed for sustainable military training. Implementation of the Fort Smith INRMP will ensure the successful accomplishment of the military mission while promoting adaptive management that sustains ecosystem and biological integrity and provides for multiple uses of natural resources.

2.0 GENERAL INFORMATION

2.1 Purpose and Scope

This INRMP is the primary guidance document and tool for natural resource management at Fort Smith ANGB that provides for sustainable, healthy ecosystems, complies with applicable environmental laws and regulations, real estate leases and licenses, and provides for "no net loss" in the capability of installation lands to support the military mission. The Installation Commander and Environmental Manager (EM) can use this INRMP to manage natural resources more effectively to ensure that installation lands remain available and in good condition to support the installation's military mission over the long term. The Fort Smith INRMP is consistent with the Sikes Act as required by the DoD, USAF, and the National Guard Bureau (NGB). A multiple-use approach is implemented to allow for the presence of mission-oriented activities, as well as protecting environmental quality through the efficient management of natural resources.

This INRMP solely directs lands under the management authority of the Fort Smith ANGB. If Fort Smith ANGB acquires additional lands at some future time, updates of the INRMP will provide management direction for such additional lands and any applicable natural resources management issues. The comprehensive planning process, which incorporates logistics and operations of Fort Smith ANGB, should incorporate the concerns presented in this INRMP, so that the growth of the installation can progress in a manner consistent with, and complementary to, the objectives of the USAF with respect to the protection of natural resources.

2.2 Management Philosophy

2.2.1 Ecosystem Management

Natural resources at Fort Smith ANGB are managed with an ecosystem management approach as directed by Air Force Manual (AFMAN) 32-7003, *Environmental Conservation*, Department of Defense Instruction (DoDI) 4715.03, *Natural Resources Conservation Program* and Department of Defense Manual (DoDM) 4715.03, *INRMP Implementation Manual* (Table 1). Ecosystem management may be defined as management to restore and maintain the health, sustainability, and biological diversity of ecosystems while supporting sustainable economies and communities. The goal of ecosystem management on military lands is to ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity.

Ecosystem management provides a means for the USAF to conserve biodiversity and to provide high-quality military readiness. This INRMP is a mechanism through which Fort Smith ANGB can maintain sustainable land use through ecosystem management. Each of the management strategies described in this INRMP should be monitored so that modifications can be made during implementation as conditions change. Human communities are entirely and completely dependent on the goods and services provided by our diverse ecosystems (Bernstein 2008). Decline of these ecosystems, and the biodiversity within them, is one of the foremost limitations to human prosperity. Ecosystem sustainability is the key to both biological diversity and human existence. It is the goal of this INRMP to successfully integrate ecological sustainability with goals and objectives that will sustain human communities and the operational missions of Fort Smith ANGB. By protecting a mosaic of habitats that support the greatest variety of life, this INRMP helps perpetuate viable, sustainable populations of native species, and the communities they compose. The protection of these species and communities, in turn, promotes the sustainability of functional ecosystems across the landscape.

Table 1. Elements and Principles of Ecosystem Management

DoDI 4715.03 Elements	
1	Avoid single-species management and implement an ecosystem-based multiple species management approach that is consistent with the requirements of the Endangered Species Act (ESA).
2	Use an adaptive management approach to manage natural resources-related issues such as climate change.
3	Evaluate and engage in the formation of local or regional partnerships that benefit the goals and objectives of the INRMP.
4	Use the best available scientific information in decision-making and adaptive management techniques in natural resource management.
5	Foster long-term sustainability of ecosystem services.
AFMAN 32-7003 Principles	
1	Maintain or restore native ecosystem types across their natural range where practical and consistent with the military mission.
2	Maintain or restore natural ecological processes such as fire and other disturbance regimes where practical and consistent with the military mission.
3	Maintain or restore the hydrological processes in streams, floodplains, and wetlands when feasible and practical and consistent with the military mission.
4	Use regional approaches to implement ecosystem management on an installation by collaboration with other DoD components as well as other federal, state and local agencies, and adjoining property owners.
5	Provide for outdoor recreation, agricultural production, harvesting of forest products, and other practical utilization of the land and its resources, provided that such use does not inflict long-term ecosystem damage or negatively impact the ANG mission.

2.2.2 Biodiversity

Biodiversity is the degree of variation of life within a given ecosystem, region, or even the entire planet. The DoD's challenge is to manage for biodiversity in a way that supports the military mission. Specific management practices identified in the Fort Smith INRMP have been developed to enhance and maintain biological diversity within the installation's ecosystems. Ecosystem management includes biodiversity conservation and invasive species control as integral parts of ecosystem management. Air National Guard (ANG) installations maintain or reestablish viable populations of all native species when practical and consistent with the military mission. ANG installations also identify the presence of exotic and invasive species, and implement programs to control and/or eradicate those species. Finally, when feasible, ANG installations develop joint control strategies with other federal, state, and local cooperating agencies and adjacent landowners to increase the effectiveness of control measures and for the benefits illustrated in Figure 1.

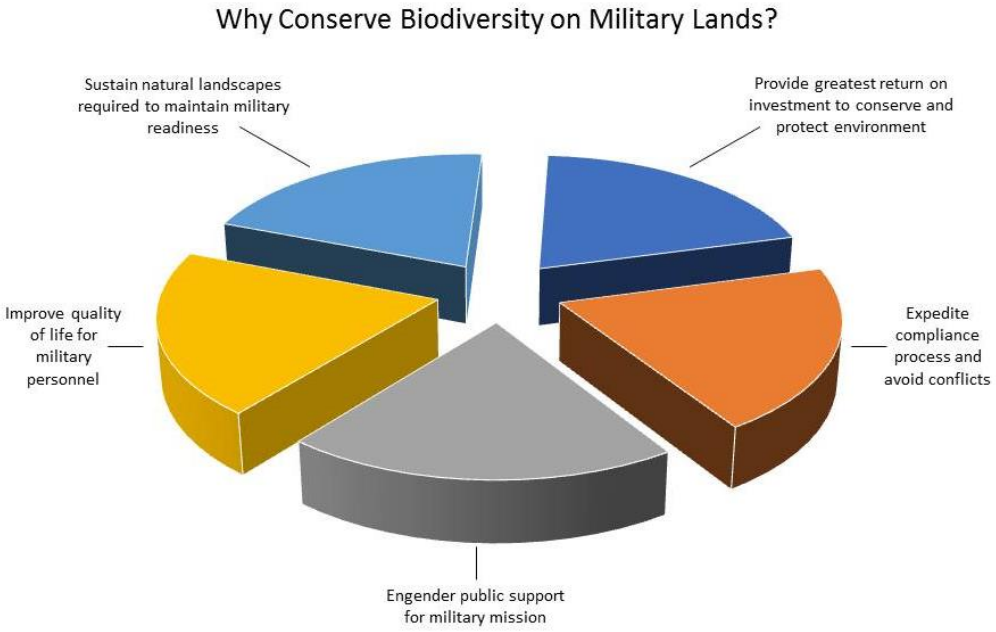


Figure 1. Why conserve biodiversity on Military Lands
**Adapted from Keystone Center, 1996.*

2.3 Authority

2.3.1 Natural Resources Law, Regulations & Policy

The ANG, US Fish and Wildlife Service (USFWS), and Arkansas Game and Fish Commission (AGFC) determined an INRMP was required for Fort Smith ANGB due to the presence of significant natural resources such as state-listed protected species, forested habitat, and Waters of the United States (WOTUS) including wetlands, thereby necessitating conservation and management. To ensure proper consideration of fish, wildlife, and habitat needs, this INRMP was prepared in cooperation with the USFWS and AGFC. DoDI 4715.03, *Natural Resources Conservation Program*, identifies the DoD policies and procedures concerning natural resources management and INRMP reviews, public comment, and endangered species consultation. INRMPs are required to be jointly reviewed by the USFWS, AGFC, and the ANG installation for operation and effect on a regular basis, but not less than every 5 years. Minor updates and continued implementation of an existing INRMP do not require public comment. Major revisions to an INRMP do require an opportunity for public review. Specific projects in the INRMP may need informal or formal consultation under the Endangered Species Act (ESA) Section 7 at the time the projects begin the design process when impacts to natural resources are identified.

2.3.2 National Environmental Policy Act Compliance

The Environmental Impact Analysis Process (EIAP) is the process by which federal agencies facilitate compliance with environmental regulations. The primary legislation affecting these agencies' decision-making process is the National Environmental Policy Act of 1969 (NEPA; 42 USC § 4321 et seq.). NEPA requires that any organization using federal monies, proposing work on federal lands, or requiring a federal permit consider potential environmental consequences of proposed actions. The law's intent is to protect, restore, or enhance the environment through well-informed decisions.

The Council on Environmental Quality (CEQ) was established under NEPA for the purpose of implementing and overseeing federal policies as they relate to the NEPA process. The adoption of an INRMP can be considered a major federal action as defined by Section 1508.18 of the CEQ regulations. This requires an analysis of potential environmental impacts for the implementation of an INRMP, although a complete environmental assessment (EA) is not necessarily required as individual actions and projects for an INRMP typically undergo their own separate NEPA analysis.

The EIAP for the implementation of Fort Smith's 2015 INRMP was conducted in accordance with NEPA, CEQ *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 *Code of Federal Regulations* [CFR] § 1500-1508), and 32 CFR Part 989. The EIAP and decision-making process for the Proposed Action (implementation of the 2015 Fort Smith INRMP) involved an examination of all environmental issues pertinent to the action proposed. Impact evaluations of the 2015 INRMP determined that no significant environmental impacts would result from implementation of the Proposed Action or any identified alternative. This determination was based on thorough review and analysis of existing resource information, and coordination with knowledgeable, responsible personnel from the Fort Smith ANGB and other relevant local, state, and federal agencies. A new EIAP is not required for this INRMP update as impacts to the environment have not changed since the initial EIAP analysis.

If a future action or project has the potential to impact the environment, the initial step in compliance with NEPA is to complete USAF Form 813 "Request for Environmental Impact Analysis". The form is prepared to aid in the development of the assessment, providing information on the proposed action and its alternatives, purpose, and potential environmental effects. This allows the proponent to identify potential environmental impacts early and facilitates making a determination about whether an EA or an environmental impact statement (EIS) might be required for a specific action. Natural resources management actions in this INRMP at the time of implementation will be reviewed to determine if they qualify for a categorical exclusion, EA or would require an EIS depending on the impacts to the natural resources.

2.3.3 Responsibilities

The Fort Smith INRMP has been organized to ensure the implementation of year-round, cost-effective management activities and projects that meet the requirements of the installation. Various personnel and organizations within the Arkansas ANG that are responsible for the implementation of this INRMP are described in the following subsections.

2.3.3.1 *Installation Commander*

The Installation Commander oversees the installation and is responsible for ensuring that the goals and objectives of this INRMP are implemented to the fullest extent practicable based on funding and manpower availability. The Installation Commander is the official signatory for the Fort Smith INRMP.

2.3.3.2 *Base Civil Engineer*

The Base Civil Engineer (CE) plans, budgets, approves, and oversees all maintenance and construction activities performed on the installation. All maintenance and construction-related projects or management activities proposed in this INRMP should be approved by the Base CE to ensure that funding is available and these projects are complementary to the installation's comprehensive planning processes.

2.3.3.3 *NGB/A4VN Natural Resources Program Manager*

The NGB/A4VN Natural Resources Program Manager (NGB/A4VN NRPM) is the technical point of contact on all natural resource related activities for the ANG. The NGB/A4VN NRPM tracks DoD and USAF policies and approves funding for projects identified as a priority in the Fort Smith INRMP. The development of projects included in the INRMP and any deviations from those projects will be submitted to the NGB/A4VN NRPM for review. Decisions resulting from those reviews will be a cooperative effort between the NGB/A4VN NRPM and the EM and/or the installation's Natural Resources Manager, when applicable.

2.3.3.4 *Environmental Manager*

The EM plans, budgets, approves, and oversees all environmental activities performed on the installation and is responsible for ensuring that activities associated with the implementation of this INRMP adhere to applicable federal, state, local, and USAF environmental regulations and guidelines. Projects proposed in the Fort Smith INRMP are reviewed by the EM and the NGB/A4VN NRPM. The EM should independently review deviation from the projects proposed in this INRMP. Persons responsible for implementation of the INRMP are required to attend the Civil Engineer Corps Officers School (CECOS) DoD Natural Resources Compliance course (http://www.netc.navy.mil/centers/csfe/cecos/CourseDetail2.htm#tab25).

2.3.3.5 *Pest Management Coordinator*

The Installation Pest Management Coordinator (IPMC) is responsible for the control of undesirable and/or nuisance plants and animals (including insects), and prevention of damage to natural resources. Pest management personnel utilize Integrated Pest Management (IPM) approaches and are responsible for the implementation of the IPM Plan. The IPMC is also responsible for submitting monthly pesticide usage reports to the NGB/A4VN Pest Management Consultant. The IPMC is also responsible for coordinating with the installation's Public Health Officer and/or Medical offices to ensure monitoring efforts and control methods for potential disease vectors or animals of other medical importance are specified in the IPM Plan and reported on. The IPMC will coordinate pest management activities with the EM to ensure sensitive areas are identified and to ensure actions taken do not impact those sensitive areas. The IPMC will ensure the goals and objectives of pest management activities are explained in the INRMP and will report all pest management activities to the INRMP Working Group.

2.3.3.6 *Operations and Maintenance*

Operations and Maintenance personnel are responsible for all grounds maintenance activities on the installation. Operations and Maintenance personnel will assist the IPMC and the EM in the implementation of natural resource management projects when applicable. The Operations and Maintenance personnel will also periodically review grounds maintenance equipment to determine if new or additional equipment is needed for the proper maintenance of the installation's landscapes.

2.3.3.7 *Legal Office - 188 W*

The Legal Office is responsible for ensuring the implementation of the management objectives contained within the Fort Smith INRMP meets all regulatory and statutory requirements that pertain to natural resources management. The Legal Office will review any future natural resources management proposals and alert the Installation Commander and the EM should there be any regulatory conflicts or shortfalls. In addition, the Legal Office will keep participating INRMP parties informed of any new statutes or regulations that might affect natural resources management.

2.3.3.8 *Public Affairs Office*

The Public Affairs Office is responsible for the coordination of public access for events at Fort Smith ANGB. The Public Affairs Office serves as the point of contact to interface between the Installation Commander and civilian groups interested in installations for environmental, educational, or other purposes.

2.3.3.9 *US Fish and Wildlife Service*

The USFWS is a signatory of the Fort Smith INRMP and provides input regarding natural resource projects and operational component plans. The USFWS reviews and comments on the operations and effect update of the INRMP every 5 years and, when feasible, attends the task force meeting. The USFWS, when feasible, attends the annual meetings to discuss the status of the projects identified in the Annual Work Plans. At both the 5 year operations and effect and the annual meetings, the USFWS advises on the status of any pending additions or deletions to the federal threatened and endangered species list that have the potential for inhabiting Fort Smith ANGB. When feasible the USFWS will support ANG wildlife and vegetation surveys conducted at Fort Smith ANGB.

2.3.3.10 *Arkansas Game and Fish Commission*

The AGFC is the state fish and wildlife agency and is a signatory of the INRMP and provides input regarding natural resource projects and operational component plans. The AGFC reviews and comments on the operations and effect update of the INRMP every 5 years and, when feasible, attends the task force meeting. The AGFC, when feasible, also attends the annual meetings to discuss the status of the projects identified in the Annual Work Plans. At both the 5 year operations and effect and the annual meetings, the AGFC advises on the status of any pending additions or deletions to the state threatened and endangered species list that have the potential for inhabiting Fort Smith ANGB. Cooperation with the AGFC ensures the INRMP goals, objectives, and strategies are consistent with Arkansas's Comprehensive Wildlife Conservation Strategy (AGFC 2015). When feasible, the AGFC will support ANG wildlife and vegetation surveys conducted at Fort Smith ANGB.

2.4 Integration with Other Plans

By its nature, an INRMP is multidisciplinary and provides a summary of natural resources and associated management at a specific installation. As a result, information from an INRMP is incorporated into other plans and other plans are written to support an INRMP. The Fort Smith plans include the following:

- 188th Fighter Wing Master Plan (Arkansas ANG 2003a)
- IPM Plan – provides a summary of management of pest species to minimize impact to mission, natural resources, and the environment (Arkansas ANG 2010a).
- Stormwater Pollution Prevention Plan (SWPPP) – provides an overview of prevention and management of stormwater (Arkansas ANG 2019).
- Fort Smith has received a waiver to develop an Integrated Cultural Resources Management Plan for the installation as no historical properties or resources occur on the installation (valid 18 April 2018 through 31 March 2023).

In addition, this INRMP is also integrated with the following plans from other agencies.

- Arkansas State Wildlife Action Plan (SWAP; AGFC 2015). The DoD and ANG encourage integration of the SWAP as part of a comprehensive installation natural resources program.

3.0 INSTALLATION OVERVIEW

3.1 Location and Area

Fort Smith ANGB is a tenant located on FSRA, in Sebastian County in the City of Fort Smith, Arkansas. The FSRA is located approximately 4 miles (6.4 kilometers [km]) southeast of downtown Fort Smith (Figure 2). The FSRA is situated to the south and east of Phoenix Avenue; north of Zero Street; and west of Massard Road. Leigh Avenue serves as the primary access to the installation. The installation occupies approximately 142 acres (57.5 ha) of land leased from the airport, including 20 acres (8.1 ha) used as the Fire Training Area (FTA) located separately from the main installation. The main cantonment area comprises approximately 122 contiguous acres (49.4 ha) located on the northern portion of the airport, which is situated within the city limits of Fort Smith, Arkansas (Figure 3).

3.2 Installation History

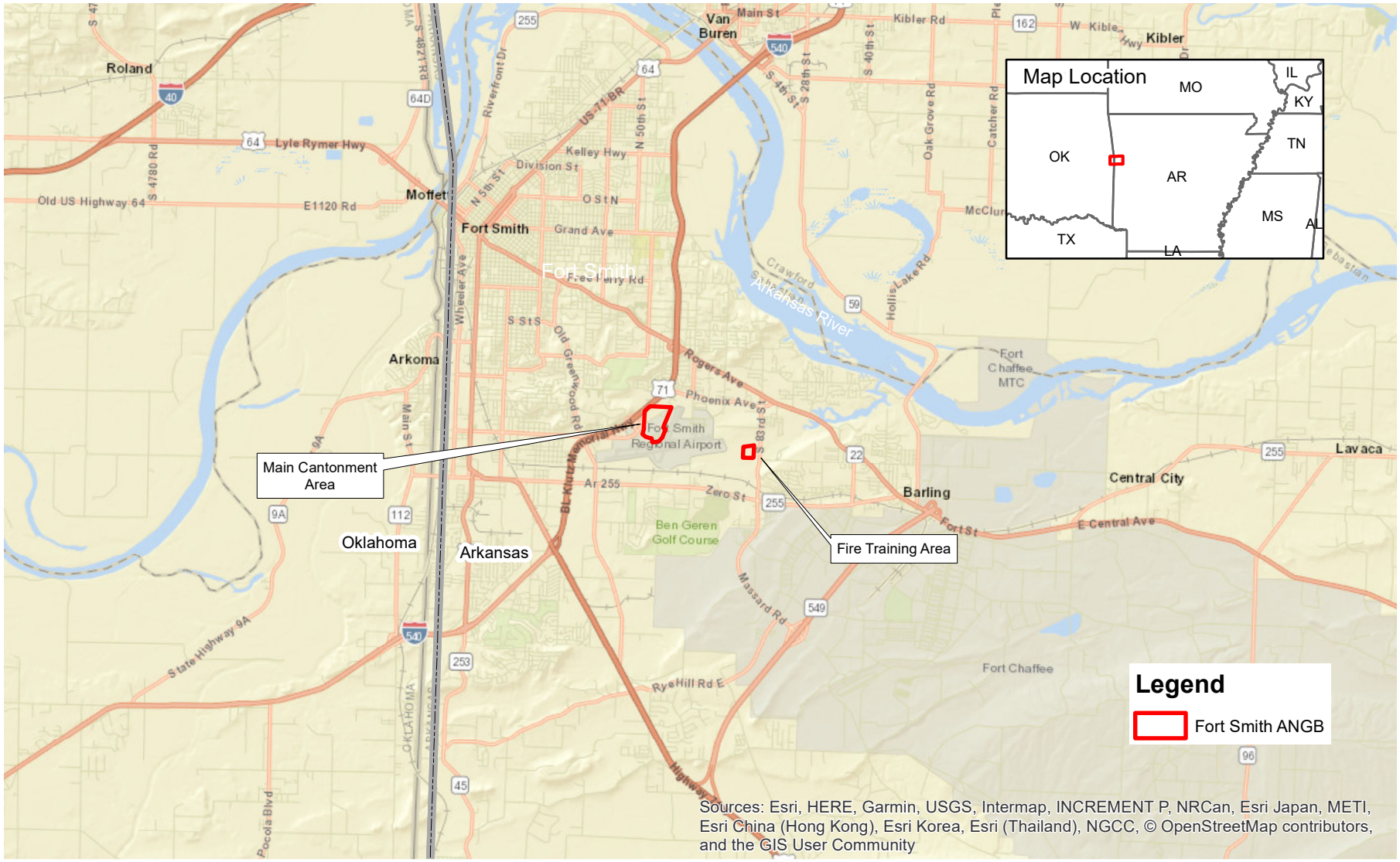
In 1937, 320 acres (129.5 ha) of land, which included the western portion of the present FSRA, was set aside for a municipal airport. The airport hangar was constructed in 1941 as the airport grounds were developed, and sod landing strips were provided for air traffic. In 1945, two 100-foot (ft)-wide (30.5-meter [m]) and 3,500-ft-long (1,066.8-m) asphalt runways were built. By 1949, additions to the runway resulted in a 4,115-ft-long (1,254.3-m) by 150-ft-wide (45.7-m) north-south runway and a 4,600-ft-long (1,402.1-m) by 150-ft-wide (45.7-m) east-west runway. In 1950 another addition extended the east-west runway to a total length of 5,300 ft (1,615.4 m). The present-day runways comprise Primary Runway 7/25, 8,000-ft-long (2,438.4-m) and 150-ft-wide (45.7-m), and Crosswind Runway 1/19, 5,002-ft-long (1,524.6-m) and 150-ft-wide (45.7-m). Prior to development as a municipal airport, historical land use was agricultural (dairy farming and cattle ranching) operations.

The 188th Wing of the Arkansas ANG was federally recognized at Fort Smith, Arkansas, as the 184th Tactical Reconnaissance Squadron in 1953, and Fort Smith ANGB was constructed at the airport in 1954. Over the years, the unit has been re-designated as the 188th Tactical Reconnaissance Group, 188th Tactical Fighter Group, 188th Fighter Group, and 188th Fighter Wing, and has flown RB-26 twin engine modified bombers, RF-80 jet aircraft, RF-84F swept-wing jets, RF-101, F-100, F-4C Phantom, and F-16 Falcon (Arkansas ANG 2015a).

3.3 Military Missions

The ANG has a dual mission, one federal and one state. In the event of a national emergency, the 188th Wing may be ordered to active duty by the President of the United States. The 188th Wing's mission is to provide dominant precision engagement, superior decision advantage, and agile mission support for our nation. The primary federal mission of the 188th Wing is to achieve and maintain the level of operational readiness that will provide trained and equipped combat-ready tactical units, capable of global deployment, ready for immediate integration into the active USAF to assure air offense, air defense, or joint action with ground forces.

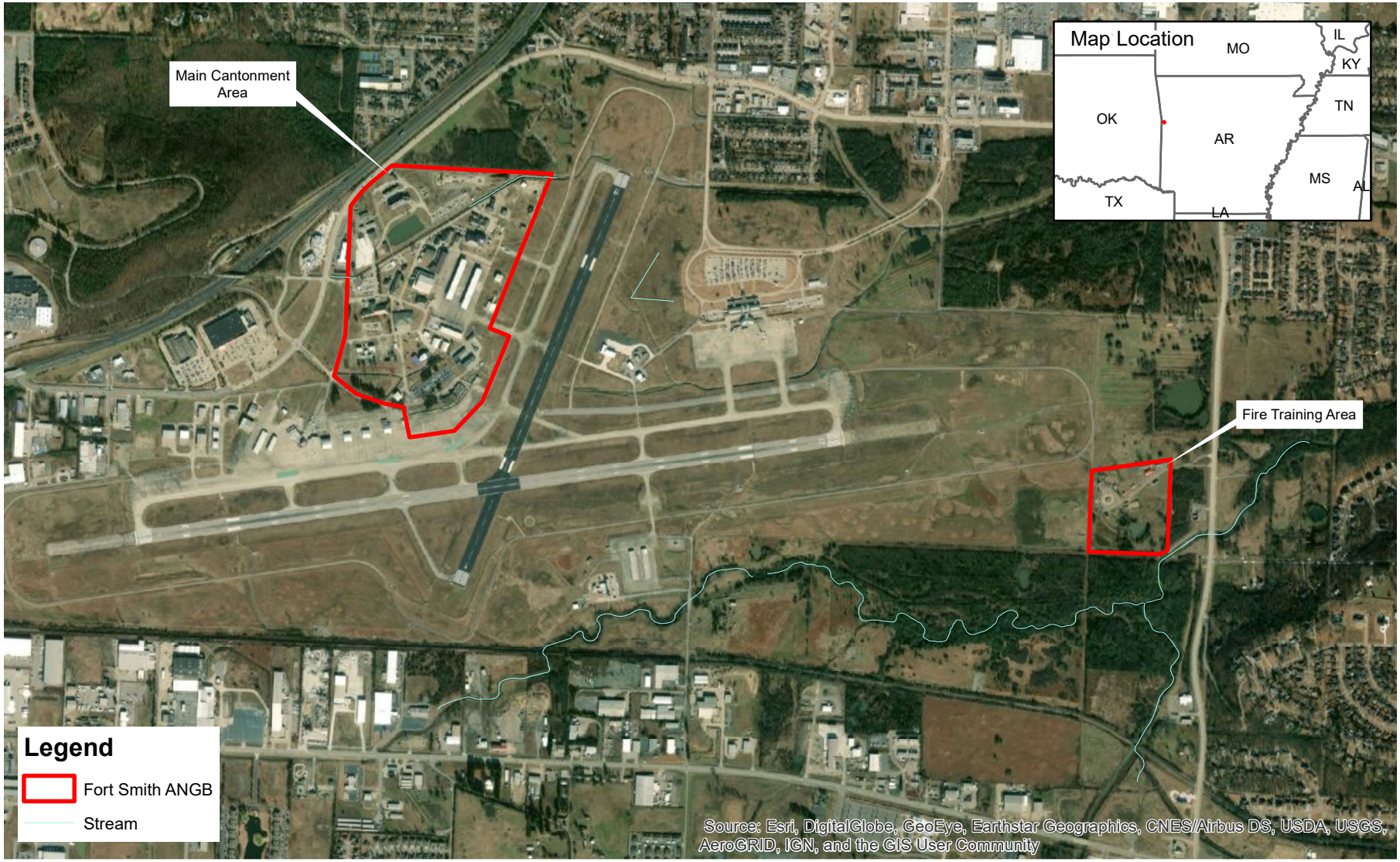
The ANG may be called up by the Governor of Arkansas to assist state and local authorities in the event of a disaster, disturbance, or other emergency. The 188th Wing supports rescue and relief operations and aids in recovery operations to protect the state and the citizens of Arkansas.



ANGB - Air National Guard Base

0 1 2 3 Miles

Figure 2. Fort Smith ANGB Regional Map



ANGB - Air National Guard Base

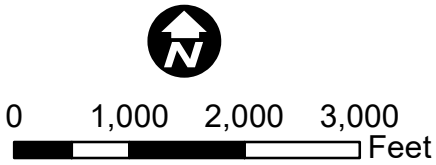


Figure 3. Fort Smith ANGB Installation Map

Per the legislative direction by the National Defense Authorization Act (NDAA) in 2013 the ANG is required to provide mission control for the MQ-9 Reaper remotely piloted aircraft (Reaper). The MQ-9 MCE mission is to remotely control the Reaper to support domestic training and contingency operations. There is also a Launch and Recovery Element associated with the operation of the Reaper. The Launch and Recovery Element is not located at the 188th Wing. The 188th Intelligence Surveillance Reconnaissance Group, the 153rd Intelligence Squadron, the 288th Operations Support Squadron, and the 223rd Intelligence Support Squadron were activated as part of the new MQ-9 MCE mission (Arkansas ANG 2016a). Currently there is no flying mission on Fort Smith ANGB.

3.4 Surrounding Communities

Fort Smith ANGB is located in Sebastian County in northwestern Arkansas. The county ranges from 12 to 23 miles (19.3 to 30 km) in width and is 36 miles (57.9 km) in length. The approximate area is 546 square miles (1,414 square km). The 2011 population of the county was 127,127 residents (U.S. Census Bureau 2020a).

The Fort Smith ANGB is located in the City of Fort Smith (population 87,845). The City of Fort Smith, as well as Sebastian County, is characterized by a predominantly industrial economy (Arkansas ANG 2016a). Land use in the immediate vicinity of the airport consists primarily of a technical, office, and scientific district; light industrial use; and highway commercial development. Most of the land immediately surrounding the FSRA is undeveloped (Arkansas ANG 2016a). The community of Barling, Arkansas is located east of the base and has a population 4,973 residents; to the north lies Van Buren with a population of 23,691 residents; to the west is Muldrow, Oklahoma with a population of 3,251 residents; and to the southeast is Greenwood, Arkansas with a population of 9,397 (U.S. Census Bureau 2020b).

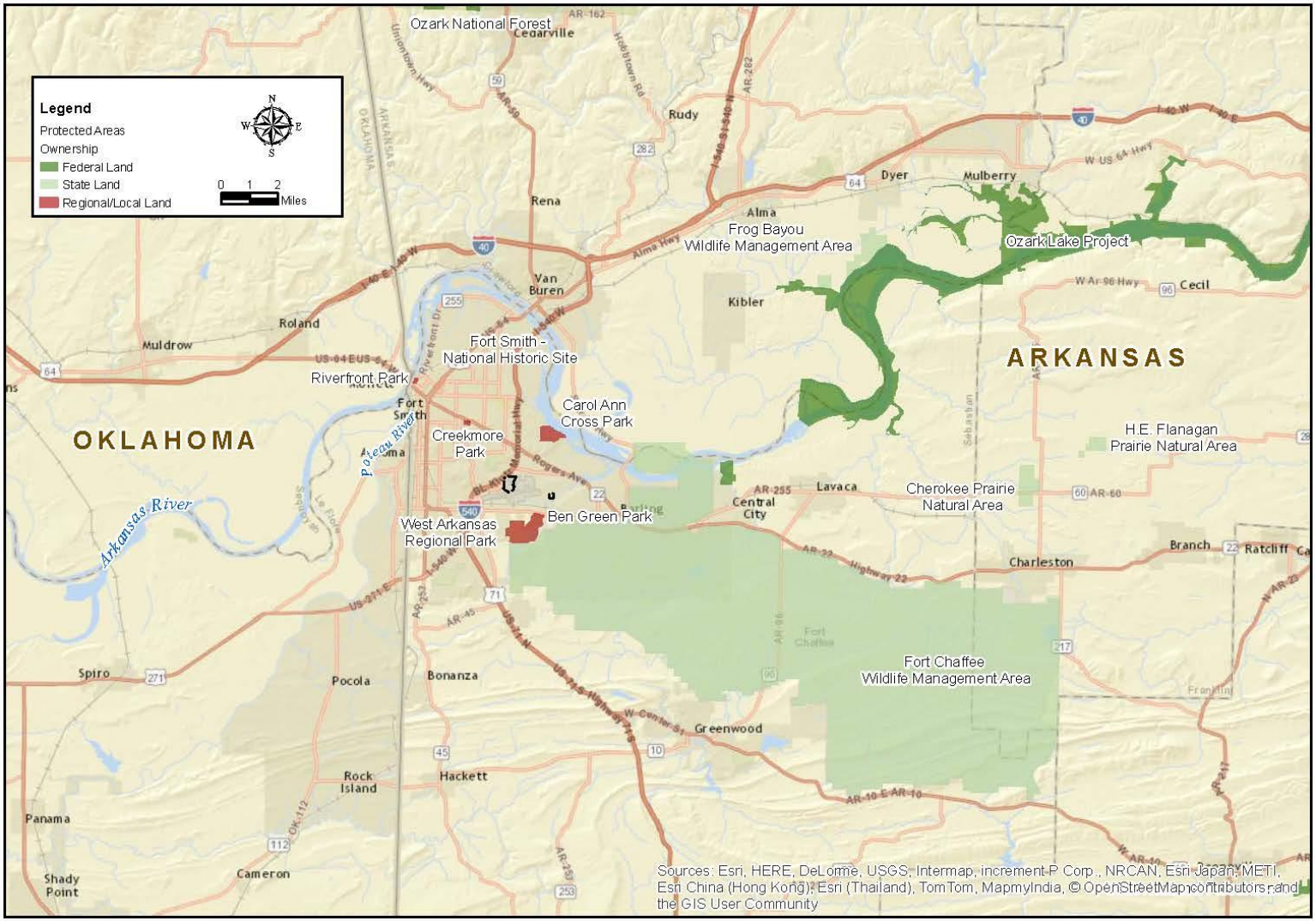
3.5 Local and Regional Natural Areas

Significant natural areas in the vicinity of Fort Smith ANGB are those areas that retain examples of the regions native landscape. Historically, the native landscape in this region was characterized by Ozark Broadleaf Forest interspersed with open meadows. Today, none of this habitat remains on the property of Fort Smith ANGB or in the general vicinity of the base. Land immediately surrounding the cantonment portion of the base is primarily developed, industrial and residential properties. Natural areas occurring within 5 miles (8 km) of Fort Smith ANGB feature four parks, Fort Chaffee Wildlife Management Area (WMA), and the Arkansas River (Figure 4).

- The four parks surrounding Fort Smith ANGB include the Ben Green Park (southeast of the installation), West Arkansas Regional Park (south of the installation), Carol Ann Cross Park (northeast of the installation), and Creekmore Park (northwest of the installation). All of these parks offer a wide variety of recreational opportunities to residents.

- The Fort Chaffee WMA system, located southeast of the installation, encompasses a total of 66,000 acres (26,709 ha). This WMA is managed by the AGFC to conserve native plants and animals and their natural habitats.

- The Arkansas and Poteau river corridors are located to the north and northwest of the Fort Smith ANGB. Several public use areas are located along the corridors including Belle Point, Carol Ann Cross Park, Springhill Park, Fort Smith Park, and Cisterna Park. Belle Point, a prominent rise, offers the highest elevation overlook within the riverfront park boundaries.



Source: Final Integrated Natural Resources Management Plan for Fort Smith Air National Guard Base, Arkansas; 2015

ANGB - Air National Guard Base

Figure 4. Local and Regional Natural Areas near Fort Smith ANGB

4.0 PHYSICAL ENVIRONMENT

4.1 Climate

Fort Smith ANGB is located in northwestern Arkansas in a temperate climate characterized by warm summers and mild winters. Although the area is in reach of cold arctic outbreaks, these generally are of short duration. The region may experience large seasonal temperature differences, with temperatures ranging from -10 degrees Fahrenheit (°F) to 100°F (-23° to 37.8 degrees Celsius [°C]), with an annual mean temperature of 61.7°F (16.5°C). Average annual rainfall is 45 inches (115.5 centimeters [cm]), with the majority of rain falling in the spring and fall months. Strong, gusty winds can occur during thunderstorms and tornadic activity, which occur on average 57 days per year, primarily during the spring and summer months. While snow does not occur every winter, annual snowfall averages 5 inches (12.7 cm) per year, the majority of which falls in January (NOAA 2020). Prevailing winds are from the northeast and average 7.7 miles (12.4 km) per hour (NOAA 2020). Average monthly temperatures and precipitation data are shown in Table 2.

Table 2. Average Monthly Temperatures and Precipitation in the Region

Month	Average Low Temperature (°F)	Average High Temperature (°F)	Average Precipitation (inches)
January	29	50	2.81
February	33	55	2.76
March	41	65	3.85
April	49	74	4.30
May	59	80	5.47
June	67	88	4.28
July	72	93	3.30
August	71	93	2.59
September	62	85	4.05
October	51	75	4.32
November	40	63	4.44
December	31	51	3.29

Source: NOAA 2020

Climate Change

DODI 4715.03 requires the INRMP to include an assessment of the potential impacts of climate change on natural resources on the base and to adaptively manage such resources to minimize adverse mission impacts. The Nature Conservancy's ClimateWizard tool (www.conservationgateway.org/) was used to summarize potential future climate regimes at Fort Smith ANGB (Arkansas ANGB 2015a). The ClimateWizard includes 16 model outputs and enables the user to access both temperature and precipitation climate change data. For Fort Smith ANGB, the average of the models predicts an average annual temperature increase of 4.43 °F (range: 1.7 to 6.97 °F) [2.46 °C (range: 0.9 to 3.87 °C)] and 0.77-inch (range: -14.59 to 11.87 inch) [2-cm (range: -37.06 to 30.15 cm)] increase in precipitation by 2050 under a medium emissions scenario. The average of the models also predicts an average annual temperature increase of 6.46 °F (range: 2.74 to 11.85 °F) [3.59 °C (range: 1.52 to 6.58 °C)] and 1.65-inch (range: -23.06 to 23.66 inch) [4.2-cm (range: -58.57 to 60.10 cm)] increase in precipitation by 2080 under a medium emissions scenario at the base.

The predicted average annual increase in temperature and increase in precipitation is expected to impact vegetation and water resource areas. Increased frequency of hot extremes, heat waves, and heavy precipitation events in some areas are very likely to occur (IPCC 2014). The length of the

growing season would likely increase affecting the vegetation type and composition over time and could lead to increased grounds maintenance costs and increase the risk of local flooding events.

4.2 Landforms

Figure 5. Fort Smith ANGB Landscape

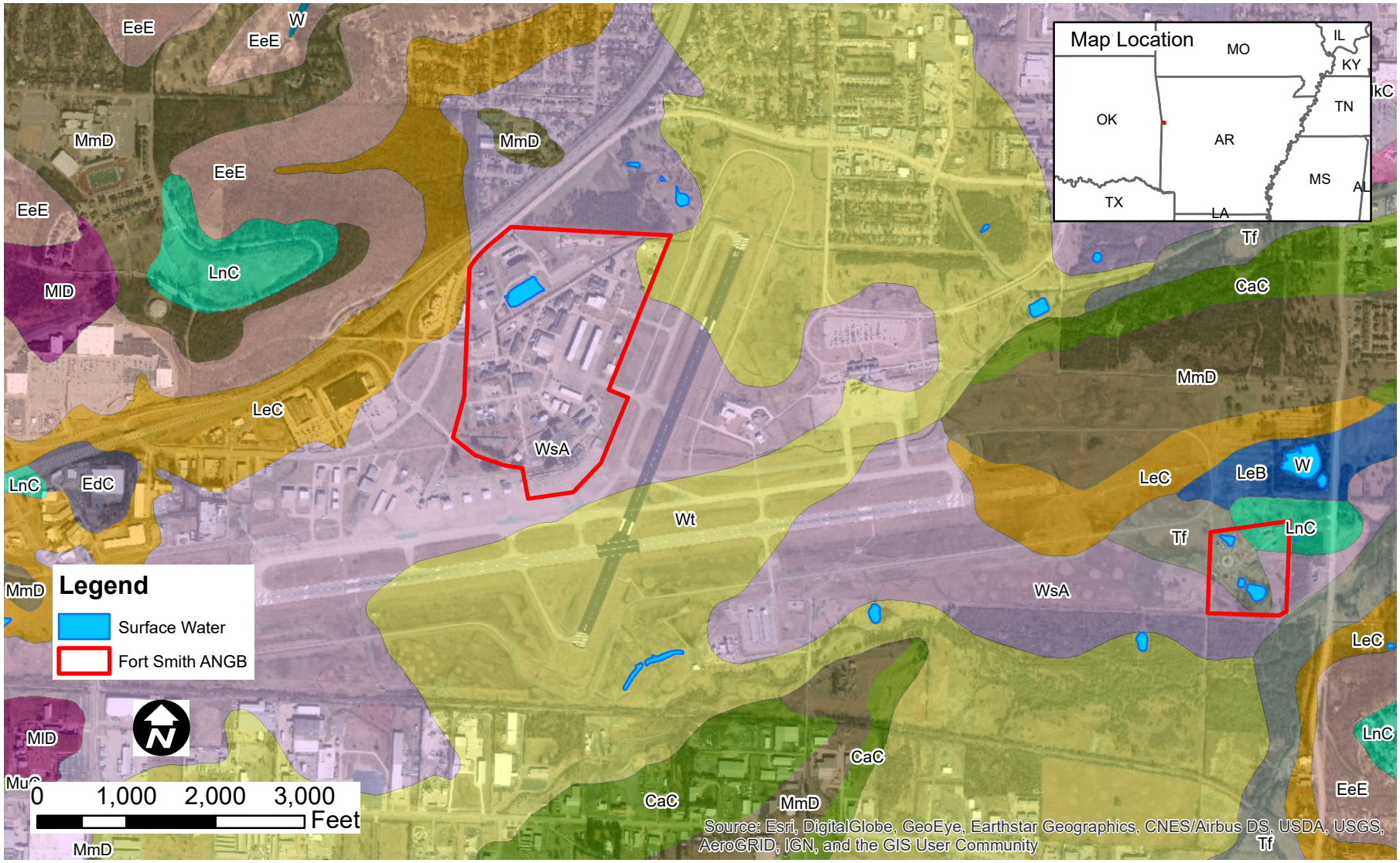
The Fort Smith ANGB (Figure 5) occurs within the Arkansas River Valley, a distinctive physiographic area bounded by the Ozark and Ouachita Mountains to the north and south. The Arkansas River Valley is up to 40-miles (64.4-km) wide and includes geological features of both the Ozarks and the Ouachita Mountains, such as dissected plateaus and folded ridges. The Arkansas River Valley area is characterized by isolated, flat-topped, steep-sided mesas like Petit Jean Mountain, Mount Nebo, and Mount Magazine. The topography of the region is dominated by gently rolling hills with flat river bottoms occurring along the Arkansas and Poteau rivers, north and west of the Fort Smith ANGB (Arkansas ANG 2015a). The highest point found on the Fort Smith ANGB is 471 ft (143.6 m) above mean sea level (amsl) and the lowest point is 408 ft (124.4 m) amsl.

4.3 Geology and Soils

Geology in the region consists of valley fill and alluvial sediments that range from young floodplains along the Arkansas River to old stream terraces in the broad valleys between hills through Sebastian County. Hilltops and ridges are capped by hard sandstone. The hillsides and valleys are mostly underlain by shale (Woods et al. 2004).

Geological surface material beneath the Fort Smith ANGB consists of alluvium (up to 100 ft [30.5 m]) underlain by bedrock of the McAlester Formation. The McAlester Formation is a Pennsylvanian-age stratum that slopes to the south-southeast and ranges in thickness from 500 to 2,300 ft (152.4 to 701 m). The formation is composed of shale with smaller amounts of siltstone, sandstone, and some local thin coal seams.

Four major soil series occur within the Fort Smith ANGB (NRCS 2020). Wrightsville complex and Wrightsville-Messer complex are within the 120-acre (49 ha) main cantonment area, while Linker fine sandy loam, Taft silt loam, and Wrightsville complex soils underlie the 20-acre (8.09- ha) FTA. Figure 6 displays and further describes each soil series. The descriptions of the soil types were derived from information from the Natural Resource Conservation Service (NRCS) Web Soil Survey and Official Soil Series Descriptions (NRCS 2020).



Soil Type

- Cane fine sandy loam (CaC)
- Enders silt loam (EdC)
- Enders stony silt loam (EeE)
- Leadville silt loam (1-3%) (LeB)
- Leadville silt loam (3-8%) (LeC)
- Linker fine sandy loam (LnC)
- McKamie silt loam (MkC)
- Montevallo gravelly loam (MID)
- Mountainburg sandy loam (MmD)
- Muskogee silt loam (MuC)
- Taft silt loam (Tf)
- Water (W)
- Wrightsville complex (WsA)
- Wrightsville-Messer complex (Wt)

ANGB - Air National Guard Base

Figure 6. Soil Map for Fort Smith ANGB

4.4 Hydrology

4.4.1 Groundwater

The Fort Smith area is underlain by two primary aquifers: the shallow, unconfined Arkansas River Alluvial Aquifer, and the deep, confined Western Interior Plains Confining System (USGS 2004). The shallow aquifer is composed of unconsolidated alluvial deposits from the Arkansas River and its tributaries, as well as consolidated rocks that underlie the region. This aquifer, which averages approximately 40-ft (12.2-m) deep, can provide groundwater yields between 300 and 700 gallons (1,135 and 2,649 liters) per minute (USGS 2004; Arkansas ANG 2015a). Although the quality of water within the Arkansas River Alluvial Aquifer is suitable for most uses, large concentrations of iron and nitrate and excessive hardness locally make the water undesirable for some public supply and industrial uses.

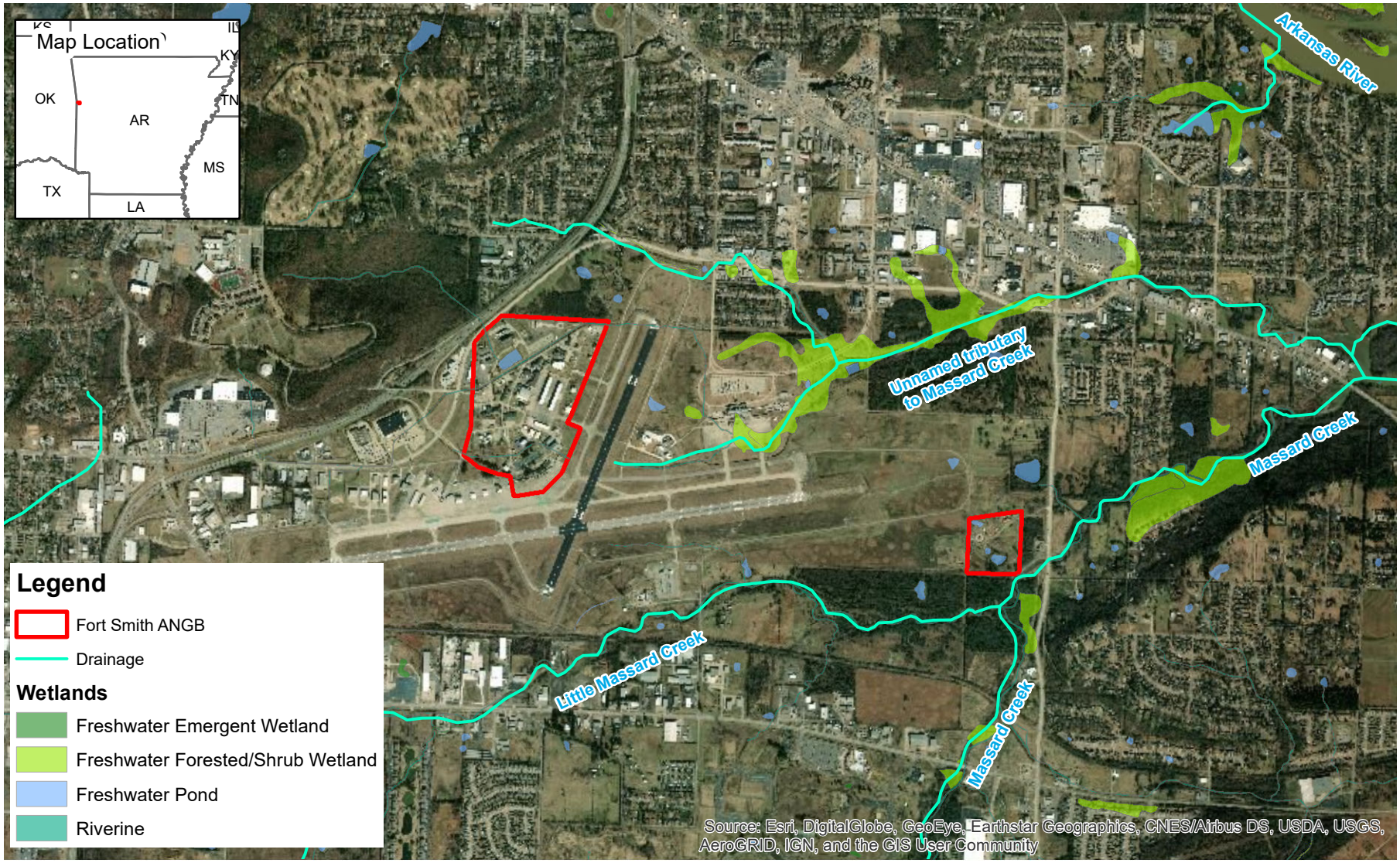
On a regional scale, the rocks that compose the confining system have poor permeability and therefore function as a confining unit. Locally, however, individual geologic units or parts of units within the confining system yield as much as 19 gallons (72 liters) per minute to wells. As a result, the confining system is considered to be a minor aquifer. Rocks of the confining system that underlie the Arkansas River Valley are dominated by siltstone and shale that are overlain by a weathered zone that ranges from 10- to 30-ft (3- to 9.2-m) thick.

4.4.2 Surface Water

The Arkansas River flows eastward and forms the northern boundary of Sebastian County. Its floodplain is a relatively narrow strip that parallels the course of the river. The flow of the Arkansas River is regulated by major flood control impoundments upstream and by a series of locks and dams that form navigable pools. The confluence of the Poteau River with the Arkansas River is located just west of Fort Smith, with the Poteau River forming a portion of the western boundary of Sebastian County (Arkansas ANG 2015a).

Fort Smith ANGB is located within two sub-watersheds of Massard Creek (Figure 7). The installation is divided into four distinct stormwater drainage basins, all of which slope from northwest to southeast (Arkansas ANG 2000). All surface water from these four drainage basins on the cantonment area is eventually discharged through a network of in-ground conveyances and grass-lined ditches to an unnamed tributary of Massard Creek (Arkansas ANG 2015a). Drainage from the FTA flows directly into Massard Creek.

Runoff from the northern portion of the main cantonment area drains south to a 1.62-acre (0.66-ha) stormwater detention basin in the north-central portion of the installation. The basin was created in 1973 by installation personnel. The area was excavated to a depth of approximately 20 ft (6.1 m) to serve as a reservoir to support fire training activities. The basin is recharged via direct precipitation, stormwater runoff, and inflow from the drainage. When volume exceeds capacity, outflow from the basin occurs via a spillway into a tributary to Massard Creek (Arkansas ANG 2015a). There are two small ponds (0.15 and 0.65 acre [0.06 and 0.26 ha] in size) on the FTA (Arkansas ANG 2015b). Prior to acquisition of the area by the ANG, these ponds were constructed for agricultural purposes. Further description of these open water bodies are discussed in Section 5.2.2.5 and 5.5.



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0 2,000 4,000 Feet

Figure 7. Hydrology Map for Fort Smith ANGB

5.0 ECOSYSTEMS AND THE BIOTIC ENVIRONMENT

5.1 Ecosystem Classification

Fort Smith ANGB is located within the Arkansas Valley Plains lying between the Boston Mountain and the Ouachita Mountain ecoregions. This ecoregion is characterized by undulating plains with occasional hills and ridges towards the east covered by oak-hickory forests (Woods et al. 2004).

5.2 Vegetation

5.2.1 Historic Vegetative Cover

Historically, vegetation within the Arkansas Valley Plains ecoregion is dominated by red oak (*Quercus rubra*), white oak (*Quercus alba*), and hickory (*Cary* asp.), although shortleaf pine (*Pinus echinata*) and eastern red cedar (*Juniperus virginiana*) are found in many of the lower areas and on some south- and west-facing slopes. The region is sparsely populated and recreation, logging, and livestock farming are the primary land uses (Woods et al. 2004). Near Fort Smith several thousand acres of Cherokee Prairie still remain and are maintained by regular fire (Woods et al. 2004). Within the main cantonment area, the development of the FSRA (in 1937) and the Fort Smith ANGB (in 1954) removed much of the historic, native vegetation and replaced it with non-native landscaping. Historic cattle grazing within the FTA prior to installation acquisition created a mix of disturbed habitat.

5.2.2 Current Vegetative Cover

Nearly 90 percent of Fort Smith ANGB is developed or managed (i.e. improved areas). Five unique habitats were delineated during the 2019 surveys including: shrubland, disturbed grassland, maintained/landscaped, woodland, and wetland/wet meadow (Figures 8 and 9; Arkansas ANG 2020a). Turf grass and landscape vegetation occur largely in association with the improved and semi-improved areas. Within these habitats a total of 105 unique floral species were documented (Table 3). Eighty-six of the species are considered native and the others are introduced species. Native species are defined by the US Department of Agriculture (USDA) as species that are naturally occurring at the time of Columbus. An introduced species is a species that arrived later from some other part of the world. While the majority of current vegetative cover within Fort Smith ANGB includes improved areas, vegetation varies among the main cantonment and FTA areas. The cantonment area comprised a single habitat type, maintained. Four distinct habitats were documented at the FTA: woodland, disturbed grasslands, shrubland, and wet meadow. Developed areas include the fire training pit where the grass is mowed. Undeveloped areas include the two onsite ponds and associated wetlands and the surrounding wooded vegetation.

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0 500 1,000 1,500 Feet

Figure 8. Habitat Distribution at Fort Smith ANGB Cantonment

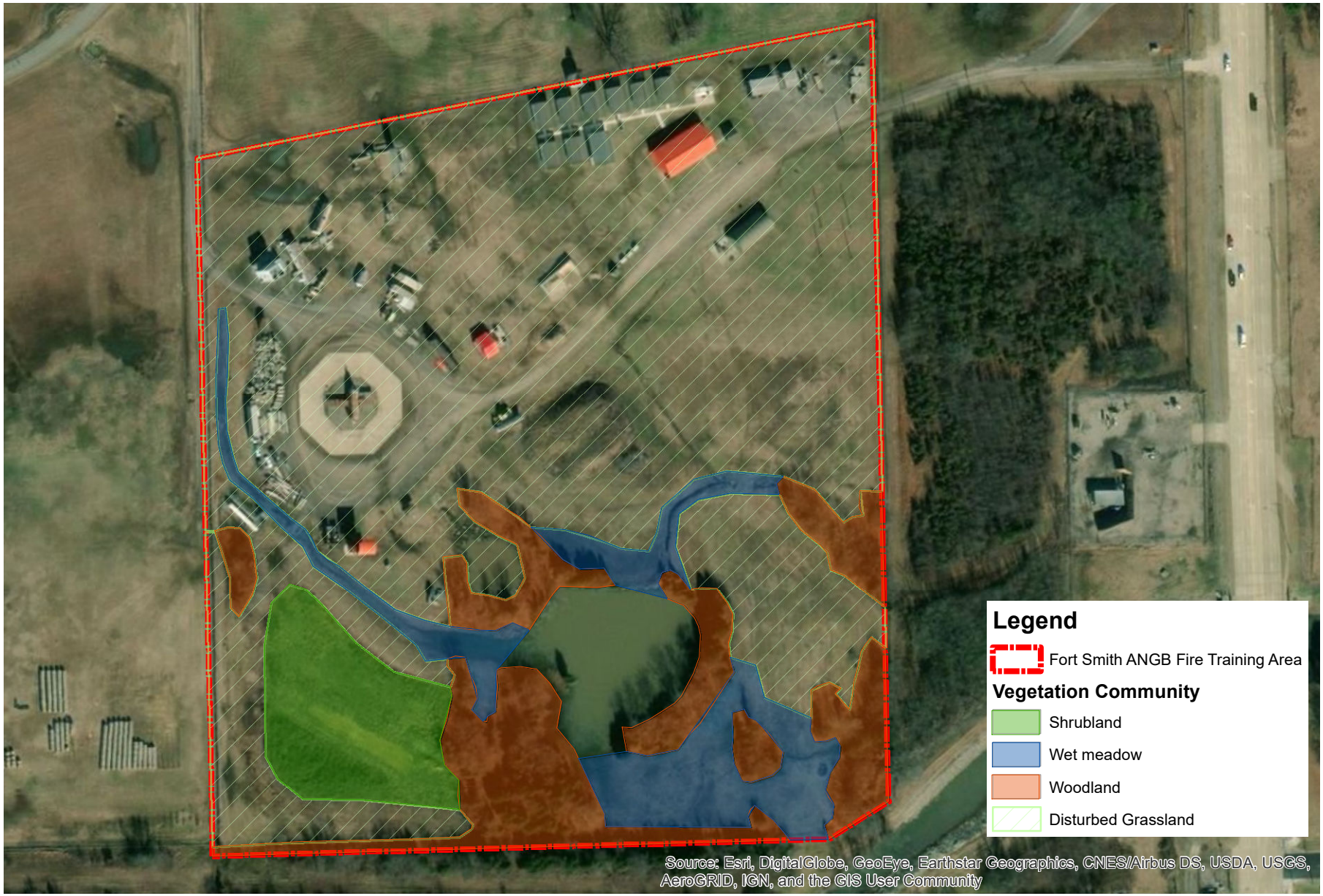

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Figure 9. Habitat Distribution at Fort Smith ANGB Fire Training Area

5.2.2.1 *Maintained*

The Fort Smith ANGB main cantonment area is composed primarily of improved and semi-improved areas. The developed land includes landscaped or paved areas with little natural vegetation or wildlife habitat remaining. The level of development provides limited habitat for native plantings. The maintained or landscaped habitat is interspersed throughout the 142 acres (57.5 ha) of land leased from FSRA (Figure 8) and comprises the largest habitat type. The landscaped and maintained habitat occurs around buildings and parking areas on Fort Smith ANGB with approximately 7 percent of the entire area remaining as disturbed bare ground. The habitat (Table 3) is dominated by herbaceous grass and forbs such as black medic (*Medicago lupulina*), Bermudagrass (*Cynodon dactylon*), and Kentucky bluegrass (*Poa pretensis*). Other herbaceous species documented during the survey include slender yellow wood sorrel (*Oxalis dillenii*), ribwort plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), and common dandelion (*Taraxacum officinale*). Trees occur sporadically throughout mostly the southern end of the survey area and include cottonwoods (*Populus deltoides*) and loblolly pine (*Pinus taeda*). Four waterways/drainages occur in the maintained habitat of the cantonment and are further described in Section 5.5.1.

Table 3. Vascular Plant Species at Fort Smith ANGB

Scientific Name	Common Name	Cover Type(s) Observed	Origin
Albizia julibrissin	Silktree	Woodland	Introduced
Allium sp.	Wild onion	Disturbed Grassland	Either
Ambrosia artemisiifolia	Annual ragweed	Disturbed Grassland	Native
Amorpha fruticosa	False indigo bush	Disturbed Grassland	Native
Ampelopsis arborea	Peppervine	Woodland	Native
Asclepias hirtella	Green milkweed	Disturbed Grassland	Native
Asclepias incarnata	Swamp milkweed	Wetland	Native
Berchemia scandens	Alabama supplejack	Wetland; Woodland	Native
Boltonia diffusa	Smallhead doll'd daisy	Disturbed Grassland	Native
Briza minor	Little quaking grass	Disturbed Grassland	Introduced
Cardiospermum halicacabum	Balloon vine	Disturbed Grassland	Introduced
Carex blanda	Eastern woodland sedge	Woodland	Native
Carex lupulina	Hop sedge	Wetland	Native
Carex tribuloides	Blunt broom sedge	Wetland	Native
Carex vulpinoidea	Fox sedge	Wetland	Native
Cerastium fontanum	Common mouse-ear chickweed	Disturbed Grassland	Introduced
Chamaecrista fasciculata	Partridge pea	Disturbed Grassland	Native
Chasmanthium latifolium	Inland woodoats	Woodland	Native
Coreopsis tinctoria	Golden tickseed	Disturbed Grassland	Native
Cornus florida	Flowering dogwood	Woodland	Native
Croton capitatus	Hogwort	Disturbed Grassland	Native
Cuscuta sp.	Dodder	Shrubland	Either
Cynanchum laeve	Honeyvine	Woodland	Native
Cynodon dactylon	Bermudagrass	Maintained	Introduced
Cyperus croceus	Baldwin's flatsedge	Wetland	Native

Scientific Name	Common Name	Cover Type(s) Observed	Origin
Cyperus esculentus	Yellow nutsedge	Disturbed Grassland	Either
Cyperus strigosus	Strawcolored flatsedge	Wetland	Native
Danthonia spicata	Poverty oatgrass	Disturbed Grassland	Native
Dichanthelium aciculare	Needleleaf rosette grass	Shrubland	Native
Dichanthelium clandestinum	Deertongue	Woodland	Native
Dichanthelium commutatum	Variable panicgrass	Woodland	Native
Digitaria sp.	Crabgrass	Maintained	Either
Diodia teres	Poorjoe	Disturbed Grassland	Native
Diodia virginiana	Virginia buttonweed	Disturbed Grassland	Native
Diospyros virginiana	Common persimmon	Woodland	Native
Echinochloa crus-galli	Barnyardgrass	Disturbed Grassland	Introduced
Erigeron strigosus	Prairie fleabane	Disturbed Grassland	Native
Eupatorium perfoliatum	Common boneset	Disturbed Grassland	Native
Eupatorium serotinum	Lateflowering thoroughwort	Disturbed Grassland	Native
Festuca arundinacea	Tall fescue	Disturbed Grassland	Introduced
Fraxinus pennsylvanica	Green ash	Wetland	Native
Galium circaezans	Licorice bedstraw	Disturbed Grassland	Native
Helenium amarum	Sneezeweed	Shrubland	Native
Heteranthera limosa	Blue mudplantain	Wetland	Native
Hieracium gronovii	Queendevil	Woodland	Native
Hydrolea ovata	Ovate false fiddleleaf	Wetland	Native
Ilex decidua	Possumhaw	Woodland	Native
Juncus brachycarpus	Whiteroot rush	Wetland	Native
Juncus marginatus	Grassleaf rush	Wetland	Native
Juniperus virginiana	Eastern redcedar	Wetland; Woodland	Native
Lactuca floridana	Woodland lettuce	Woodland	Native
Lespedeza cuneata	Sericea lespedeza	Disturbed Grassland	Introduced
Ligustrum vulgare	European privet	Woodland	Introduced
Lonicera japonica	Japanese honeysuckle	Wetland; Woodland	Introduced
Ludwigia palustris	Marsh seedbox	Wetland	Native
Ludwigia peploides	Floating primrose-willow	Wetland	Either
Medicago lupulina	Black medick	Maintained	Introduced
Morus rubra	Red mulberry	Woodland	Native
Oxalis dillenii	Slender yellow woodsorrel	Maintained	Native
Panicum capillare	Witchgrass	Disturbed Grassland	Native
Paspalum setaceum	Thin paspalum	Disturbed Grassland	Native
Penstemon digitalis	Foxglove beardtongue	Disturbed Grassland	Native
Pinus taeda	Loblolly pine	Maintained	Native
Plantago lanceolata	Ribwort plantain	Maintained	Native
Poa pratensis	Kentucky bluegrass	Maintained	Either
Polygala sanguinea	Purple milkwort	Wetland	Native
Polygonum hydropiperoides	Swamp smartweed	Wetland	Native

Scientific Name	Common Name	Cover Type(s) Observed	Origin
Polygonum pennsylvanicum	Pennsylvania smartweed	Wetland	Native
Populus deltoides	Eastern cottonwood	Maintained	Native
Portulaca oleracea	Little hogweed	Disturbed Grassland	Either
Prunella vulgaris	Common selfheal	Disturbed Grassland	Native
Prunus serotina	Black cherry	Wetland; Woodland	Native
Pyrus calleryana	Callery pear	Wetland; Woodland	Introduced
Quercus nigra	Water oak	Wetland; Woodland	Native
Quercus palustris	Pin oak	Maintained	Native
Rananculus sp.	Buttercup	Shrubland	Either
Rhexia mariana	Maryland meadowbeauty	Disturbed Grassland	Native
Rhus copallinum	Winged sumac	Woodland	Native
Rosa multiflora	Multiflora rose	Wetland; Woodland	Introduced
Rubus argutus	Sawtooth blackberry	Shrubland	Native
Rubus flagellaris	Northern dewberry	Woodland	Native
Ruellia pedunculata	Stalked wild petunia	Shrubland	Native
Rumex acetosella	Common sheep sorrel	Wetland	Introduced
Rumex crispus	Curly dock	Maintained	Introduced
Salix nigra	Black willow	Wetland	Native
Sassafras albidum	Sassafras	Woodland	Native
Setaria parviflora	Marsh bristlegrass	Wetland	Native
Sisyrinchium angustifolium	Narrowleaf blue-eyed grass	Shrubland	Native
Smilax bona-nox	Saw greenbrier	Woodland	Native
Smilax rotundifolia	Roundleaf greenbrier	Woodland	Native
Solanum carolinense	Carolina horsenettle	Shrubland	Native
Solidago radula	Western rough goldenrod	Shrubland	Native
Sorghastrum nutans	Indian grass	Disturbed Grassland	Native
Sorghum halepense	Johnson grass	Disturbed Grassland	Introduced
Taraxacum officinale	Common dandelion	Maintained	Introduced
Toxicodendron radicans	Eastern poison ivy	Woodland	Native
Tridens strictus	Longspike tridens	Disturbed Grassland	Native
Trifolium repens	White clover	Maintained	Introduced
Tripsacum dactyloides	Eastern gamagrass	Wetland	Native
Ulmus alata	Winged elm	Woodland; Shrubland	Native
Ulmus americana	American elm	Wetland; Woodland	Native
Ulmus crassifolia	Cedar elm	Wetland; Woodland	Native
Ulmus rubra	Slippery elm	Woodland	Native
Vernonia fasciculata	Prairie ironweed	Shrubland	Native
Xanthium sp.	Cocklebur	Disturbed Grassland	Introduced

Source: Arkansas ANG 2020a

5.2.2.2 *Shrubland*

A small area (approximately 1.15 acres [0.47 ha]) of shrubland habitat was documented on the FTA near the southwest corner (Figure 9; Table 3). The area consists of dry-mesic conditions with approximately 20 percent of the area lacking vegetation. The area was recently cleared or subjected to heavy disturbance due to recent earthwork. Nine native species and two species, that could either be native or introduced, were documented in this habitat. The herbaceous layer was dominated by needleleaf rosette grass (*Dichanthelium aciculare*) and sneezeweed (*Helenium amarum*) while the mid-story layer was dominated by winged elm (*Ulmus alata*). Woody shrubs and vines such as, sawtooth blackberry (*Rubus argutus*), Alabama supplejack (*Berchemia scandens*), and multiflora rose (*Rosa multiflora*) comprised the rest of the mid-story species.

5.2.2.3 *Disturbed Grassland*

The disturbed grassland habitat was distributed throughout the FTA site, but dominated the northern portion where development occurred. Portions of this community are heavily disturbed (i.e. training exercises, machinery, earthwork, etc.) and some areas are regularly mowed/maintained and receive minor disturbance (i.e. off-roading). The dry, sandy conditions contained 21 native species, eight introduced species, and three species that could be characterized as either native or introduced. Three species dominated the habitat: poverty oatgrass (*Danthonia spicata*), tall fescue (*Festuca arundinacea*), and golden tickseed (*Coreopsis tinctoria*). Green milkweed (*Asclepias hirtella*) and balloon vine (*Cardiospermum halicacabum*) were also found throughout the habitat.

5.2.2.4 *Woodland*

Approximately 2.5 acres (1.0 ha) of woodland habitat are present on Fort Smith ANGB, all of which occur on the FTA. The woodlands are found adjacent to ponds, streams, and the property boundaries. The wet to mesic habitat with loamy soil provides habitat for an Eastern red-cedar (*Juniperus virginiana*) and water oak (*Quercus nigra*) community type. Twenty-six native species were identified in this community type as well as five introduced species. The canopy was dominated by cedar elm (*Ulmus crassifolia*) and American elm (*Ulmus americana*) and the subcanopy by green ash (5 percent), Callery pear (*Pyrus calleryana*), and black cherry. Woody shrubs such as poison ivy (*Toxicodendron radicans*), Japanese honeysuckle (*Lonicera japonica*), Alabama supplejack, and mutiflora rose dominated the mid-story. The herbaceous layer was dominated by inland sea oats (*Chasmanthium latiflium*).

5.2.2.5 *Wetland/Wet Meadow*

Four main drainage ditches occur in the cantonment area as well as a retention basin. Two drainages are located in the FTA which flow into one of the ponds at the site. Wetland vegetation (or wet meadows) is associated with the two small man-made ponds, approximately 0.15 and 0.65 acre, (0.06 and 0.26 ha) located on the FTA (Arkansas ANG 2015b). Approximately 1.6 acres (0.65 ha) of wet meadows/wetlands occur in the southeastern portion of the FTA bordered by a tree-lined pond and woods. The wet-mesic area comprised of loamy soil provides habitat for 24 native species, four introduced species, and one species that can be classified either as native or introduced (floating primrose-willow, *Ludwigia peploides*). Dominant canopy species in the area include water oak (*Quercus nigra*), cedar elm, and American elm. Eastern red cedar, Green ash (*Fraxinus pennsylvanica*), Callery pear, and blackberry (*Rubus argutus*) comprise the dominant species in the subcanopy. Japanese honeysuckle, an introduced species, dominates the shrub and vine layer. Introduced species such as little quaking-grass (*Briza minor*), common mouse-eared chickweed (*Cerastium fontanum*), and black medic are the most common species comprising the herbaceous layer. Grassleaf rush (*Juncus marginatus*), whiteroot rush (*Juncus brachycarpus*), buttercup

(*Ranunculus sp.*), and prairie fleabane (*Erigeron strigosus*) are native species that make up the next most common species found in the wetland habitat.

5.3 Fish and Wildlife

Suitable and desirable habitat for wildlife is limited to the semi-improved areas of the main cantonment and the FTA. These areas provide some terrestrial habitats, and limited aquatic habitats. Several taxa were noted throughout the installation during the 2019 surveys. A total of 29 avian, 10 mammal, three reptile, one mussel, and one fish species were observed. All fauna species observed during the surveys are listed in Table 4. Although the species itself was not observed, crayfish burrows were observed in the cantonment area of Fort Smith ANGB.

Bat surveys conducted at Fort Smith ANGB in 2019 resulted in the identification of eight species of bats (Arkansas ANG 2020b; Table 5). Although no federally listed species were captured during mist-net surveys, a single call file characteristic of the gray bat (*Myotis grisescens*), a state and federally endangered species, was identified during acoustic surveys. None of the bats captured during the surveys showed evidence of white-nose syndrome (WNS). Table 6 lists the three reptile species observed during the 2019 surveys.

Table 4. Bird Species Observed at Fort Smith ANGB

Scientific Name	Common Name	Scientific Name	Common Name
Agelaius phoeniceus	Red-winged blackbird	*Cyanocitta cristata*	Blue jay
Ammodramus savannarum	Grasshopper sparrow	*Hirundo rustica*	Barn swallow
Amphispiza bilineata	Black-throated sparrow	*Mimus polyglottos*	Northern mockingbird
Ardea alba	Great egret	*Passerina cyanea*	Indigo bunting
Branta canadensis	Canada goose	*Sayornis phoebe*	Eastern phoebe
Butorides virescens	Green heron	*Sturnella magna*	Eastern meadowlark
Cardinalis cardinalis	Northern cardinal	*Sturnus vulgaris*	European starling
Cathartes aura	Turkey vulture	*Tachycineta bicolor*	Tree swallow
Charadrius vociferus	Killdeer	*Thryothorus ludovicianus*	Carolina wren
Columba livia	Rock pigeon	*Turdus migratorius*	American robin
Coragyps atratus	Black vulture	*Tyrannus forficatus*	Scissor-tailed flycatcher
Corvus brachyrhynchos	American crow	*Tyrannus tyrannus*	Eastern kingbird
Corvus ossifragus	Fish crow	*Zenaida macroura*	Mourning dove

Source: Arkansas ANG 2020a

Table 5. Mammal Species at Fort Smith ANGB

Scientific Name	Common Name
Eptesicus fuscus	Big brown bat
Lasionycteris noctivagans	Silver-haired bat
Lasiurus cinereus	Hoary bat
Lasiurus borealis	Eastern red bat
Myotis grisescens	Gray bat
Myotis lucifugus	Little brown bat
Nycticeius humeralis	Evening bat
Peromyscus maniculatus	Deer mouse
Pipistrellus subflavus	Eastern pipistrelle
Sylvilagus floridanus	Eastern cottontail

Source: Arkansas ANG 2020a; Arkansas ANG 2020b

Table 6. Herpetofauna Species at Fort Smith ANGB

Scientific Name	Common Name
Acris blanchardi	Blanchard's cricket frog
Kinosternon subrubrum	Mississippi mud turtle
Trachemys scripta elegans	Red-eared slider

Source: Arkansas ANG 2020a

While abundant fish habitat is located north of the installation in the Arkansas and Poteau rivers (and their accompanying tributaries), there is only limited habitat within the installation. Stormwater drainages and the main cantonment retention basin likely provide temporary habitat for fish species that can tolerate warm, turbid waters. Fort Smith ANGB has historically coordinated with USFWS to re-stock the main cantonment area retention basin with fathead minnows, (*Pimephales promelas*), bluegill (*Lepomis macrochirus*), and largemouth bass *(Micropterus salmoides*) in support of recreational fishing. Currently the basin is stocked annually with channel catfish (*Ictalurus punctatus*) to support the catch and release recreation on the base and the Family Day fishing derby.

5.4 Threatened and Endangered Species and Species of Concern

Federal status as a threatened or endangered species is derived from the ESA of 1973 (16 USC §1531 et seq.) and administered, depending on the species, by the USFWS or the National Marine Fisheries Service (NMFS). According to the USFWS, six federally listed species, one candidate species, and one species that has been proposed for listing are known to occur in Sebastian County, Arkansas (Table 7).

Approximately 10.5 acres (4.25 ha; Figure 10), located in the southern and eastern portions of the FTA, display favorable characteristics for American burying beetle (ABB) as defined by ABB habitat criteria (USFWS 1991). Most of this area has experienced some level of disturbance (i.e. 2-tracks, minor clearing, vegetation removal, minor earthwork, and compaction) but the disturbance regimes do not seem to have created unfavorable habitat for ABB in this area. The remaining portion of the FTA, although considered by the USFWS as potential ABB habitat, does not meet the ABB habitat criteria based on disturbance regime and vegetation structure.

Table 7. State and Federally Listed Species in Sebastian County, Arkansas

Common Name	Scientific Name	Listing Status	
		Federal	State
Insects			
American burying beetle	*Nicrophorus americanus*	E	E
Rattlesnake-master borer moth	*Papaipema eryngii*	C	-
Birds			
Red knot	*Calidris canutus rufa*	T	-
Piping plover	*Charadrius melodus*	T	-
Eastern black rail	*Laterallus jamaicensis ssp. jamaicensis*	PT	-
Mammals			
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	-	SGCN
Gray bat	*Myotis grisescens*	E	E
Little brown bat	*Myotis lucifugus*	-	SGCN
Northern Long-eared bat	*Myotis septentrionalis*	T	E
Plants			
Geocarpon minimum	*Geocarpon minimum*	T	E
Opaque prairie sedge	*Carex opaca*	-	E
Maple-leaf oak	*Quercus acerifolia*	-	T

Source: USFWS 2020; ANHC 2015

E = Endangered T = Threatened C = Candidate PT= Proposed Threatened SGCN = Species of Greatest Conservation Need

The state of Arkansas Natural Heritage Commission (ANHC) maintains a comprehensive list of rare plant and animal species per county in Arkansas. According to the ANHC list (ANHC 2015), six state listed species (Table 7) are known to occur in Sebastian County, Arkansas. The state and federally listed gray bat was documented during acoustical monitoring on Fort Smith ANGB (Arkansas ANG 2020b). The little brown bat (*Myotis lucifugus*) was also documented during acoustical monitoring on the installation and is a state species of greatest conservation need.

5.5 Waters of the US, Wetlands, and Floodplains

5.5.1 Waters of the US and Wetlands

A wetland survey was conducted for the FTA in 1999 (Arkansas ANG 1999). The survey identified three small ponds on the FTA. These ponds were described as man-made features that were created for agricultural purposes prior to acquisition of the parcel. The 1999 report classified these ponds as "artificial wetlands" that lacked emergent vegetation (Arkansas ANG 1999 and 2002). Only two of these ponds remain. In 2002, a wetland survey was conducted for the main cantonment area. This survey identified a pond classified as deep water habitat with a wetland fringe that was less than 1-foot (0.3-m) in width. Two jurisdictional drainages were also mapped during the 2002 survey (Arkansas ANG 2002).

In 2012, a survey to determine WOTUS and delineate wetlands was conducted at Fort Smith ANGB and an approved jurisdictional determination was obtained (Arkansas ANG 2015b). The previously identified ponds (defined as open water bodies by the US Army Corps of Engineers [USACE]) were the only jurisdictional wetlands observed (Ponds 1, 2 and 3).

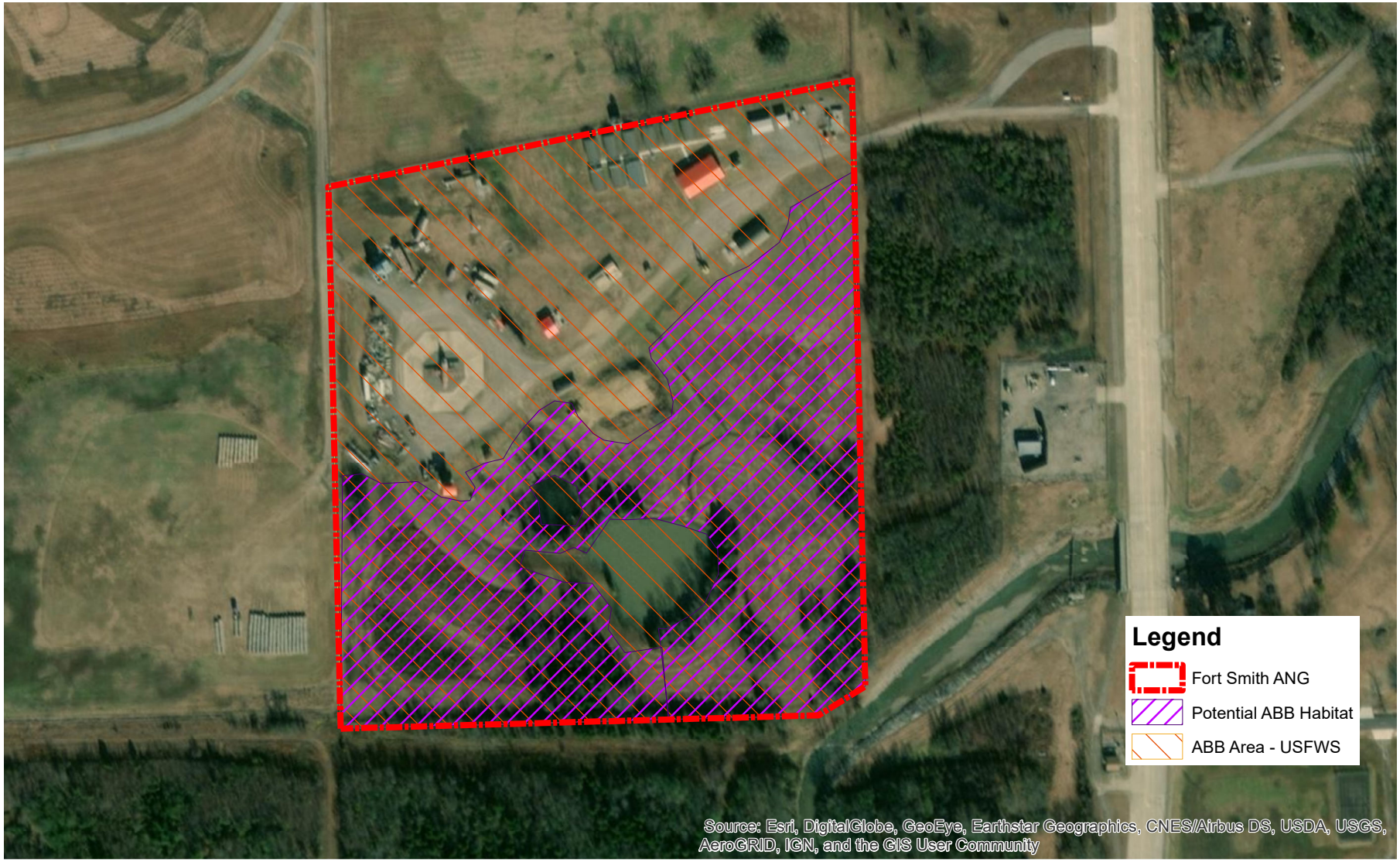


ABB - American Burying Beetle
ANG - Air National Guard
USFWS - United States Fish and Wildlife Service

0 200 400 600 Feet

Figure 10. Potential American Burying Beetle Habitat on the Fort Smith Fire Training Area

Six jurisdictional waterways (Drainages A, B, C, D, F and G) were also observed (Figure 11). A brief summary of the features is provided below and the full descriptions can be found in the 2015 report (Arkansas ANG 2015b).

Pond 1 is located next to the Civil Engineering facility and is the only jurisdictional wetland located on the main installation. The pond (1.62 acres [0.66 ha]) is an artificial impoundment stormwater retention basin) and is classified as Palustrine, Open Water, Permanent, Excavated. A drainage ditch (Drainage A) to the west of the pond conveys flow into the pond. The remaining two ponds are located on the FTA. Pond 2 is a 0.65-acre (0.26-ha) pond with an excavated berm on the south side. The pond receives inflow from Pond 3. A culvert located on the west side of the pond serves as an overflow. Pond 3 is 0.15 acre (0.6 ha) in size and was identified as a man-made pond. The pond receives surface-water runoff from the FTA (Arkansas ANG 2015b).

Of the six jurisdictional waterways/drainages noted during the survey, four occur on the cantonment and are briefly described here with detailed information in the 2014 and 2015 reports.

- Drainage A enters the installation from the north and conveys flow into Pond 1. Flow is ephemeral.
- Drainage B enters the installation from the west and conveys flow approximately 2,580 ft (786 m) across the northern portion of the installation and around the north end of the runway. Overflow from Pond 1 is conveyed by Drainage B. Flow is intermittent.
- Drainage C also enters the installation from the west and then flows under the runway. Approximately 1,830 ft (558 m) of this stream is located within the installation boundary and flow is intermittent.
- Drainage D is a smaller drainage that originates just outside the installation boundary and then joins Drainage C within the installation boundary. Flow is ephemeral.

One additional drainage (Drainage E) was observed near the airfield and was delineated. When reviewing the site, the USACE determined they would not take jurisdiction over this drainage way. This drainage consists of two concrete stormwater structures that convey flow into the box culvert containing Drainage C. Drainage E appears to be a completely artificial structure designed to convey flow from a nearby parking area and was determined non-jurisdictional (Arkansas ANG 2015b).

Two drainages are located in the FTA. A small drainage (Drainage F) with an undefined channel originates from a culvert under the Fire Training Access Road. This drainage, originally classified as non-jurisdictional, flows into Drainage G. Drainage G originates from the overflow of Pond 2 and flows to the southeast boundary of the FTA and then directly into Massard Creek (Arkansas ANG 2015b).

ANGB - Air National Guard Base

Figure 11. Delineated Surface Water Features on Fort Smith ANGB

The Regulatory Branch of the Little Rock District USACE conducted a site inspection for wetlands on August 1, 2014. The USACE identified approximately 2.30 acres (0.9 ha) of open water (the ponds), 0.13 acre (526 m^2) of wetlands, and 6,016 linear feet (1,834 m) of stream. The USACE concurred with the results of the wetland determination report dated May 2014 with the exception of Drainage F and Pond 3. The USACE indicated that Drainage F was likely once an ephemeral drain, but due to manipulation of the ground, the tributary pools in the area between the culvert and where it flows into Drainage G, the waterway is now considered jurisdictional. The estimate of wetlands associated with Drainage F is 0.01 acre (40 m^2) and is considered jurisdictional. With regard to Pond 3, the USACE-approved determination indicated that Pond 3 has a significant amount of wetland vegetation throughout and that 0.12 acre (486 m^2) of the 0.15 (607 m^2) total acreage is considered wetlands (Arkansas ANG 2015b).

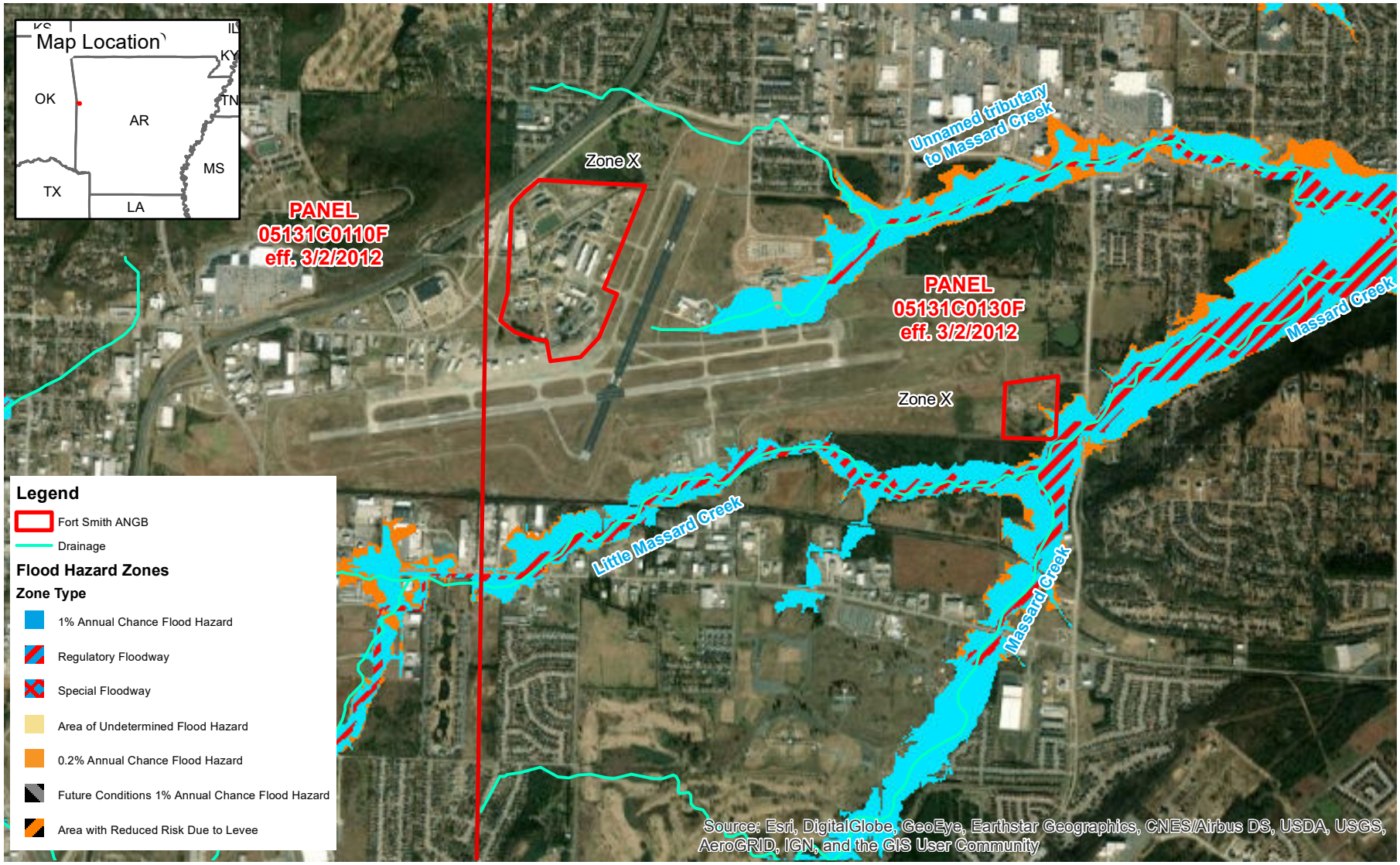
5.5.2 Floodplains

Floodplains are lowlands and relatively flat areas adjoining waters that are subject to flooding. The 100-year floodplain is designated based on different factors on the Federal Insurance Rate Maps (FIRM) along with other flooding and storm surge information. With respect to occurrence a 100-year flood has a one percent chance of occurring in any given year and the 500-year flood has a 0.2 percent chance in any given year. The limits to which that flood reaches, defines the floodplains. The main cantonment area of the installation lies within Zone X on the FIRM (# 05131C0130F); Zone X is defined by the Federal Emergency Management Agency (FEMA) as being outside of the 100-year and 500-year floodplains. The FTA contains approximately 1.15 acres (0.46 ha) that fall within the 100-year floodplain and 1.0 acre (0.4 ha) within the 500-year floodplain in the southeast corner of the parcel (Figure 12). This floodplain is associated with Massard Creek (FEMA 2012).

6.0 MISSION IMPACTS ON NATURAL RESOURCES

6.1 Natural Resources Needed to Support the Military Mission

The Fort Smith ANGB requires operation areas to serve as a buffer to provide support facilities and functions. The military mission and training requirements are dynamic and can change over time, requiring potential changes to natural resource needs to support the mission. Degradation of natural resources can result in unintended impacts to the military mission, impaired readiness, and increased expenses for natural resources management rather than the military mission. The Fort Smith ANGB needs the land and its natural resources to function together in a healthy ecosystem to support the military mission. Management activities in this INRMP are designed to support the desired habitats and ecosystem functions to meet the military mission.



ANGB - Air National Guard Base

0 2,000 4,000 Feet

Figure 12. Flood Hazard Zones at Fort Smith Air National Guard Base

6.2 Natural Resources Constraints to Mission and Mission Planning

The natural resources constraints to installation planning and mission are summarized as:

- Any project which is anticipated to impact WOTUS including wetlands must obtain a Section 404 Permit from the USACE and a Section 401 Water Quality Certification (WQC) from the Arkansas Department of Environmental Quality (ADEQ). A delineation of the boundaries of all onsite WOTUS including wetlands must be completed in accordance with the policies and procedures defined under the Rivers and Harbors Act, 33 CFR Regulations Part 328, the 1987 USACE Wetlands Delineation Manual, Technical Report Y-87-1, subsequent rules and guidelines issued governing its implementation and the applicable Regional Supplement to the 1987 USACE Wetlands Delineation Manual. Projects with impacts to wetlands must also undergo the NEPA process per 32 CFR Part 989 and be approved by NGB/A4VN NRPM.
- Any project that is anticipated to significantly impact floodplains must undergo the NEPA process per 32 CFR Part 989 and be approved by NGB/A4VN NRPM. Any project that permanently alters the hydrology of a floodplain may require a floodplain study to arrive at the correct elevations to meet state or local government regulations. If a study is required the installation will have to work directly with the state or local government agency responsible for the administration of floodplain laws and regulations.
- Any project that may impact potential habitat for the endangered ABB must comply with the ESA. Arkansas ANG will continue to comply with federal ESA regulations and consult with the USFWS for ground disturbance activities (greater than 3 acres [1.21 ha]) with potential to affect the ABB. Arkansas ANG will also comply with any state specific regulations for the state-listed ABB.

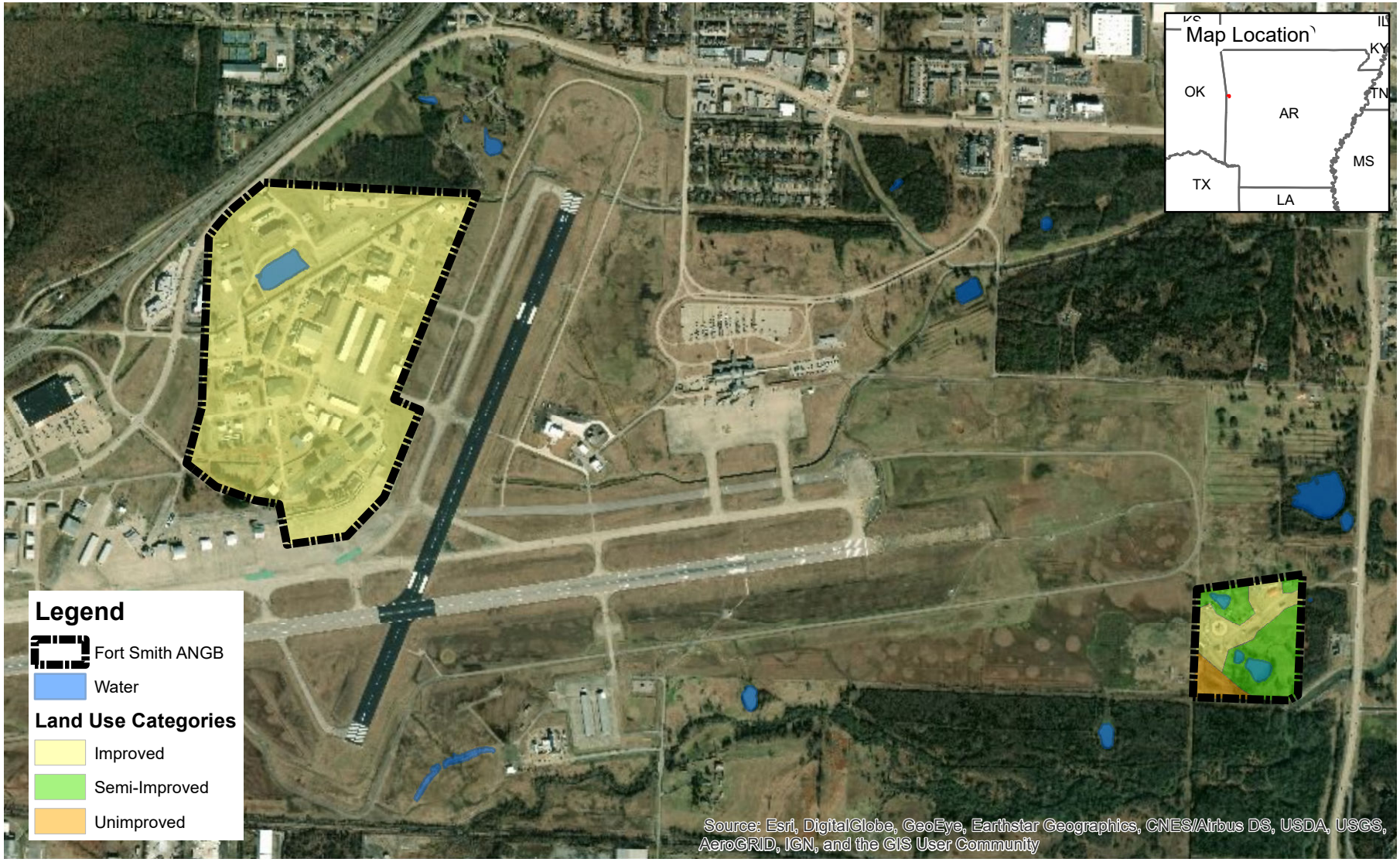
6.2.1 Land Use

The scope and intensity of land management depends on the land-use category. The land-use categories at Fort Smith ANGB include improved (approximately 125 acres [50.6 ha]), semi-improved (approximately 12 acres [4.9 ha]), and unimproved grounds (approximately 5 acres [2 ha]) (Figure 13).

Improved grounds include the land occupied by buildings and other permanent structures, including the administrative and support facilities, hangars, radar site, munitions storage facility, as well as lawns and landscape plantings in these areas. INRMP activities in improved areas include grounds maintenance and pest management.

Unimproved and semi-improved grounds include forest lands, lakes, ponds, and wetlands, and any areas where natural vegetation is allowed to grow unimpeded by maintenance activities. At Fort Smith ANGB, the limited unimproved ground includes the ponds and wooded areas within the FTA. INRMP activities in the unimproved areas include water resource management and grounds maintenance.

Semi-improved grounds are areas where periodic maintenance is performed primarily for operational reasons, such as erosion and dust control, and bird control. This land use category includes areas adjacent to aprons. INRMP activities in semi-improved areas include water resource management and grounds maintenance.



ANGB - Air National Guard Base

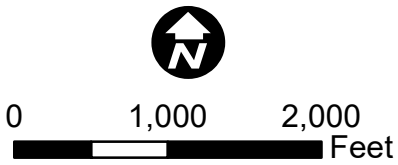


Figure 13. Land-Use Categories at Fort Smith Air National Guard Base

6.2.2 Current Major Impacts

Mission activities at Fort Smith ANGB include maintaining a level of operational readiness that will provide trained and equipped combat-ready tactical units ready for immediate integration into the active USAF. Impacts to natural resources are more likely to result from mission support activities, including facility and utility construction activities. In addition, support and non-mission related activities, such as management and disposal of hazardous substances, industrial operations, and landscape maintenance activities can potentially affect natural resources. Potential conflicts with the acceptable stewardship of military lands at Fort Smith ANGB are avoided through active planning, education, and management activities.

The current major impacts to natural resources from the Fort Smith ANGB military mission include:

- Impacts to native vegetation from the introduction of invasive weeds through support and non-mission related activities
- Impacts to the environment from the use of hazardous materials, pesticides, and herbicides
- Impacts from Environmental Restoration Sites

6.2.2.1 *Encroachment*

Encroachment is defined as the impacts of community actions on military activities as well as the impact of the military's actions on the surrounding community. Fort Smith ANGB may be subject to future encroachment issues as land west of the installation perimeter fence (owned by the FSRA) is slated for commercial development. The Fort Smith ANGB is bounded to the south and east by the FSRA. Multi-family residential developments to the northeast are adjacent to the base boundary. A few acres of undeveloped property exist just north of the base. To the north and northwest, some undeveloped land exists between the base fence line and Phoenix Avenue. Phoenix Avenue represents the physical limits of potential expansion to the north and northwest. The north sector of the installation is mostly undeveloped except for regional training site functions. The undeveloped areas are currently used for recreational purposes and overflow parking. Existing development surrounding the installation limits any significant future development outside the Fort Smith ANGB boundaries (Arkansas ANG 2015a).

6.2.2.2 *Hazardous Materials*

Hazardous materials and petroleum products are used throughout the installation for various functions, including vehicle maintenance and washing; petroleum oil lubricant distribution and management; and facilities maintenance. Hazardous materials used in these functions include fuels and lubricating oils, solvents, paints and thinners, antifreeze, deicing compounds, and acids. Issues associated with hazardous material and waste typically center around the storage, transport, use, and disposal of these substances. When such materials are improperly used in any way, they can threaten the health and well-being of wildlife species, habitats, and soil and water systems, as well as humans.

At Fort Smith ANGB, hazardous wastes are managed through the base level Hazardous Waste Management Plan in accordance with Air Force Instruction (AFI) 32-7042, *Solid and Hazardous Waste Compliance*. The *Hazardous Waste Management Plan* (Arkansas ANG 2016b) provides guidance to Fort Smith ANGB personnel on the handling, storage, and disposal of hazardous materials; this plan will implement the “cradle-to-grave” management control of hazardous waste, as mandated by the US Environmental Protection Agency (USEPA). Hazardous materials, with the

exception of fuels, are managed through a centralized base Hazardous Material Pharmacy using an Environmental Management Information System, which tracks the inventory and acquisition of hazardous materials along with hazardous waste disposal and health and safety information. The base *Oil and Hazardous Substances Spill Prevention and Response Plan* (Arkansas ANG 2010b) was prepared in accordance with good engineering practices and also functions as the *Spill Prevention, Control & Countermeasure Plan* (SPCCP) (in accordance with 40 CFR 112). The SPCCP provides guidance on petroleum storage, spill prevention measures, and contingency procedures including spill containment and cleanup. This plan establishes responsibilities for handling fuels and other hazardous fluids, containing and recovering spills, spill training, and spill reporting procedures.

6.2.2.3 *Installation Restoration Program Sites*

No active Installation Restoration Program (IRP) sites are located at the Fort Smith ANGB (Arkansas ANG 1988 and 2003b). A former fire training area was located in the northeastern portion of the base at the current munitions complex (Buildings 226 and 227). In this area, jet fuel was ignited then extinguished for training purposes. The area included an impermeable clay barrier to prevent fuel migration and an underground concrete tank to catch excess fuel. Testing conducted after the site closure resulted in the detection of hydrocarbons. In 2003, the site was classified as an area with contamination below action levels and that the site did not pose any risk or threat to public health or the environment.

7.0 NATURAL RESOURCES PROGRAM MANAGEMENT

7.1 Natural Resources Program Management

The guiding philosophy of the Fort Smith INRMP is to take an ecosystems approach to managing natural resources. Ecosystem management is based on clearly stated goals and objectives, and associated projects. The Fort Smith INRMP identifies goals and objectives, and presents the means to accomplish them as well as the methodologies to monitor results.

7.2 Fish and Wildlife Management

Wildlife management involves manipulating various aspects of an ecosystem to benefit chosen wildlife species. Management of habitats generally is focused to benefit native species, particularly rare species and game species. Fish and wildlife management at Fort Smith ANGB includes limited management of game and non-game species, and maintaining and enhancing biodiversity while supporting the ANG mission. Management of these resources is both a stewardship responsibility of the base and an opportunity to provide recreational opportunities to base personnel. The primary fish and wildlife management issues addressed in this component of the INRMP are recreational fishing (catch and release and the fishing derby), migratory birds, and other wildlife habitat management. Authority for fish and wildlife management is outlined in AFMAN 32-7003, *Environmental Conservation*. Relevant laws include the ESA and the Migratory Bird Treaty Act.

The State of Arkansas in the SWAP outlines the conservation goals for the ecoregion where Fort Smith ANGB is located. These goals include a focus on conservation species of greatest conservation need and preservation of habitat in the region. Sufficient habitat for some of these species occurs at Fort Smith ANGB.

The main cantonment pond is occasionally used for recreational fishing. Fishing is generally limited to special events such as CE or installation picnics or Earth Day activities, but catch and release

fishing can occur. In 2012, the pond was stocked with 1,000 bluegill, 125 largemouth bass, and 50 pounds of flathead minnows. Current annual stocking is only of channel catfish.

7.2.1 Federal Wildlife Policies and Regulations

Endangered Species Act

The ESA of 1973, as amended (16 USC §1531 et seq.) provides for the identification and protection of threatened and endangered plants and animals, including their critical habitats. The ESA requires federal agencies to conserve threatened and endangered species and cooperate with state and local authorities to resolve water resources issues in concert with the conservation of threatened and endangered species. This law establishes a consultation process involving federal agencies with input from state agencies to minimize impacts to the greatest extent practicable by agency action that would adversely affect species or habitat. Further, it prohibits all persons subject to U.S. jurisdiction from taking, including any harm or harassment, endangered or threatened species.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act prohibits, unless permitted by regulations, the pursuit, hunting, take, capture, killing or attempting to take, capture, kill, or possess any migratory bird included in the Act, including any part, nest, or egg of any such bird (16 USC § 703). The DoD has a Memorandum of Understanding (MOU) with the USFWS pursuant to Executive Order (EO) 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, which outlines a collaborative approach to promote the conservation of migratory bird populations. This MOU specifically pertains to natural resource management activities, including, but not limited to, habitat management, erosion control, forestry activities, invasive weed management, and prescribed burning. It also pertains to installation support functions, operation of industrial activities, construction and demolition activities, and hazardous waste cleanup. In February 2007, the USFWS finalized regulations for issuing incidental take permits to the DoD (50 CFR 21.15). If any of the Armed Forces determine that a proposed or an ongoing military readiness activity may result in a significant adverse effect on a population of migratory bird species, then they must confer and cooperate with the USFWS to develop appropriate and reasonable conservation measures to minimize or mitigate identified significant adverse effects (50 CFR Part 21).

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC 668-668c), enacted in 1940 and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously-used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

7.2.2 Nuisance Wildlife and Wildlife Diseases

With no flying mission that would present a BASH risk, Fort Smith ANGB has very few nuisance wildlife species. Future nuisance wildlife problems will be evaluated and solutions will follow the

IPM Plan. Any large-scale fish and wildlife deaths and unnatural behavior occurring on the installation will be reported, recorded, and investigated in conjunction with USFWS, USEPA, ADEQ, and AGFC personnel, as appropriate.

7.2.3 Management of Threatened and Endangered Species and Habitats

This section presents information about the management of priority species that are located within or have the potential to occur at Fort Smith ANGB, along with requirements and strategies for their management. As additional surveys and natural resources management activities are conducted, it is possible other species may be added in the future.

7.2.3.1 *Federally-listed Special Status Wildlife Species*

During the 2019 surveys, one federal and state listed bat was documented on Fort Smith ANGB, the gray bat (*Myotis grisescens*). Potential habitat for the ABB (*Nicrophorus americanus*) was noted within the FTA during these surveys (Arkansas ANG 2020a and 2020b).

Gray bat: The gray bat is listed as endangered (41 *Federal Register* [FR] 17740; April 28, 1976) throughout the entire project area and is one of the largest species in the genus *Myotis* in eastern North America (USFWS 2009). The species can be distinguished from other bats by the unicolored fur on their back and from other *Myotis* species from the wing membrane attachment to the ankle instead of at the toe (USFWS 2016). This species is one of the few species of bats in North America that inhabit caves year around (USFWS 2009). Summer forage correlates with open water of lakes, reservoirs, or streams (USFWS 2009) as well as wetlands and some forested areas (ODWC 2020). Forested areas along the banks of streams and lakes provide important protection as young often feed and take shelter in forest areas near the entrance to cave roosts (USFWS 2015).

Figure 14. Gray Bat

Photo courtesy of USFWS, Adam Mann

The gray bat distribution is limited in geographic range to limestone karst areas of the southeastern United States and is mainly found in Alabama, northern Arkansas, Kentucky, Missouri, and Tennessee (USFWS 2016). Wide population fluctuations of gray bats have been documented at many maternity sites across the species' range, but there have been significant population increases in some of the major hibernacula (USFWS 2009) as maternal colonies become concentrated. In Arkansas, approximately 222,000 bats hibernate in only four caves (Harvey 1994) with over 75 percent of these in a single Baxter County Bonanza cave in the Ozark National Forest. There are no caves in or around the installation, although suitable foraging habitat is present. The nearest known hibernaculum is approximately 68 miles (109.4 km) from Fort Smith ANGB. The gray bat is generally associated with streams and wetlands (Brady et al. 1982; Clawson and Titus 1992) and commonly forages low over the water. Gray bats foraging and/or commuting on Massard Creek could forage at the FTA or utilize the large pond or forest edge in the northern portion of the main cantonment area (Arkansas ANG 2020b).

The gray bat has experienced population declines over the past century as a result of habitat loss (the clearing of forests along streams and lakes), past pesticide use, and human disturbance of their

breeding and hibernating caves since they congregate in only a few caves (ODWC 2020). The following management strategies for the gray bat are recommended:

- Use only those pesticides approved for use in aquatic habitats and in accordance with the label when working near sensitive habitats such as wetlands
- Limit presence of off-road vehicles in known foraging habitat as feasible
- Limit tree removal and trimming to outside the maternity season (May 1 to August 30) to the extent feasible

American burying beetle (ABB): The ABB is the largest silphid (carrion beetle) in North America, reaching 2.5 to 4.5 cm (0.98 to 1.8 inches) in length. The most diagnostic feature of the ABB is the large orange-red marking on the raised portion of the pronotum, a feature shared with no other members of the genus in North America (USFWS 1991). The ABB also has orange-red frons (the upper, anterior part of the head), and a single orange-red marking on the clypeus, which is the lower face located just above the mandibles (Anderson 1982). The ABB was proposed for federal-listing in October 1988 (53 FR 39617) and designated as an endangered species on July 13, 1989 (54 FR 29652). The ABB is a nocturnal species that lives only for one year. The beetles are active in the summer months and bury themselves in the soil for the duration of the winter. Immature beetles emerge in late summer, over-winter as adults, and comprise the breeding population the following summer (Kozol et al. 1988). Adults and larvae are dependent on carrion for food and reproduction. They must compete for carrion with other invertebrate species, as well as vertebrate species.

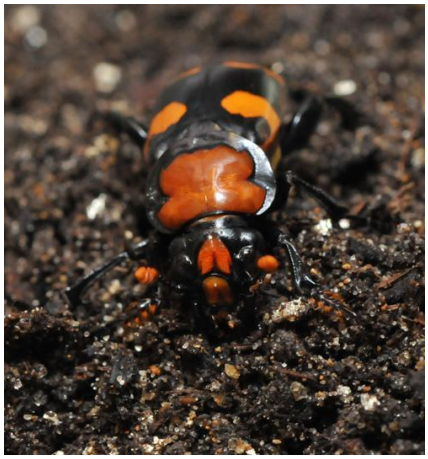


Figure 15. American Burying Beetle

Photo courtesy St. Louis Zoo

When the final recovery plan was completed (1991), only two, natural populations occurred at the extremities of the species historic range of 35 states, i.e., four counties in Oklahoma and one small island off the coast of Rhode Island (USFWS 2008). Currently the ABB is known to occur in eight states including Arkansas. ABBs are considered feeding habitat generalists and have been successfully live-trapped in several vegetation types including native grasslands, grazed pasture, riparian zones, coniferous forests, mature forest, deciduous forest with little undergrowth, and oak-hickory forest, as well as on a variety of various soil types (Creighton et al. 1993; Lomolino and Creighton 1996; Lomolino et al. 1995; USFWS 1991). Ecosystems supporting ABB populations are diverse and include primary forest, scrub forest, forest edge, grassland prairie, riparian areas, mountain slopes, and maritime scrub communities (Ratcliffe 1996; USFWS 1991). Soil conditions for suitable ABB reproductive habitat must be conducive to excavation by ABBs (Anderson 1982; Lomolino and Creighton 1996). Soils in the vicinity of captures tend to include well drained sandy loam and silt loam, with a clay component noted at most sites.

The following management strategies for the ABB are recommended:

- Avoid altering native habitat where ABBs have potential to occur as feasible.
- Limit presence of off-road vehicles in suitable habitat as feasible.

- Continue compliance with ESA regulations and consult with the USFWS for ground disturbance activities (greater than 3 acres [1.21 ha]) with potential to affect the ABB.

7.2.3.2 *State Special Status Species*

With the exception of the two federally listed species mentioned above, which are also state-listed, the only other additional state listed species noted on Fort Smith ANGB during the 2019 surveys was the little brown bat documented during acoustical monitoring (Arkansas ANG 2020a) and the grasshopper sparrow (*Ammodramus savannarum*). Both species are listed as species of greatest conservation need by the state.

Little brown bat: The little brown bat is a common insectivorous bat found across much of North America, with Arkansas representing the southwestern edge of its range in the eastern U.S. (Sasse et al. 2011). This tiny bat weighs between 5 and 14 grams (0.17 to 0.49 ounces) and ranges in length from 60 to 102 millimeters (2.36 to 4.02 inches; UM 2006). These bats have small ears but large hind feet. Little brown bats use trees, piles of wood, and buildings for day and night roost during their active season. Hibernation and the use of mines or caves as hibernaculum sites, begins in the south around November and ends mid-March (UM 2006). Little brown bats are often found in forested areas near water where insects are plentiful. Like many cave-dwelling bats, this species is vulnerable to the fungal disease known as WNS.

Figure 16. Little Brown Bat

Photo courtesy of Kentucky Department of Fish and Wildlife Resources, John MacGregor

The following management strategies for the little brown bat are recommended:

- Conduct the demolition of structures or large-scale renovations to roof and wall areas outside of the maternity period (May 1 to August 30) if bats are thought to occupy buildings on the installation, to the extent feasible
- Limit tree removal and trimming to outside the maternity season (May 1 to August 30) to the extent feasible

Grasshopper sparrow: The grasshopper sparrow is a small sparrow species preferring to remain close to the ground where it walks more than flies (Cornell 2019). This species prefers open hayfields, prairies, and grasslands with some bare ground. Habitat loss from conversion of grasslands to croplands has contributed to the decline of the grasshopper sparrow (AGFC 2015). The largest known Arkansas population occurs on Fort Chaffee next to the Arrowhead Landing Strip, where open soil conditions within tallgrass prairie have been maintained (AGFC 2015).

Figure 17. Grasshopper Sparrow
Photo courtesy of Luke Seitz, Macaulay Library

The following management strategies for the grasshopper sparrow are recommended:

- Maintain existing grasslands where possible.

7.2.3.3 *Management Strategies for Special Status Species*

In order to facilitate the continuation of the military mission and meet natural resource management objectives while minimizing impacts to special status species, Fort Smith ANGB will:

- Update biological inventories regularly as the occurrence of listed species is subject to change over time as a result of either recruitment, responses to management activities, identification of additional protected species, or changes in the status of species currently present at Fort Smith ANGB.
- Where feasible, maintain existing forested areas, grasslands, and wetlands, and minimize disturbance in riparian and wetland buffers.

7.3 Water and Wetland Resource Protection

Aquatic habitats at Fort Smith ANGB consist of the pond in the main cantonment area as well as the two ponds in the FTA. These surface water features provide aquatic habitat for amphibians, reptiles, fish, waterfowl, and wading birds. Water resource protection is important to natural resources management because it directly affects surface water quality and the value of aquatic habitats. Wetlands, floodplains, and stream buffers are critical in the protection and maintenance of wildlife resources. Fort Smith ANGB currently protects its water resources through compliance with a number of federal, state, and local environmental regulations that require the installation to have detailed spill control and response procedures and to implement stormwater pollution prevention best management practices (BMPs). The objective of these regulations is to prevent pollutants (e.g., fuels, solvents, sediments) from entering surface waters.

7.3.1 Regulatory and Permitting

The Clean Water Act (CWA) (33 USC 1251 et seq.) is the primary federal statute that protects the nation's waters. The intent of the CWA is to prevent, reduce and eliminate pollution in the nation's waters for the purposes of restoring and maintaining the chemical, physical and biological integrity of the nation's waters. WOTUS include, but are not limited to, coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, vernal pools and wetlands. See 33 CFR Part 328.3(a) for the full list of WOTUS.

The three primary sections of the CWA that may affect day to day operations are Sections 404, 401 and 402. The USACE is the regulatory agency responsible for implementation of the CWA and the USEPA has oversight over the CWA. Section 404 regulates the discharge of dredged or fill material into WOTUS, including wetlands. When impacts to WOTUS, including wetlands cannot be avoided, a Section 404 permit must be obtained from the USACE. When a Section 404 permit is required, a Section 401 WQC is also required.

Section 10 of the Rivers and Harbors Act (33 USC 403) regulates the placement of any obstructions in and the excavation or fill in any navigable WOTUS. The USACE is the regulatory agency responsible for implementation of the Rivers and Harbors Act.

Management of wetlands on federal lands, including military installations, is further governed by EO 11990 and DoDI 4715.03. Under EO 11990 and DoDI 4715.03, wetlands are required to be managed for no net loss. This means short- and long-term impacts to WOTUS and wetlands must be avoided. If they cannot be avoided, the impacts must be minimized to the least damaging practicable alternative (LEDPA). When impacts cannot be avoided, they must be mitigated to ensure there is no net loss of acreage.

To obtain Section 404 and Section 10 permits and Section 401 WQC, applicants are, depending on the state in which the installation is located, required to submit permit applications individually to the USACE and the state agency responsible for implementation of Section 401 or through a Joint Permit Application. In Arkansas, the state agency responsible for implementation of Section 401 is ADEQ. There are different types of Section 404 and Section 10 permits that include but are not limited to individual and Nationwide Permits. The specific type of permit is based on the total area of impact and the overall impact to the system. WQCs can be individual or they can be issued as part of a Nationwide Permit or in the state of Arkansas, a Short Term Activity Authorization (STAA) may be issued as part of the Nationwide Permit.

Applications for Section 404 permits must include an avoidance and minimization analysis that addresses the USEPA Section 404(b)(1) Guidelines (40 CFR Part 230.10). The analysis must demonstrate the effort made to first avoid the impacts and then the rationale for the selected LEDPA. The analysis must also demonstrate the impacts will not cause or contribute to violations of state water quality standards and the activity does not jeopardize listed species or sensitive cultural resources (33 CFR Part 320.3 [e] and [g]). The analysis must also identify mitigation alternatives and the preferred alternative selected to meet mitigation requirements. Wastewater, construction, stormwater, and pretreatment discharges, also known as point source discharges, are managed through the National Pollution Discharge Elimination System (NPDES) Permit Program as authorized by Section 402 of the CWA. The ADEQ implements Section 402 for the state of Arkansas. All point source discharges must have a NPDES permit. NPDES permits require specific actions including monitoring and analysis work that must be conducted during the lifetime of the permit.

EO 11988, *Floodplains Management*, requires all federal agencies to provide leadership and take action to reduce the risk of floodplain loss; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values of floodplains when acquiring, managing, or disposing of federal lands. In addition, if action is taken that permits an encroachment within the floodplain that alters the flood hazards on a national FIRM (e.g., changes to the floodplain boundary), Fort Smith ANGB must submit an analysis reflecting those changes to FEMA. FEMA headquarters can be contacted at 202-646-3461 to obtain booklet MT-2, Revisions to National Flood Insurance Program Maps, for further guidance. The Arkansas Natural Resources Commission, Floodplain Management Program administers the National Flood Insurance Program (NFIP) for the state of Arkansas.

This INRMP focuses mainly on the potential impacts to water resources related to ground disturbance and stormwater associated with changes in impervious areas. Specific watershed protection measures used by Fort Smith ANGB include:

- Implementing the SWPPP, which provides engineering and management strategies designed to improve the quality of stormwater runoff from the installation and thereby improve the quality of receiving waters.
- Implementing the NPDES general stormwater permit (Permit numbers: ARROOC121 and AFIN 66-00557) for industrial stormwater at Fort Smith ANGB, effective from July 2019 through June 2024.
- Obtaining a Construction General Permit for Discharge of Stormwater and Dewatering Wastewaters, through the ADEQ, for construction that disturbs greater than 1 acre (0.4 ha). Ensuring BMPs designated under the regulations are implemented.
- Obtaining a Section 404 permit and a Section 401 WQC prior to the commencement of any land disturbance. Mitigation may be required for the loss of acreage.
- Managing invasive species by promoting the use of native species.

7.3.2 Coastal Management Zones

No coastal zone exists at Fort Smith ANGB; therefore, no requirements have been established for a coastal zone program or management plan.

7.3.3 Vegetative Buffers

Vegetative buffers (e.g., grass filter strips, forested buffers) improve storm water runoff quality by slowing down the rate of flow, trapping sediment and other pollutants, and increasing infiltration into the ground. Fort Smith ANGB maintains buffers around the wetlands in the FTA.

7.4 Grounds Maintenance

The land at Fort Smith ANGB is maintained based on ground maintenance categories: improved (approximately 125 acres [50.6 ha]), semi-improved (approximately 12 acres [4.9 ha]), and unimproved (approximately 5 acres [2 ha]) (Figure 13). The improved areas of the base (i.e. administrative areas), semi-improved areas, and unimproved grounds are managed by the 188th Civil Engineer Squadron (CES).

Urban forestry is the management of woody landscape plant populations in developed or improved environments. The Fort Smith ANGB EM is mandated by AFMAN 32-7003 to provide proper care and maintenance of the base's urban forest. Current management activities include replacing trees, pruning or removing hazardous trees, and ensuring that contractors comply with approved planting specifications.

Landscape designs for Fort Smith ANGB are developed by contractors and submitted to the EM for selection. The use of native plants and trees is encouraged in all landscape plans and designs, but is not required. However, native species are used whenever possible as identified in EO 13148. Appendix C contains a list of suitable native tree species for use at Fort Smith ANGB.

7.5 Wildland Fire Management

The threat of wildfire to the mission and natural resources is extremely low and a wildland fire management plan for Fort Smith ANGB is not required.

7.6 Forest Management

Fort Smith ANGB has little natural forest habitat and forest management is limited to landscaping trees in the main cantonment area. Current management activities at Fort Smith ANGB include replacing trees, pruning or removing hazardous trees, and ensuring that contractors comply with approved planting specifications. INRMP management activities focus on the routine maintenance of the forest resources at Fort Smith ANGB to maintain a healthy tree community. A list of recommended native plants for landscaping is included in Appendix C. It is the responsibility of the EM to coordinate activities with grounds maintenance and contracting. No management issues or concerns were identified for the management of forests.

7.7 Soil Conservation and Sediment Management

The soils at the installation are susceptible to water erosion if not protected with vegetation or other cover. Maintenance of key ecosystem functions, such as erosion control and sediment retention, require a healthy, uniform ground cover be established as quickly as possible following land use conversion or disturbance, and that interim soil stabilization measures be implemented. Sites where soils are exposed to environmental variables (i.e., water, wind, and ice) can have erosion and sedimentation problems. Sedimentation occurs when soil particles are suspended in surface runoff or wind and are deposited in streams or other water bodies. Sediments affect water clarity, decrease oxygen levels in water, and transport pollutants. Construction activities that disturb the ground surface can accelerate erosion by removing vegetation, compacting or disturbing the soil, changing natural drainage patterns, and by covering the ground with impermeable surfaces (pavement, concrete, buildings). When the land surface is impermeable, stormwater can no longer infiltrate, resulting in larger amounts of water that can move more quickly across a site and which can carry larger amounts of sediment and other pollutants into stormwater drains and drainage basins and ultimately into streams and rivers. As soil quality declines, adverse impacts to on-site and off-site environments increase. Therefore, the maintenance of soil quality is important for efficient and productive land management and utilization. Soil drainage, texture, strength, and erodibility all determine the suitability of the ground to support man-made structures, facilities, and military activities. The plan for water resources at Fort Smith ANGB specifically focuses on stormwater drainage and retention.

The Fort Smith ANGB operates under a NPDES, which provides engineering and management strategies designed to improve the quality of stormwater runoff from the installation and thereby improve the quality of receiving waters. Construction activities that disturb one or more acres are regulated under Arkansas' NPDES construction stormwater program and would need a Construction Stormwater Permit. To protect water quality, Fort Smith ANGB implements the following strategies:

- Monitor surface water quality.
- Implement BMPs for construction and industrial activities.
- Prevent surface water pollution by ensuring environmental plans (e.g. SWPPP) are implemented.
- Minimize the use of pesticides.
- Maintain vegetation buffers around water resources.
- Re-seed disturbed areas after construction.

7.8 Outdoor Recreation, Public Access, and Public Outreach

As defined in AFMAN 32-7003, suitable outdoor areas are classified into three classes of use based on outdoor recreation potential and ecosystem sustainability: Class I areas (developed recreation areas, such as campgrounds and picnic areas), Class II areas (dispersed recreation areas used for activities such as fishing, bird watching, and hiking), and Class III areas (special interest areas that contain valuable archeological, ecological, or other features that warrant special protection and access control).

Fort Smith ANGB contains limited areas suitable for outdoor recreation. A Class I area on the installation may be the walking track located on the northwestern side of the installation. A Class II area may be the pond at the main cantonment area when fishing is permitted. Fort Smith ANGB does not include any Class III recreational areas. Use of outdoor recreation resources by the general public is limited and only allowed when such use is deemed by the Commander to be compatible with the military mission.

7.9 Conservation Law Enforcement

Currently, there is no hunting at Fort Smith ANGB; therefore, there are no management issues or concerns regarding conservation law enforcement. Fishing activities are the result of community outreach through the annual fishing derby. Any security issues associated with the fishing derby are addressed by the 188th Security Forces Squadron. The 188th Security Forces Squadron will work with the AGFC if game and fishing regulations must be enforced.

7.10 Geographic Information Systems

Geographic Information System (GIS) is used to manage and catalog information acquired in natural resources research. GIS assists in planning by charting areas of environmental concern and providing a baseline for analyzing the potential impacts of any proposed natural resources management action. Managers can implement the capabilities of a GIS to watershed, wetlands, wildlife, and various other natural resource management applications. GIS needs and requirements will be addressed through the ANG GeoBase Program.

7.11 Other Plans

7.11.1 Integrated Pest Management Plan

The Fort Smith IPM Plan (Arkansas ANG 2010a) describes how the base will manage and control pests while complying with the applicable rules and regulations. The purpose of IPM is to prevent or control pests and disease vectors that may adversely impact readiness or military operations by affecting the health of personnel, or by damaging structures, material, or property. Pest management at Fort Smith ANGB incorporates continuous monitoring, education, recordkeeping, and communication to prevent pests and disease vectors from causing unacceptable damage to operations, people, property, materiel, or the environment.

Public health-related pests, structural pests, vertebrate pests, and undesirable vegetation have been identified at the installation. The public health-related pests identified at the installation include small rodents (rats and mice) and various insects (cockroaches, bees, hornets, wasps, ants, mosquitoes, and spiders). Termites are a structural pest that can or have occurred in the past at Fort Smith ANGB.

DoDI 4150.07, *Pest Management Program*, also requires installations to implement vertebrate pest management programs to prevent vertebrate pest interference with operations, destruction of real property, and adverse impacts on health and morale. Common vertebrate pests known to occur at

Fort Smith ANGB include various birds, small mammals, and snakes. These include the house sparrow (*Passer domesticus*), starlings (*Sternus vulgaris*), pigeons (*Columba livia*), barn swallow (*Hirundo rustica*), raccoon (*Procyon lotor*), opossums (*Didelphia virginiana*), brown rat (*Rattus norvegicus*), and house mouse (*Mus musculus*). These pests can transmit diseases, parasites, and can cause extensive damage to landscape and structures. Nest removal, good housekeeping, and the installation of barriers, screens, and mesh are some vertebrate control methods utilized at Fort Smith ANGB. No chemical control methods for vertebrate pests are approved for use at Fort Smith ANGB.

7.11.2 Invasive Species

Non-native, invasive, and pest species have the potential to be a major contributor to ecosystem destabilization. Non-native species (also termed exotic), as the name indicates, are species from other regions of the world which have been artificially introduced to the region, primarily through human activities. Invasive species are those that, whether native or non-native, tend to become established in disturbed systems and competitively exclude native species. Invasive plant species should be monitored to prevent further spread and infestation. Information on invasive species in Arkansas can be found from various sources:

- USDA’s Introduced, Invasive and Noxious Plants: https://plants.usda.gov/java/noxious?rptType=State&statefips=05
- Arkansas State Plant Board 2006: https://www.sos.arkansas.gov/uploads/rulesRegs/Arkansas%20Register/2006/may_2006/003.11.06-002.pdf

EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species*, requires all federal agencies 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. Invasive plants are nonnative or native species that can thrive in areas beyond their natural range of dispersal. Arkansas laws (Regulations on Plant Diseases and Pests) also require the control of noxious weeds. Noxious weeds are invasive species that are difficult to control or eradicate and have the ability to cause economic harm to the agricultural industry. Forty-three species of noxious plants are listed by USDA for the state (USDA 2019). Table 8 lists the invasive species currently identified on the base (Arkansas ANG 2020a) and Fort Smith’s IPM Plan (2010a) details the control of invasive species.

Table 8. Invasive Plant Species Identified at Fort Smith ANGB

Scientific Name	Common Name	Fort Smith Cover Type(s) Observed In
Allium sp.	Wild onion	Disturbed grassland; Wet meadow
Cardiospermum halicacabum	Balloon vine	Disturbed grassland; Wet meadow
Cuscuta sp.	Dodder	Disturbed grassland; Maintained
Cynodon dactylon	Bermudagrass	Disturbed grassland; Maintained; Wet meadow
Echinochloa crus-gralli	Barnyardgrass	Wet meadow
Plantago lanceolata	Ribwort plantain	Maintained
Rumex acetosella	Common sheep sorrel	Maintained
Rumex crispus	Curly dock	Wet meadow
Solanum carolinense	Carolina horsenettle	Wet meadow
Sorghum halepense	Johnson grass	Disturbed grassland
Xanthium sp.	Cocklebur	Disturbed grassland; Wet meadow

Invasive, non-native species, and noxious weeds have the capability to significantly impact native vegetation and wildlife. A key element of INRMP implementation is to ensure no net loss of military training capability. Management of undesirable species is necessary to maintain military lands and facilities in usable condition. In addition, uncontrolled animal pests can become health hazards, which could threaten the military mission.

The objectives of the IPM Plan are to establish and maintain safe, effective, and environmentally sound IPM practices to control pests that may adversely impact readiness of military operations by affecting the health of personnel or damaging structures, material, or property. Management strategies outlined for implementation of this INRMP are to ensure no net loss of military training capabilities. General management strategies are as follows:

- Control invasive and exotic species and noxious weeds through early detection and isolation of infested areas.
- Establish and maintain systematic and pest-specific surveillance and monitoring programs to determine the status of pest presence at the installation and if and when treatments are needed rather than by a predetermined schedule.
- Implement BMPs to minimize land disturbances that favor invasion of non-native species and re-vegetate disturbed areas with native species.
- If required, only use those pesticides approved for use in aquatic environments in and around wetlands and other surface waters.
- Do not use invasive, non-native species in landscaping.
- Implement judicious use of both non-chemical and chemical control techniques to achieve effective pest management that minimizes economic, health, and environmental risks. Emphasize the use of mechanical, biological, and cultural control techniques, using chemical techniques sparingly with caution. Use chemical controls only after careful consideration of alternative controls.
- Educate site users.
- Ensure all pest management operations involving the application of pesticides on the installation are performed by DoD or state certified pesticide applicators and by licensed commercial pest management companies.
- Ensure pesticides used at Fort Smith ANGB are stored in accordance with the product labels, their Safety Data Sheets, and in accordance with DoDI 4150.07, federal, state, and local regulations.
- Ensure the IPMC monitors contracts for pest management at Fort Smith ANGB.

7.11.3 Stormwater Management

The state of Arkansas has legal authority to implement and enforce the provisions of the CWA, while the USEPA retains oversight responsibilities. ADEQ issued an NPDES industrial stormwater permit (Permit No. ARROOC121 and AFIN 66-00557) for industrial stormwater at Fort Smith ANGB effective July 2019. The Fort Smith ANGB also operates under a SWPPP, which provides engineering and management strategies designed to improve the quality of stormwater runoff from the installation and thereby improve the quality of receiving waters (Arkansas ANG 2019). An

Arkansas Construction General Permit for discharge of stormwater and dewatering wastewaters from construction activities that disturbs greater than 1 acre is required from ADEQ.

7.11.4 State Wildlife Action Plan

During the INRMP development process, the Arkansas ANG consulted with the AGFC to ensure INRMP goals, objectives, and strategies are consistent with Arkansas's overall statewide and habitat-specific plans. The 2015 SWAP provides an essential foundation for the future of wildlife conservation through the identification of species of greatest conservation need and provides an opportunity for state and federal agencies and other conservation partners to coordinate roles in conservation efforts across the state (AGFC 2015).

8.0 MANAGEMENT GOALS AND OBJECTIVES

Goals and objectives provide the framework for natural resources management programs. Goals provide a general guiding direction for each technical area and objectives are more specific actions that facilitate achieving those goals. The objectives then drive the development of specific activities and projects to achieve those objectives. Management goals and objectives for the INRMP were developed by a thorough evaluation of the natural resources present on the Fort Smith ANGB in accordance with AFMAN 32-7003 and the principles of adaptive ecosystem management by an interdisciplinary team of biologists, planners, and environmental scientists. Goals and objectives should be revised over time to reflect evolving environmental conditions, adaptive management, and the completion of tasks as the INRMP is implemented.

GOAL – Natural Resources Program Management (PM): Manage natural resources in a manner that is compatible with and supports the military mission while complying with applicable federal and state laws, and USAF regulations and policies.

- OBJECTIVE PM1: Ensure Environmental Management staff are trained in accordance with the requirement of AFMAN 32-7003. At a minimum, members of the Environmental Management Office must attend the CECOS Natural Resources Compliance Course as part of their training requirements for implementation of the INRMP. When feasible, members of the Environmental Management Office will attend the annual National Military Fish and Wildlife Association Training Workshop.
- OBJECTIVE PM2: Prepare a budget and identify project needs to implement the natural resources management program at Fort Smith ANGB. Project needs are to be submitted to the NGB/A4VN NRPM for budget and contracting.
- OBJECTIVE PM3: Conduct an annual INRMP review meeting with internal stakeholders. Fort Smith's EM will promote discussion with Installation Command, personnel, and pertinent internal stakeholders to identify operational needs relative to natural resources management. The EM will document, in writing, the discussions held and agreements made.
- OBJECTIVE PM4: Conduct an annual INRMP review meeting with the USFWS and the AGFC. The Fort Smith EM will conduct an annual review of the INRMP with the USFWS and the AGFC. The EM will document, in writing, the discussions held and agreements made along with any changes to the goals and objectives of the INRMP and discussions regarding the projects to be undertaken in the coming year. The document will be submitted to the USFWS and the AGFC for their concurrence and will serve as an annual update of the

INRMP. The annual meeting can be conducted as an in person meeting, via a teleconference, or it can be conducted via email.

GOAL – Fish and Wildlife Monitoring (FW): Establish a general wildlife and plant population trend monitoring program as a component of long-term ecological trend monitoring.

- OBJECTIVE FW1: Based on the results of the Final Flora and Fauna Surveys (Arkansas ANG 2020a), determine what additional surveys may be needed to address the threatened and endangered species identified and determine when the additional surveys need to be conducted.
- OBJECTIVE FW2: Maintain an updated inventory of plants and animals present on Fort Smith ANGB.

GOAL – Vegetative Management (VM): Establish survey and monitoring protocols to identify and address various vegetative communities on the installation.

- OBJECTIVE VM1: Based on the results of the Final Flora and Fauna Surveys (Arkansas ANG 2020a) determine what additional surveys may be needed to address the vegetative communities including the presence of non-native, invasive, and noxious species on the installation.
- OBJECTIVE VM2: Promote natural resources education and awareness.
    - Work with the base Public Affairs Office to develop information materials (i.e., pamphlets) to promote the positive aspects of Fort Smith ANGB including management and preservation of natural resources.
    - Continue to develop activities and educational materials using prairie restoration and planting sites as public outdoor interpretive areas, for outreach events.
    - Develop and promote natural resources public outreach events with local outdoor education groups (ex: Boy Scouts of America, Girl Scouts of the USA, 4-H groups, and school groups). These groups could provide labor for prairie restoration events or design display cases for public outreach signs at prairie restoration sites.
- OBJECTIVE VM3: Maintain a vegetative inventory or database and establish a GIS layer. Update and incorporate data into annual INRMP reviews.

GOAL – Invasive Species (IN): Establish survey and monitoring protocols to identify and address invasive, nonnative, and noxious species. Implement an invasive and nonnative species survey and plan.

- OBJECTIVE IN1: Based on the results of the Final Flora and Fauna Surveys (Arkansas ANG 2020a) for Fort Smith ANGB, determine what additional surveys may be needed, and the actions warranted to address the presence of invasive, nonnative, and noxious species.
- OBJECTIVE IN2: Ensure pest management projects and invasive species projects undertaken by either the Pest Management Office or the Environmental Office are coordinated and provide mutual benefit.
- OBJECTIVE IN3: Monitor forested areas for any signs of disease or infestation and contact a certified forester and/or arborist if needed.

GOAL – Threatened and Endangered Species (TE): Identify the presence of federally and state threatened and endangered species to include any species of greatest conservation need identified in Arkansas's SWAP.

- OBJECTIVE TE1: Based on the results of the Final Flora and Fauna Surveys (Arkansas ANG 2020a) for Fort Smith ANGB, as well as state and federal information sites identifying state- and federally-listed species, determine what additional surveys may be needed to protect and conserve sensitive species and the survey timing.
- OBJECTIVE TE2: Annually review state and federal lists of endangered, threatened, and species of concern with potential to occur on the installation. Maintain current lists of federal and state species.
- OBJECTIVE TE3: Maintain compliance with USFWS regulations and recommendations concerning the ABB.
    - Review installation plans that would disturb greater than 3 acres (1.21 ha) of potential ABB habitat and informally consult with USFWS on potential impacts to the beetle. Surveys may be required for projects with greater than 3 acres (1.21 ha) of land disturbance.
    - Conduct survey of suitable habitat within the FTA for the presence or absence of ABB in accordance with USFWS protocol for this species.
- OBJECTIVE TE4: Maintain compliance with USFWS regulations and recommendations concerning the northern long-eared bat. Limit removal of trees during the summer maternity season (May 1 to August 30).
    - Conduct survey of suitable habitat within the FTA for the presence or absence of northern long-eared bat every 5 years in accordance with USFWS protocol for this species.

GOAL – Grounds Maintenance and Landscaping (GM): Manage vegetative cover, forested areas, and soil to minimize sediment loss and erosion, while protecting water quality.

- OBJECTIVE GM1: Improve effectiveness of grounds maintenance to the overall ecosystem.
    - Develop natural resources plan/grounds maintenance plan that contains an evaluation of improved and semi-improved lands with potential for conversion to unimproved. Plan should also include a list of suitable native plants for on base landscape projects.
    - Mow natural grassland vegetation restoration areas annually to control woody vegetation growth.
    - Maximize the use of regional native plant species and avoid introductions of invasive and exotic species in re-vegetation and landscaping activities. Ensure an approved native plant species list (with low maintenance species) is incorporated in the current and all future Grounds Maintenance contracts through meetings with the Grounds Maintenance and any other landscaping personnel. A preliminary list is included in Appendix C for consideration.

- OBJECTIVE GM2: Maintain the safety and security of base personnel while improving the effectiveness of grounds maintenance to the overall ecosystem. Maintain trees and shrubs to avoid impacts to buildings and infrastructure.
    - Annually inventory trees and shrubs to identify trees that need pruning, replacement, or removal, to ensure they are not impacting buildings and base infrastructure.
    - Remove problem trees identified in the annual inventory between September and March to avoid migratory bird nesting season, unless the action is necessary for safety concerns. The EM should be contacted before any removal of trees between March and September.
    - As feasible, replace dead trees with suitable native tree species.
- OBJECTIVE GM4: Begin development and management of "urban forest" trees on base in order to meet the AFMAN 32-7003 requirements for a Tree City USA installation. This would involve annual planting of trees for Arbor Day. Timing of planting may be altered to optimize survival of the trees.

GOAL - Water Resource Protection (WA): Manage water resources to prevent potential degradation in water quality with no net loss of acreage or functions and values.

- OBJECTIVE WA1: Ensure all NPDES permits are current and all conditions of those permits are implemented in accordance with the permits.
- OBJECTIVE WA2: Implement the SWPPP and manage stormwater runoff to reduce nutrients and contaminants from entering onsite and adjacent stream and wetland systems.
- OBJECTIVE WA32: Minimize nonpoint source pollution through implementation of BMP protocols to avoid and/or minimize impacts that may occur as the result of petroleum, oil, and lubricants or hazardous material spills. Utilize data from characterization survey to determine the existence of (if any) point and nonpoint degradation sources.
- OBJECTIVE WA4: Conduct routine screening watershed assessments to evaluate the potential for adverse impacts on water bodies on and off the installation.
- OBJECTIVE WA5: Implement and maintain state erosion and sediment control BMPs during all phases of construction and maintenance projects to prevent disturbed soils from entering into streams and wetlands onsite and adjacent to the base.

GOAL - Waters of the US/Wetland Management and Protection (WT): Ensure the jurisdictional determinations (JD) for onsite WOTUS and wetlands remain current.

- OBJECTIVE WT1: Ensure the boundaries of WOTUS, wetlands, and floodplains identified on and adjacent to the installation are shown in a GIS data layer, all installation development and comprehensive plans and in all educational materials developed for installation personnel, leadership and visiting personnel.
- OBJECTIVE WT2: Ensure the JD for the WOTUS including wetlands remains current. If not kept current, a new delineation and JD may be required.
- OBJECTIVE WT3: Educate key installation and visiting personnel on the processes for conducting the mission in and adjacent to delineated and mapped WOTUS, wetlands, and floodplains.

- OBJECTIVE WT4: Review all land disturbing projects including but not limited to construction and maintenance projects to determine if the projects will impact WOTUS including wetlands and/or floodplains.
    - If impacts will occur, determine what type of Section 404 permit and Section 401 WQC will be required. Work with the NGB/A4VN NRPM to prepare the applications necessary to obtain Section 404 permits from the USACE and Section 401 WQC from the state.

9.0 ANNUAL WORK PLANS

The INRMP Annual Work Plans contain projects listed by fiscal year (FY). For each project, a specific timeframe for implementation is provided (as applicable), as well as the office of primary responsibility (OPR), funding source, and priority for implementation (Tables 9 through 13). 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 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 13751, *Safeguarding the Nation from the Impacts of 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 and/or funding shortfalls.
- 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 programmed year.

Table 9. Work Plans FY 2021

Project	OPR	Funding Source	Priority Level
Prepare budget to implement the natural resources management program.			High
Complete annual review of INRMP with installation stakeholders.		NGB	High
Complete annual review of INRMP with USFWS and AGFC.		NGB	High
Review natural resource studies conducted at Fort Smith ANGB to identify potential project/studies to be conducted.			Medium
Ensure the INRMP has been incorporated into the installation development and Master Plan.			Medium
Annually review federal and state listings for threatened, endangered and species of concern to maintain current lists of federal and state species.		NGB	High
Determine if the existing WOTUS/Wetland JD can be renewed. If not, submit request for a new survey and JD to be conducted.		NGB	High
Submit inquiry to the USFWS to obtain a determination in regards to the presence of the ABB.		NGB	Medium

Table 10. Work Plans FY 2022

Project	OPR	Funding Source	Priority Level
Prepare budget to implement the natural resources management program.			High
Complete annual review of INRMP with installation stakeholders.		NGB	High
Complete annual review of INRMP with USFWS and AGFC.		NGB	High
Annually review federal and state listings for threatened, endangered and species of concern to maintain current lists of federal and state species.		NGB	High
Submit list of surveys/studies to the NGB/A4VN NRPM identified as needed from review of flora/fauna and bat survey reports.		NGB	Medium
Based on outcome of inquiry with USFWS in regards to the ABB, determine if a survey for the ABB is necessary at this time. Schedule for FY2023.			Medium

Table 11. Work Plans FY 2023

Project	OPR	Funding Source	Priority Level
Prepare budget to implement the natural resources management program.			High
Complete annual review of INRMP with installation stakeholders.		NGB	High
Complete annual review of INRMP with USFWS and AGFC.		NGB	High
Annually review federal and state listings for threatened, endangered and species of concern to maintain current lists of federal and state species.			High
Review and comment on survey reports contracted for in FY2022. Coordinate review with the NGB/A4VN NRPM.			Medium
Coordinate with NGB/A4VN NRPM to contract for an ABB survey.		NGB	Medium

Table 12. Work Plans FY 2024

Project	OPR	Funding Source	Priority Level
Prepare budget to implement the natural resources management program.			High
Complete annual review of INRMP with installation stakeholders.		NGB	High
Complete annual review of INRMP with USFWS and AGFC.		NGB	High
Annually review federal and state listings for threatened, endangered and species of concern to maintain current lists of federal and state species.			High
Review and comment on any additional survey reports contracted for in FY2023. Coordinate review with the NGB/A4VN NRPM.			Medium
Review and comment on survey report on the ABB contracted for in FY2023. Coordinate review with the NGB/A4VN NRPM.			Medium

Table 13. Work Plans FY 2025

Project	OPR	Funding Source	Priority Level
Prepare budget to implement the natural resources management program.			High
Complete annual review of INRMP with installation stakeholders.		NGB	High
Complete annual review of INRMP with USFWS and AGFC.		NGB	High
Annually review federal and state listings for threatened, endangered and species of concern to maintain current lists of federal and state species.			High
Review the INRMP, studies done and the written documents generated from the annual meetings to determine what updates and projects will be needed for the 5-year operations and effect review.			Medium

10.0 INRMP IMPLEMENTATION, UPDATE, AND REVISION PROCESS

10.1 *INRMP Implementation*

In accordance with AFMAN 32-7003, an INRMP is considered implemented if an installation:

- Actively requests, receives, and uses funds for "must fund" projects and activities as defined by Chapter 4 of AFI 32-7001, *Environmental Quality Programming and Budgeting*.
- Executes all "must fund" projects and activities in accordance with specific time frames identified in the INRMP.
- Prepares the INRMP in cooperation with appropriate stakeholders. Notifies stakeholders when a new or revised INRMP will be prepared, and solicits participation and input to the INRMP development and review process.
- Ensures that sufficient numbers of professionally trained natural resources management personnel are available to perform the tasks required by the INRMP.
- Ensures INRMP has been approved in writing by the appropriate representative from each cooperating agency within the past 5 years.
- Reviews the INRMP annually and coordinates annually with cooperating agencies.
- Establishes and maintains regular communications with the appropriate federal and state agencies for the region where the installation is located.
- Documents specific INRMP action accomplishments undertaken each year.
- Ensures INRMP updates and reviews are conducted in cooperation with the USFWS, AGFC, and National Oceanic and Atmospheric Administration (NOAA), where applicable.
- Ensures the INRMP implements ecosystem management on ANG installations by setting goals for attaining a desired land condition.

Natural resource and land use management issues are not the only factors contributing to the development and implementation of this INRMP. Facility management and other seemingly unrelated issues affect implementation. It is important to the implementation of this INRMP that Fort Smith ANGB personnel take ownership of this INRMP to provide the necessary resources (e.g. personnel and equipment), and to utilize the appropriate funding allocated by the ANG NGB/A4VN NRPM to implement the Fort Smith INRMP. It is extremely important that the INRMP Working Group continue to participate in the implementation of this INRMP. The INRMP Working Group is made up of the key Fort Smith ANGB personnel, and has an oversight role to ensure the effective implementation of this INRMP. Top and middle-level management representation, as well as representation from individuals with day-to-day on-site experience will provide the INRMP Working Group with the leadership and structure necessary for the successful implementation of this INRMP.

10.1.1 Monitoring INRMP Implementation

10.1.1.1 *Fort Smith INRMP Implementation Analysis*

The Fort Smith INRMP implementation will be monitored for meeting the legal requirements of the Sikes Act as well as for other mission and biological measures of effectiveness. The ultimate successful implementation of this INRMP is realized in no net loss in the capability of the Fort

Smith ANGB training lands to support the military mission while at the same time providing effective natural resources management.

In order to monitor and evaluate the effectiveness of the INRMP implementation, the following will be reviewed, as applicable, and discussed within the context of the annual review and/or a formal review of operation and effect:

- Impacts to and from military mission
- Conservation program budget
- Staff requirements
- Program budget
- Compliance with regulatory requirements
- Program and project implementation
- Feedback from military trainers, the USFWS, AGFC, and others
- Trends in species and habitat diversity as evidenced by recurring biological surveys, land use changes, and opinions of natural resource experts

Some of these areas may not be reviewed every year due to lack of data or pertinent information. The effectiveness of this INRMP as a mission enabling conservation tool will be decided by mutual agreement of the USFWS, the AGFC, and Fort Smith ANGB during annual reviews and/or reviews for operation and effect.

10.1.1.2 *USAF and DoD INRMP Implementation Monitoring*

The USAF uses the Defense Environmental Programs Annual Report to Congress (DEPARC) to monitor Sikes Act compliance. DEPARC is the automated system used to collect installation environmental information for reporting to DoD and Congress. Established to fulfill an annual requirement to report the status of DoD's Environmental Quality program to Congress, DEPARC collects information on enforcement actions, inspections, and other performance measures for high-level reports and quarterly reviews. DEPARC also helps the USAF track fulfillment of DoD measures of merit requirements. The Deputy under Secretary of Defense's (DUSD) Updated Guidance for Implementation of the Sikes Act also includes an updated section, Conservation Metrics for Preparing and Implementing INRMPs. Progress toward meeting these measures of merit is reported in the annual report to Congress.

10.1.2 Priorities and Scheduling

The Office of Management and Budget considers funding for the preparation and implementation of this INRMP, as required by the Sikes Act, to be a high priority. However, the reality is that not all of the projects and programs identified in this INRMP will receive immediate funding. Therefore, projects need to be funded consistent with timely execution to meet future deadlines. Projects are generally prioritized with respect to compliance. Highest priority projects are projects related to recurring or current compliance, and these are generally scheduled earliest. The prioritization of the projects is based on need, legal drivers, and ability to further implement the INRMP.

Current compliance includes projects and activities needed because an installation is currently or will be out of compliance if projects or activities are not implemented in the current program year. Examples include:

- Environmental analyses, monitoring, and studies required to assess and mitigate potential effects of the military mission on conservation resources
- Planning documents
- Baseline inventories and surveys of natural resources (historical and archaeological sites)
- Biological assessments (BAs), surveys, or habitat protection for a specific listed species
- Mitigation to meet existing regulatory permit conditions or written agreements
- Wetland delineations in support of subsequent JDs
- Efforts to achieve compliance with requirements that have deadlines that have already passed

Maintenance requirements include those projects needed that are not currently out of compliance but shall be out of compliance if projects are not implemented in time to meet an established deadline beyond the current program year. Examples include:

- Compliance with future requirements that have deadlines
- Conservation and GIS mapping to be in compliance
- Efforts undertaken in accordance with non-deadline specific compliance requirements of leadership initiatives
- Wetlands enhancement, in order to achieve the executive order for no net loss or to achieve enhancement of existing degraded wetlands
- Public education programs that explain the importance of protecting natural resources

Lower priority projects include those that enhance conservation resources of the installation mission, or are needed to address overall environmental goals and objectives, but are not specifically required under regulation or executive order, and are not of an immediate nature. These projects are generally funded after those of higher priority are funded. Examples include:

- Community outreach activities such as Earth Day and Historic Preservation Week activities
- Educational and public awareness projects such as interpretive displays, nature trails, wildlife checklists, and conservation teaching materials
- BAs, biological surveys, or habitat protection for a non-listed species
- Restoration or enhancement of natural resources when no specific compliance requirement dictates a course or timing of action
- Management and execution of volunteer and partnership programs

10.1.3 Funding

Implementation of this INRMP is subject to the availability of annual funding. Funding for specific projects can be grouped into three main categories by source: federal ANG or NGB funds, other

federal funds, and non-federal funds. When projects identified in the plan are not implemented due to lack of funding, or other compelling circumstances, the installation will review the goals and objectives of this INRMP to determine whether adjustments are necessary. Funding options include:

- The Legacy Resource Management Program provides financial assistance to DoD efforts to conserve natural and cultural resources on federal lands. Legacy projects could include regional ecosystem management initiatives, habitat preservation efforts, archeological investigations, invasive species control, and/or flora or fauna surveys. Project proposals are submitted to the Legacy program during their annual funding cycle (https://www.denix.osd.mil/legacy/home).
- Grant and assistance programs are administered by other federal agencies that could be accessed for natural resources management at Fort Smith ANGB. Examples include funds associated with the CWA and endangered species.
- Other non-federal funding sources that could be considered include The Public Lands Day Program, which coordinates volunteers to improve the public lands they use for recreation, education, and enjoyment, and the National Environmental Education and Training Foundation, which manages, coordinates, and generates financial support for the program (https://www.neefusa.org/npld).
- Fort Smith ANGB may also consider entering into cooperative or mutual aid agreements with states, local governments, non-governmental organizations, and other individuals.

10.1.4 Cooperative Agreements

The DoD and subcommand entities have MOUs, Memorandums of Agreement (MOAs), and other cooperative agreements with other federal agencies, conservation and special interest groups, and various state agencies in order to provide assistance with natural resources management at installations across the United States. Generally, these agreements allow installations and agencies, or conservation and special interest groups to obtain mutual conservation objectives. The DoD agreements applicable to Fort Smith ANGB include:

- MOU between DoD and USFWS/International Fund for Animal Welfare (IFAW) to promote the conservation of migratory birds (2011).
- MOU between DoD and USFWS/IFWA for a Cooperative Integrated Natural Resource Program associated with the ecosystem-based management of fish, wildlife, and plant resources on military lands (2006).
- MOU between the DoD and USEPA to form a working partnership to promote environmental stewardship by adopting IPM strategies to reduce the potential risks to human health and the environment associated with pesticides (2012).
- MOA for federal Neotropical Migratory Bird Conservation Program and addendum (Partners in Flight-Aves De Las Americas) among DoD, through each of the Military Services, and over 110 other federal and state agencies and non-governmental organizations (1991).
- MOU between the DoD and Ducks Unlimited, Inc. to provide a foundation for cooperative development of selected wetlands and associated uplands in order to maintain and increase waterfowl populations and to fulfill the objectives of the North American Waterfowl Management Plan, within the context of DoD's environmental security and military missions (2006).

- MOU between DoD and NRCS to promote cooperative conservation, where appropriate (2006).
- MOU with Watchable Wildlife Incorporated (2002).
- MOU between the DoD and Bat Conservation International to identify, document, and maintain bat populations and habitats on DoD installations (2011).
- MOA between the Federal Aviation Administration (FAA), USAF, US Army, USEPA, USFWS, and USDA to address aircraft-wildlife strikes (2003).

For a further list of cooperative agreements and MOUs please visit:

https://www.denix.osd.mil/announcements/unassigned/sikes-tripartite-mou/

10.1.5 Consultation Requirements

The Fort Smith ANGB has multiple natural resources consultation requirements in addition to the INRMP development and review requirements as identified in the Sikes Act. Federally-listed species management requires ESA Section 7 consultation with the USFWS. State-listed species management, as well as game species management, requires consultation with AGFC. Actions that fall under the jurisdiction of Section 401 of the CWA necessitate permitting from ADEQ, while Section 404 actions necessitate permitting from the USACE.

The USFWS has updated the way federal agencies may consult on the effects of their actions on the northern long-eared bat. In 2016, the USFWS developed the optional streamlined Section 7 consultation framework for the northern long-eared bat. The framework was part of the USFWS' January 5, 2016 biological opinion on their issuance of a 4(d) rule for the species. Agencies can use the online determination key available through the USFWS Information Planning and Consultation website (https://ecos.fws.gov/ipac/).

10.2 Annual INRMP Review and Coordination Requirements

Per DoD policy, Fort Smith ANGB will review the INRMP annually in cooperation with the USFWS and AGFC. On an annual basis, the EM will invite the USFWS Regional Office, the USFWS local field office, the AGFC, and NGB/A4VN NRPM to attend a meeting or participate in a conference call to review previous year INRMP implementation and discuss implementation of upcoming programs and projects. Invitations will be either by letter or email. Attendance is at the option of those invited, but at minimum the USFWS local field office and a representative of AGFC are expected to attend. The meeting will be documented with an agenda, meeting minutes, and sign-in roster of attendees.

At this annual meeting the need for updates or revisions will be discussed. If updates are needed, Fort Smith ANGB will initiate the updates and, after agreement of all three parties, they will be incorporated in the INRMP. If it is determined that major changes are needed, all three parties will provide input and an INRMP revision will be initiated with Fort Smith ANGB acting as the lead coordinating agency. The annual meeting will be used to expedite the more formal review for operation and effect and, if all parties agree and document their mutual agreement, it can fulfill the requirement to review the INRMP for operation and effect.

If not already determined in previous annual meetings, by the fourth year annual review a determination will be made jointly to continue implementation of the existing INRMP with updates or to proceed with a revision. If the parties feel that the annual reviews have not been sufficient to evaluate operation and effect and they cannot determine if the INRMP implementation should

continue or be revised, a formal review for operation and effect will be initiated. The determination on how to proceed with INRMP implementation or revision will be made after the parties have had time to complete this review.

As part of the annual review, Fort Smith ANGB will specifically:

- Invite feedback from USFWS and AGFC on the effectiveness of the INRMP.
- Inform USFWS and AGFC which INRMP projects are required to meet current natural resources compliance needs.
- Document specific INRMP action accomplishments from the previous year.

10.3 INRMP Update and Revision Process

10.3.1 Review for Operation and Effect

Not less than every 5 years, the INRMP will be reviewed for operation and effect to determine if the INRMP is being implemented as required by the Sikes Act and contributing to the management of natural resources at Fort Smith ANGB. The review will be conducted by the three cooperating parties to include the Commander responsible for the INRMP, the Supervisor of the USFWS Arkansas Ecological Field Office, and the Director of the AGFC. While these are the responsible parties, technical representatives generally are the personnel who actually conduct the review.

The review for operation and effect will either conclude that the INRMP is meeting the intent of the Sikes Act and only needs an update and implementation can continue; or that it is not effective in meeting the intent of the Sikes Act and it must be revised. The conclusion of the review will be documented in a jointly executed memorandum, meeting minutes, or in some way that reflects mutual agreement.

If only updates are needed, they will be completed in a manner agreed to by all parties. The updated INRMP will be reviewed by the local USFWS Arkansas Ecological Field Office and AGFC. Once concurrence letters or signatures are received from the Supervisor of the USFWS Arkansas Ecological Field Office and the AGFC Director, the update of the INRMP will be complete and implementation will continue. Generally, the environmental impact analysis will continue to be applicable to updated INRMPs, and a new analysis will not be required.

If a review of operation and effect concludes that an INRMP must be revised, there is no set time to complete the revision. The existing INRMP remains in effect until the revision is complete and USFWS and AGFC concurrence on the revised INRMP is received. Fort Smith ANGB will endeavor to complete such revisions within 18 months, depending upon funding availability. Revisions to the INRMP will go through a detailed review process similar to development of the initial INRMP to ensure Fort Smith ANGB military mission, USFWS and AGFC concerns are adequately addressed, and the INRMP meets the intent of the Sikes Act.

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APPENDIX B. LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS

Federal Laws

American Indian Religious Freedom Act of 1978 (Public Law 95-341; 42 USC §1196) - requires the United States, where appropriate, to protect and preserve religious rights of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.

Animal Damage Control Act of 1931 (7 USC §426 et seq.) - provides broad authority for investigation, demonstrations, and control of mammalian predators, rodents, and birds.

Anti-Deficiency Act of 1982 (31 USC §1341 et seq.) - provides that no federal official or employee may obligate the government for the expenditure of funds before funds have been authorized and appropriated by Congress for that purpose.

American Antiquities Act of 1906 (Public Law 59-209; 16 USC §431-433) - authorizes the President to designate historic and natural resources of national significance, located on federal lands, as National Monuments for the purpose of protecting items of archeological significance.

Archeological and Historical Preservation Act of 1974 (Public Law 95-96; 16 USC §469 et seq.) - provides for the preservation of historical and archeological data, including relics and specimens, threatened by federally funded or assisted construction projects.

Archeological Resources Protection Act of 1979 (16 USC §470 et seq.) - prohibits the excavation or removal from federal or Indian lands any archeological resources without a permit.

Bald Eagle Protection Act of 1940 (Public Law 87-884; 16 USC §668a-d) - prohibits the taking or harming (i.e. harassment, sale, or transportation) of bald eagles or golden eagles, including their eggs, nests, or young, without appropriate permit.

Clean Air Act of 1970 (42 USC §7401 et seq.) - regulates air emissions from stationary, area, and mobile sources. This law authorizes the USEPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment.

Clean Water Act of 1972 (Public Law 92-500; 33 USC §1251 et seq.) - aims to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Under Section 401, states have authority to review federal permits that may result in a discharge to wetlands or water bodies under state jurisdiction. Under Section 404, a program is established to regulate the discharge of dredged or fill material into the Nation's waters, including wetlands.

Coastal Zone Management Act of 1972 (Public Law 92-583; 16 USC §1451 et seq.) - provides incentives for coastal states to develop coastal zone management programs. Federal

actions that impact the coastal zone must be consistent to the maximum extent practicable with the state program.

Conservation and Rehabilitation Program on Military and Public Lands (Public Law 93-452; 16 USC §670 et seq.) - provides for fish and wildlife habitat improvements, range rehabilitation, and control of off-road vehicles on federal lands.

Conservation Programs on Military Reservations (Public Law 90-465; 16 USC §670 et seq.) - requires each military department to manage natural resources and to ensure that services are provided which are necessary for management of fish and wildlife resources on each installation; to provide their personnel with professional training in fish and wildlife management; and to give priority to contracting work with federal and state agencies that have responsibility for conservation or management of fish and wildlife. In addition it authorizes cooperative agreements (with states, local governments, non-governmental organizations, and individuals) which call for each party to provide matching funds or services to carry out natural resources projects or initiatives.

Endangered Species Act of 1973, as amended (16 USC §1531 et seq.) - provides for the identification and protection of threatened and endangered plants and animals, including their critical habitats. Requires federal agencies to conserve threatened and endangered species and cooperate with state and local authorities to resolve water resources issues in concert with the conservation of threatened and endangered species. This law establishes a consultation process involving federal agencies to facilitate avoidance of agency action that would adversely affect species or habitat. Further, it prohibits all persons subject to US jurisdiction from taking, including any harm or harassment, endangered species.

Federal Insecticide, Fungicide, and Rodenticide Act of 1947 (Public Law 92-516; 7 USC §136 et seq.) - governs the use and application of pesticides in natural resource management programs. This law provides the principal means for preventing environmental pollution from pesticides through product registration and applicator certification.

Federal Land Policy and Management Act of 1976 (43 USC §1701) - establishes public land policy and guidelines for its administration and provides for the management, protection, development, and enhancement of the public lands.

Federal Noxious Weed Act of 1974 (Public Law 93-629; 7 USC §2801) - provides for the control and eradication of noxious weeds and their regulation in interstate and foreign commerce.

Fish and Wildlife Conservation Act of 1980 (Public Law 96-366; 16 USC §2901 et seq.) - encourages management of non-game species and provides for conservation, protection, restoration, and propagation of certain species, including migratory birds threatened with extinction.

Fish and Wildlife Coordination Act of 1934 (16 USC §661 et seq.) - provides a mechanism for wildlife conservation to receive equal consideration and coordinate with water-resource development programs.

Land and Water Conservation Act of 1965 (16 USC §4601 et seq.) - assists in preserving developing, and assuring accessibility to outdoor recreation resources.

Migratory Bird Conservation Act of 1929 (16 USC §715 et seq.) - establishes a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds.

Migratory Bird Treaty Act of 1918 (Public Law 65-186; 16 USC §703 et seq.) - provides for regulations to control taking of migratory birds, their nests, eggs, parts, or products without the appropriate permit and provides enforcement authority and penalties for violations.

National Environmental Policy Act of 1969 (Public Law 91-190; 42 USC §4321 et seq.) - mandates federal agencies to consider and document environmental impacts of proposed actions and legislation. In addition it mandates preparation of comprehensive environmental impact statements where proposed action is "major" and significantly affects the quality of the human environment.

Native American Graves Protection and Repatriation Act of 1990 (Public Law 101-601; 25 USC §§3001-3013) - addresses the recovery, treatment, and repatriation of Native American and Native Hawaiian cultural items by federal agencies and museums. It includes provisions for data gathering, reporting, consultation, and issuance of permits.

Resource Conservation and Recovery Act of 1976 (42 USC §6901 e 1860 t seq.) - establishes a comprehensive program which manages solid and hazardous waste. Subtitle C, Hazardous Waste Management, sets up a framework for managing hazardous waste from its initial generation to its final disposal. Waste pesticides and equipment/containers contaminated by pesticides are included under hazardous waste management requirements.

Sikes Act Improvement Act of 1997 (Public Law 105-85; 16 USC §670a et seq.) - amends the Sikes Act of 1960 to mandate the development of an INRMP through cooperation with the Department of the Interior (through the USFWS), DoD, and each state fish and wildlife agency for each military installation supporting natural resources.

Soil Conservation Act of 1935 (16 USC §590a et seq.) - provides for soil conservation practices on federal lands.

Federal Regulations

40 CFR 1500-1508 - CEQ Regulations on Implementing NEPA Procedures
40 CFR 6 - USEPA Regulations on Implementation of NEPA Procedures
40 CFR 162 - USEPA Regulations on Insecticide, Fungicide, and Rodenticide Use
15 CFR 930 - Federal Consistency with Approved Coastal Management Programs
50 CFR 17 - USFWS List of Endangered and Threatened Wildlife
50 CFR 10.13 - List of Migratory Birds
32 CFR 190 - Natural Resources Management Program

Federal Executive Orders (EOs)

Environmental Safeguard for Activities for Animal Damage Control on Federal Lands (EO 11870) - restricts the use of chemical toxicants for mammal and bird control.

Exotic Organisms (EO 11987) - restricts federal agencies in the use of exotic plant species in any landscape and erosion control measures.

Energy Efficiencies and Water Conservation at Federal Facilities (EO 12902) - directs federal agency use of energy and water resources towards the goals of increased conservation and efficiency.

Floodplain Management (EO 11988) - specifies that agencies shall encourage and provide appropriate guidance to applicant to evaluate the effects of their proposals in floodplains prior to submitting applications. This includes wetlands that are within the 100-year floodplain and especially discourages filling.

Off-Road Vehicles on Public Lands (EO 11989) - specifies that the respective agency shall determine if the use of off-road vehicles will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat or cultural or historic resources of particular areas or trails of the public lands, and immediately close such areas or trails to the type of off-road vehicle causing such effects, until such time as it determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence.

Greening the Government through Leadership in Environmental Management (EO 13148) - requires the head of each federal agency to be responsible for ensuring that all necessary actions are taken to integrate environmental accountability into agency day-to-day decision making and long-term planning processes across all agency missions, activities, and functions.

Indian Sacred Sites (EO 13007) - provides for the protection of and access to Indian sacred sites.

Invasive Species (EO 13751) - directs federal agencies 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.

Protection and Enhancement of Environmental Quality (EO 11514) - provides for environmental protection of federal lands and enforces requirements of NEPA.

Protection of Wetlands (EO 11990) - directs all federal agencies to take action to minimize the destruction loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. This applies to the acquisition, management, and disposal of federal lands and facilities; to construction or improvements undertaken, financed, or assisted by the federal government; and to the conduct of federal activities and programs which affect land use.

Responsibilities of Federal Entities to Protect Migratory Birds (EO 13186) - directs all federal agencies taking actions that have a potential to negatively affect migratory bird populations to develop and implement a MOU with the USFWS by January 2003 that shall promote the conservation of migratory bird populations.

DoDI, AFI, & Air Force Pamphlets (PAM)

DoDI 4715.03 - Natural Resources Conservation Program
DoDI 4165.57 - Air Installations Compatible Use Zones
DoDI 4150.07 - Pest Management Program
DoDI 6055.06 - Fire and Emergency Services Program
DoDI 4150.03 - Integrated Pest Management Program
DoDM 4715.03 - INRMP Implementation Manual
DoDM 4150.07 - DOD Pest Management Program Manual Volumes 1-3
AFI 32-7062 - Air Force Comprehensive Planning
AFMAN 32-1053 - Pest Management Program
AFMAN 32-7003 - Environmental Conservation
AFPAM 91-212 - BASH Techniques

Department of Defense Memoranda

Memorandum, Assistant DUSD (Environment, Safety and Occupational Health), 20 Sept 11, Subject: *Interim Policy on Management of White Nose Syndrome in Bats.*

Memorandum, Assistant DUSD (Environment, Safety and Occupational Health), 3 Apr 07, Subject: *Guidance to Implement the Memorandum of Understanding to Promote the Conservation of Migratory Birds.*

Memorandum, Assistant DUSD (Environment, Safety and Occupational Health), 14 Aug 06, Subject: *Integrated Natural Resource Management Plan (INRMP) Template*

Memorandum, Assistant DUSD (Environment, Safety and Occupational Health), 17 May 05, Subject: *Implementation of Sikes Act Improvement Amendments: Supplemental Guidance concerning Leased Lands*

Memorandum, Assistant DUSD (Environment, Safety and Occupational Health), 1 Nov 04, Subject: *Implementation of Sikes Act Improvement Amendments: Supplemental Guidance concerning INRMP Reviews*

Memorandum, DUSD (Installations and Environment), 10 Oct 02, Subject: *Implementation of Sikes Act Improvement Act: Updated Guidance*

Memorandum, Assistant DUSD (Environment), 5 Aug 02, Subject: *Access to Outdoor Recreation Programs on Military Installations for Persons with Disabilities*.

Memorandum, Assistant Secretary of Army (Environment, Safety and Occupational Health), Deputy Assistant Secretary of the Navy (Environment), Deputy Assistant Secretary of the

Air Force (Environment, Safety and Occupational Health), 20 Sep 11, Subject: *Interim Policy on Management of White Nose Syndrome in Bats.*

State and Local Statutes

Arkansas General Statutes
Title 15 Natural Resources and Economic Development
Subtitle 2: Land and Water Resources Generally
Subtitle 4: Wildlife Resources

Arkansas Game and Fish Commission regulations

APPENDIX C. LIST OF NATIVE SPECIES SUITABLE FOR LANDSCAPE PLANTINGS

Tree Type	Botanical Name	Cultivars	Common Name	Use	Comments
Large Trees (over 45 ft [13.7 m] high)	*Acer rubrum*	Autumn Flame; Red Sunset	Maple, Red	Shade tree suitable for sun, partial shade, moist areas.	Leaf scorch may occur when growing among extensive paved areas.
	Acer saccharum	Green Mountain; Fall Fiesta(Bailsta)	Maple, Sugar	Shade tree suitable for shade or sun. Moist to dry areas.	Not well adapted to sites prone to soil compaction; may be sensitive to salt.
	Acer barbatum		Maple, Southern Sugar	Shade tree suitable for shade or sun. Moist to dry areas.	More heat tolerant than Sugar Maple and slightly smaller. Good fall color.
	Gleditsia triacanthos	Moraine; Shademaster; Skyline	Honeylocust, Thornless	Full sun.	Suggested cultivars are thornless, small leaves minimize raking but seed pods can be unattractive.
	Gymnocladus dioica		Kentucky Coffee Tree	Sun to shade and moist to dry conditions.	A moderately sized shade tree with attractive leaves and bark. Tolerates ice storms well.
	Liriodendron tulipifera		Tulip Poplar	Full sun, moist soils.	Tree should be planted in sheltered areas as it has a relatively poor resistance to storm damage.
	Pinus echinata		Shortleaf Pine	Sun to partial shade, medium to dry soil conditions.	One of the hardiest and most adaptable of the native pines. Not as attractive to birds as other species.
	Pinus taeda		Loblolly Pine	Sun to partial shade, medium to dry soil conditions	Fast growing native pine that is a butterfly larval host and nectar source.
	Quercus laurifolia		Oak, Laurel	Sun to partial shade, with average to moist soils.	Popular semi-evergreen ornamental tree. Produces biennial acorns.
	Quercus macrocarpa		Oak, Bur	Sun to full shade, wet to dry conditions.	Difficult to transplant; produces large acorns, better suited for large lawn areas.
	Quercus muehlenbergii		Oak, Chinkapin	Full sun, tolerant of moist to dry conditions.	Easy to grow and low maintenance, long lived tree. Available from specialty nurseries.
	Quercus phellos		Oak, Willow	Partial shade, moist soil conditions.	Popular street and shade tree. Attractive oak with unique leaves.
	Quercus rubra		Oak, Northern Red	Sun to partial shade, moist to dry conditions	
	Quercus shumardii		Oak, Shumard	Full sun, dry to moist.	Tolerant of dry soil, drought and air pollution.
	Taxodium distichum	Shawnee Brave	Bald Cypress	Full sun, moist to wet soils.	Tolerant of poorly drained sites.
	Tilia americana	Redmond	American Linden	Full sun to partial shade.	Easily grown, low maintenance shade tree
	Ulmus americana	Valley Forge	Elm, American	Full sun to partial shade. Average soils.	The Valley Forge cultivar is tolerant to Dutch Elm Disease as well as tolerant to air pollution, drought and poor soil conditions.

Tree Type	Botanical Name	Cultivars	Common Name	Use	Comments
Medium Trees (30-45 ft [9.1 to 13.7 m])	*Cladrastis kentukea*	Yellowwood, American	Full sun, medium soils.		Low maintenance tree with showy flowers.
	Ostrya virginiana		Hophornbeam	Sun to full shade, moist to dry conditions.	Suggested cultivars are thornless.
Small Trees and Shrubs (under 30 ft [9.1 m])	Amelanchier x grandiflora	Autumn Brilliance; Autumn Sunset; Cumulus; Princess Diana; Snowcloud; Tradition	Serviceberry	Small tree to be used in place of flowering dogwood.	Suggest tree-form (single trunk) selections for street tree application.
	*Amelanchier arborea***		Serviceberry	Full sun to partial shade.	Low maintenance shrub that tolerates a wide range of soil conditions.
	*Aronia melanocarpa***		Black Chokeberry	Excellent landscape shrub with white flowers in spring and fall color.	
	*Callicarpa americana***		American Beauty Berry	Small landscape shrub with red berries	
	Carpinus caroliniana		American Hornbeam	Shade to partial shade, moist conditions.	
	Cercis canadensis		Redbud, Eastern	Full sun to shade, moist, well drained soils.	Spring flowers, good specimen and street tree or planted in groups.
	*Chionanthus virginicus***		White Fringe Tree	Full sun to partial shade.	Produces fruit.
	Cornus florida		Flowering Dogwood	Partial shade to shade, dry to moist soil conditions.	One of the most spectacular of the native flowering trees.
	Corylus americana		Hazelnut, American	Shade, wet to dry site conditions.	Ornamental shrub that makes a good deciduous screen or barrier. Nut producing.
	Cotinus obovatus		American Smoketree	Full sun and well drained soils.	Blue-green summer foliage with brilliant fall colors.
	Crataegus crus-galli		Cockspur Hawthone	Sun to partial shade, moist to dry conditions.	Suggested cultivar is thornless; not readily available in commerce; maintains attractive red fruit during the winter months.
	Crataegus viridis	Winter king	Hawthorne	One of the best native hawthorns, nearly thornless and very resistant to cedar rust diseases.	
	Dirca palustris		Leatherwood	Shade to partial shade, moist to dry conditions.	Excellent landscape species that has recently become commercially available.

Tree Type	Botanical Name	Cultivars	Common Name	Use	Comments
Small Trees and Shrubs (under 30 ft [9.1 m])	*Hamamelis vernalis*		Native Witchhazel	Full sun to partial shade, medium water.	First woody species to flower each year, fragrant flowers, shade to partials shade, moist to dry. Low maintenance shrub.
	Halesia diptera		Silver Bell	Sun to partial shade, medium to dry soil conditions.	Small shrub with ornamental flowers and bark. The variety *magniflora* is more heavily flowered and drought tolerant.
	Itea virginica	Henry's garnet	Henry's Garnet Itea	Full sun to partial shade, medium to wet water.	Small spreading shrub with tassels of white flowers in spring and striking fall colors.
	Ilex vomitoria		Yaupon	Sun to shade, moist to dry conditions.	Drought tolerant evergreen shrub for use as a hedge.
	Magnolia acuminata	Butterflies	Magnolia	Full sun to partial shade, medium water.	Does best in rich, well drained soils. Low maintenance, deciduous tree or large shrub with bloom in late March or early April before the foliage emerges. Early spring bloomer has good tolerance for winter cold, summer heat and urban growing conditions.
	Malus X hybrids	Centurion; Harvest Gold; Prairie Fire; Professor Sprenger; Snowdrift; Sugar Tyme	Crabapple, Flowering		Suggested cultivars are most resistant to foliar diseases – are native Malus but hybridization of species makes difficult find pure species in commercial nurseries.
	Rhamnus caroliniana		Carolina Buckthorn	Sun to partial shade, dry to moist soils.	Dark glossy green leaves that turn yellow in fall. Drought tolerant.
	Rhododendron oblongifolium		Texas azalea	Shade, medium soils.	Small spreading shrub.
	Physocapus opulifolis	Sumerivine	Ninebark	Sun to shade, wet to dry.	Thicket forming shrub with white flowers. Suitable for semi-improved areas.
	Sapindus saponaria var. drummondii		Western Soapberry	Full sun to partial shade, moist to dry conditions.	Drought tolerant shrub or small tree with distinctive gray, sculpted bark. Fruit bearing may be limited to specialty nurseries.
	*Viburnum dentatum****	Blue Muffin	Viburnum	Full sun to partial shade.	Small, low maintenance shrub, good fall color, does produce fruit.
	Viburnum prunifolium		Blackhaw	Partial shade, moist.	Small tree with bright green leaves, large white flowers, and blue fruit.

Tree Type	Botanical Name	Cultivars	Common Name	Use	Comments
TREES TO AVOID	*Fraxinus americana*	Autumn Applause; Autumn Purple; Champaign County	Ash, White		Potentially prone to ash borer and ash yellows disease.
	Fraxinus pennsylvanica	Urbanite	Ash, Green		Potentially prone to ash borer and ash yellows disease; Urbanite is the only recommended Green Ash cultivar.
	Pyrus calleryna		Bradford Pear		Weak tree susceptible to storm damage. Overplanted throughout Arkansas.

* Note this is a preliminary list of potential native landscape plants that are found in the region of Rosecrans ANGB. Not all plants will be suited to planting in the immediate vicinity of the airfield.

** These trees are excellent low maintenance landscape trees suitable for planting along the edges of the installation away from the airfield. All of these trees have been successfully planted at other Air Force installations with active runways but planting locations should be selected in accordance with the applicable BASH guidelines as these tree do produce fruit and may attract fruit eating birds.

*** Non-native but meet the requirements of EO 13514 for locally adapted species that are low maintenance, readily available, and tolerant of conditions found in western Arkansas.