DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR

PRESCRIBED FIRE FOR VEGETATION MANAGEMENT ON ELLSWORTH AIR FORCE BASE



PREPARED BY:

Gary C. Brundige 28 CES/CEIEN, Ellsworth AFB, South Dakota

7 March 2018

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 Personal home addresses and phone numbers will not be published in the Final EA.

This page is intentionally left blank.

DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Prescribed Fire for Airfield Vegetation Management Ellsworth AFB, South Dakota

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) §1500-1508, and 32 CFR §989, Environmental Impact Analysis Process, the U.S. Air Force (Air Force) assessed the potential environmental consequences associated with application of prescribed fire as a tool to manage grassland vegetation on Ellsworth Air Force Base (EAFB). Prairie vegetation on and around EAFB evolved under disturbance from grazing and periodic fire. Remnant mixed grass prairie on EAFB is currently dominated by non-native grasses. Vegetation dominated by non-native grasses and left undisturbed is lower in productivity and provides poor habitat conditions for native wildlife and pollinators at Ellsworth AFB, Pennington and Meade Counties, SD.

The purpose of the proposed action is to return fire as natural disturbance factor to remnant mixed-grass prairie vegetation on EAFB. Fire promotes vegetation diversity and a mosaic of habitats that supports a diverse assemblage of plants and animals. The utilization of prescribed fire will provide an additional tool as a companion to grazing for managing vegetation on EAFB. The application of prescribed fire will improve productivity and diversity, restore native vegetation, reduce invasive species, improve wildlife habitat including pollinator habitat, increase resiliency and reduce wildfire risk.

The Environmental Assessment (EA), incorporated by reference into this finding, analyzes the potential environmental consequences of activities associated with using prescribed fire for remnant mixed grass prairie restoration and provides environmental protection measures to avoid or reduce adverse environmental impacts.

The EA considers all potential impacts of Alternative 1, Conduct Prescribed Fire, and the No-Action Alternative. The EA also considers cumulative environmental impacts with other projects in the Region of Influence.

ALTERNATIVE 1 (Preferred Alternative)

The proposed action would be to conduct prescribed burns on the open space and unimproved grasslands within designated Fire Management Units (FMUs) identified in the EAFB Wildland Fire Management Plan (WFMP). Improving grassland condition and productivity and restoring native vegetation communities are goals and objectives identified in the Integrated Natural Resources Management Plan (INRMP). Prescribed fire is a tool identified in the INRMP to help accomplish management objectives without negative impacts on the EAFB mission.

NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the Preferred Alternative would not occur and no prescribed burning would occur. The vegetation in open spaces and unimproved grasslands would not be managed. Vegetation condition would continue to deteriorate.

SUMMARY OF FINDINGS

The analyses of the affected environment and environmental consequences of implementing the Preferred Alternative presented in the EA concluded that by implementing standing environmental protection measures and operational planning, the Air Force would be in compliance with all terms and conditions and reporting requirements.

The Air Force has concluded that no significant adverse effects would result to the following resources as a result of the Preferred Alternative: air quality, biological resources, geology and earth resources, land use, noise, public health and safety, hazardous materials/waste, socioeconomics/environmental justice, and water resources. No significant adverse cumulative impacts would result from activities associated with Alternative 1 (Preferred Alternative)] when considered with past, present, or reasonably foreseeable future projects.

Air Quality: The proposed action will generate smoke and ash over the short term. However, to minimize smoke impacts, burning would only be conducted under the appropriate atmospheric conditions outlined in the prescribed burn plan. Small area burns in grasslands will be completed in a single burn cycle and will be of short duration with little residual smoke.

Safety and Occupational Health: Short term risk to firefighters is expected. The use of certified firefighters and PPE addresses risk. Smoke from the fire will be short term and burning will occur during conditions that minimize exposure. The result of the action would have a longer term positive impact on habitat quality and wildfire risk.

Earth Resources: The proposed action would remove above ground dead biomass from plants but root systems would remain intact. Little or no soil disturbance would occur.

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR §989, I conclude that the Preferred Alternative, Prescribed Fire for Vegetation Management on Ellsworth AFB, would not have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact completes the environmental impact analysis process.

SIGNATORY NAME, Rank/Title

Date

Environmental Assessment	
Table of Contents	

TABLE OF CONTENTS

Section Section	<u>on</u>		<u>Page</u>	
	1.0	PURPOSE OF AND NEED FOR ACTION	2-1	
	1.1	INTRODUCTION	2-1	
	1.2	PURPOSE OF THE ACTION	2-1	
	1.3	NEED FOR THE ACTION	2-2	
1.4 DECISION TO BE MADE				
	1.5	COOPERATING AGENCY AND INTERGOVERNMENTAL		
		COORDINATION/ CONSULTATIONS	2-2	
		1.5.1 Cooperating Agency (Air Force Wildland Fire Branch)	2-2	
		1.5.2 Interagency and Intergovernmental Coordination and Consultations	2-3	
2.0	DESC	CRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES	2-1	
	2.0	PROPOSED ACTION – CONDUCT PRESCRIBED FIRE	2-1	
	2.1	NO-ACTION ALTERNATIVE	2-1	
	2.2	ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD	2-1	
		2.2.1 Mechanical and chemical means as a surrogate for fire	2-1	
3.0	AFFE	CTED ENVIRONMENT		
	3.0	SCOPE OF THE ANALYSIS		
	3.1	AIR OUALITY		
	3.2	WATER RESOURCES		
	3.3	SAFETY AND OCCUPATIONAL HEALTH		
	3.4	BIOLOGICAL / NATURAL RESOURCES		
	3.5	CULTURAL RESOURCES		
	3.6	EARTH RESOURCES		
4.0	ENVI	RONMENTAL CONSEQUENCES	4-1	
	4.0	INTRODUCTION	4-1	
	4.1	AIR QUALITY	4-1	
	4.2	WATER RESOURCES	4-1	
	4.3	SAFETY AND OCCUPATIONAL HEALTH	4-1	
	4.4	BIOLOGICAL / NATURAL RESOURCES	4-2	
	4.5	CULTURAL RESOURCES	4-2	
	4.6	EARTH RESOURCES		
	4.7	CUMULATIVE EFFECTS		
5.0	LIST	OF PREPARERS	5-1	
6.0	REFE	CRENCES	6-1	

LIST OF APPENDICES

		LIST OF A
Appendix A	Maps	
	•	Fire Management Units
Appendix A	Maps ●	Fire Management Ur

- Prescribed Fire Units
- Appendix B Notice of Availability

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AF	Air Force
AFB	Air Force Base
AFCEC	Air Force Civil Engineering Center
AFI	Air Force Instruction
AFPAM	Air Force Pamphlet
AFWFB	Air Force Wildland Fire Branch
AICUZ	Air Installation Compatible Use Zone
BASH	Bird/Wildlife Aircraft Strike Hazard
CEQ	Council on Environmental Quality
CES	Civil Engineering Squadron
CFR	Code of Federal Regulations
EA	Environmental Assessment
EAFB	Ellsworth Air Force Base
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FMU	Fire Management Unit
FONSI	Finding of No Significant Impact
FWFMP	Federal Wildland Fire Management Policy
INRMP	Integrated Natural Resource Management Plan
NEPA	National Environmental Policy Act
NRCS	Natural Resource Conservation Service
PREIAP	Planning Requirements for the Environmental Impact Analysis Process
ROI	Region of Influence
SDGFP	South Dakota Game, Fish and Parks
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Officer
USAF	United States Air Force
USC	United States Code
USFWS	United States Fish and Wildlife Service
WFMP	Wildland Fire Management Plan

Environmental Assessment Purpose of and Need for Action

1.0 PURPOSE OF AND NEED FOR ACTION

The governing policy for wildland fire management can be found in DoDI 6055.06, Chapter 13 of AFI 32-7064, Chapter 3.2.4 of AFI 32-2001, *Fire Emergency Services Program*, 24 February 2014 (AFI 32-2001), the AFCEC/CZOF Playbook, and *Review and Update of the 1995 Federal Wildland Fire Management Policy*, January 2001 (FWFMP), as implemented through the *Guidance for Implementation of Federal Wildland Fire Management Policy*, February 2009 (FWFMP Guidance).

The Sikes Act requires the management, preservation and restoration of natural resources on Department of Defense properties in a manner compatible with the Installation mission. Sikes Act partners for EAFB include the US Fish and Wildlife Service (USFWS) and SD Game, Fish and Parks (SDGFP). The management of Natural Resources on Ellsworth Air Force Base is governed by AFI 32-7064, Integrated Natural Resource Management. The Ellsworth AFB Integrated Natural Resource Management and restoration of native habitats including remnant mixed-grass prairie. Tools identified for grassland management include grazing and fire.

1.1 INTRODUCTION

Ellsworth Air Force Base (EAFB) is home of the 28th Bomb Wing, an Air Force Global Strike Command B-1B bomber base, located approximately eight miles east of Rapid City, South Dakota. EAFB consists of approximately 5,243 acres and is adjacent to the community of Box Elder, SD.

EAFB lies entirely within the Pierre Shale Plains of the Northern Great Plains (NRCS 2017). Climate of the Northern Great Plains is cyclic between wet and dry periods (Woodhouse and Overpeck 1998). These cycles led to periodic changes in tall and short grasses (Truett 2003) and woody plants (Sieg 1997). Additionally; cold winters, hot summers, low humidity, winds, light rainfall, and ample sunshine led to changes in plant composition annually and seasonally (Collins and Barber 1985). Fire has also been an important element in the evolution of this system for thousands of years (Daubenmire 1968). The vegetation of the Northern Great Plains have adapted strategies to cope with variable climate and weather and to benefit from periodic fire creating a changing mosaic of habitats. Fire promotes vegetation diversity and a mosaic of habitats that supports a diverse assemblage of plants and animals.

Open space or unimproved area, primarily grasslands, totals 2,336 acres, an additional 261 acres are improved outdoor recreation areas. Developed and semi-improved areas total 2,646 acres that consist of airfield, maintenance, housing, community, medical, and industrial areas; these are lands that are maintained on a regular basis. Three general habitat types identified on EAFB included remnant mixed-grass prairie, riparian, and disturbed/improved (Peabody and Williams, 1994). Remnant mixed-grass prairie habitat covers the majority of the natural areas on base that are not impacted by continuous mowing and/or permanent structures.

1.2 PURPOSE OF THE ACTION

The purpose of the proposed action is to return fire as a disturbance factor in the manipulation of vegetation on EAFB. The utilization of prescribed fire will provide an additional tool as a companion of grazing for managing vegetation on EAFB.

The application of prescribed fire will improve productivity and diversity, restore native vegetation, reduce invasive species, improve wildlife habitat including pollinator habitat, increase resiliency and reduce wildfire risk.

1.3 NEED FOR THE ACTION

Vegetation native to EAFB evolved under and was maintained by grazing of large ungulates (e.g. bison, elk, deer, and pronghorn) and frequent fire. Significant impacts of Euro-American expansion into the area include fire suppression and an alteration of fire regimes. Vegetation communities now experience fire on a limited basis. A lack of fire reduces nutrient cycling and productivity, increases duff and litter, increases encroachment, decreases forage quality, changes species composition and allows the invasion of non-native vegetation. Accumulation of fuel loads tends to lead to higher fire intensity, with a greater risk to life and property, increased air pollution, and catastrophic habitat alteration.

Remnant mixed-grass prairie habitat on-base is composed of a mix of native northern mixedgrass prairie species with encroachment of non-native cool season grasses, primarily crested wheatgrass, smooth brome, and Kentucky bluegrass. These non-native grasses break dormancy earlier than native cool season grasses. Spring burns timed to the green-up of these grasses can decrease their vigor and prevalence and increase the vigor and prevalence of native cool season grasses such as western wheatgrass. Prescribed fire can aid in the control of invasive species, increase nutrient cycling, increase productivity, increase plant diversity, restore native vegetation and create a mosaic of habitats benefiting wildlife and pollinators. Additionally, prescribed fire reduces accumulated fuel loads and reduces the risk of catastrophic wildfire with potential damage to vegetation and infrastructure.

1.4 DECISION TO BE MADE

The decision to be made is the selection of an alternative for Ellsworth Air Force Base to support the use of prescribed fire for vegetation management. The decision options are:

- 1) To continue with current operations (the No Action Alternative);
- 2) Selecting an alternative and preparing a FONSI; or
- 3) Preparing an Environmental Impact Statement if the alternatives would result in significant environmental impacts.

1.5 COOPERATING AGENCY AND INTERGOVERNMENTAL COORDINATION/ CONSULTATIONS

1.5.1 Cooperating Agency (Air Force Wildland Fire Branch)

In December 2017, the Air Force Wildland Fire Branch (AFWFB) became a cooperating agency in the preparation of this Environmental Assessment (EA). The United States Air Force (USAF) has obtained technical input from the AFWFB to prepare this EA. The USAF works cooperatively with the AFWFB to ensure that adoption of the findings of this EA will provide for increased vegetation quality and productivity, and improved wildlife habitat and as required by the Sikes Act, while supporting the EAFB mission.

Environmental Assessment Purpose of and Need for Action Prescribed Fire for Airfield Vegetation Management Ellsworth AFB, SD

1.5.2 Interagency and Intergovernmental Coordination and Consultations

Federal, state, and local agencies that could be affected by the alternative actions notified include US Fish and Wildlife Service, SD Division of Wildland Fire Management, SD Department of Game, Fish and Parks, Great Plains Interagency Fire Dispatch Center, and the city of Box Elder.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.0 PROPOSED ACTION – CONDUCT PRESCRIBED FIRE

The proposed action would be to conduct prescribed burns on the open space and unimproved grasslands within designated Fire Management Units (FMUs) identified in the EAFB Wildland Fire Management Plan (WFMP). Improving grassland condition and productivity and restoring native vegetation communities are goals and objectives identified in the Integrated Natural Resources Management Plan (INRMP). Prescribed fire is a tool identified in the INRMP to help accomplish management objectives without negative impacts on the EAFB mission.

2.1 NO-ACTION ALTERNATIVE

The no action alternative would not conduct prescribed burns. Wildfire starts would be actively suppressed and vegetation would not benefit from the application of fire. Vegetation in the unimproved and open space areas of EAFB would remain unmanaged and vegetation in these areas would continue to decline. The Sikes Act mandate to manage natural resources would not be met.

2.2 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

2.2.1 Mechanical and chemical means as a surrogate for fire.

This proposal would use mechanical (i.e. mowing and tilling) and herbicide treatments to manipulate vegetation. Mowing, seeding and herbicide treatments are not possible on all areas. Additionally, these methods require significant staffing, time, equipment and materials making application expensive and impractical. Timing to meet environmental objectives would not be possible. Herbicides would not be specific enough to target species required and AF directives are to reduce the use of herbicides and their negative environmental consequences where practical. Mechanical treatment would not provide the nutrient release accomplished through fire. Mechanical and chemical treatments would not accomplish the goals and objectives for vegetation improvement. This alternative does not meet the Purpose and Need for this action.

Environmental Assessment Affected Environment

3.0 AFFECTED ENVIRONMENT

The Region of Influence (ROI) for the Proposed Action is the Fire Management Units identified in the Wildland Fire Management Plan for Ellsworth AFB, unless otherwise specified below for a particular resource area where a resource would have a different ROI.

3.0 SCOPE OF THE ANALYSIS

This chapter describes the current conditions of the environmental resources, either man-made or natural, that would be affected by implementing the Preferred Alternative or the No Action Alternative.

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

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

- Air Installation Compatible Use Zone (AICUZ) / Land Use / Noise: The proposed action would occur on open space and unimproved lands and would not impact land use or noise.
- **Hazardous Materials / Waste:** The proposed action would not impact any lands with hazardous materials or waste. Fuel used for ignitions (drip torch) will be consumed by the fire.
- Socioeconomic Resources / Environmental Justice: The proposed action does not involve any activities that will impact socioeconomic resources and will not disproportionately affect minority or low-income groups.

3.1 AIR QUALITY

Air quality is described by quantities of criteria pollutants contained in the atmosphere compared to federal and/or state air quality standards. EAFB is in an attainment area for all criteria pollutants.

3.2 WATER RESOURCES

Water resources include surface water, groundwater, and floodplains. EAFB contains 44.6 ac of jurisdictional wetlands of which approximately 30 are in the project area (EAFB 2003). These consist of approximately 25 acres along the main base drainage and the 5 impounded ponds. Approximately 5 acres of wetlands occur as isolated impoundments and swales scattered across the proposed project area (EAFB 1994). EAFB contains no perennial stream flow. The base is underlain by one shallow unconfined aquifer and three deeper confined aquifers, the Inyan Kara, the Minnelusa and the Madison (USAF 2001).

Environmental Assessment Affected Environment

3.3 SAFETY AND OCCUPATIONAL HEALTH

Fire is inherently dangerous. Smoke may produce health concerns for fire fighters as well as personnel down wind. Other hazards include working on heavy equipment and fire engines during fire suppression activities.

3.4 BIOLOGICAL / NATURAL RESOURCES

Biological / natural resources include the habitats as well as the plants and animals associated with those habitats. The historic plant community prior to airbase development consisted of the mixed-grass prairie community of Northern Great Plains Grassland. Overall, climax sites were characterized by Western Wheatgrass/Needlegrass plant communities interspersed with a Needlegrass/Grama/Little Bluestem plant community.

Current habitats in the project area include grasslands managed for wildlife, as well as wetlands and woody draws associated with the drainages. Open spaces and unmanaged grasslands are managed according to the INRMP and the Landscape Design Plan. Vegetation on remnant prairie sites is characterized by an abundance of western wheatgrass (*Pascopyrum smithil*), and green needle-grass (*Stipa viridula*) and is dominated by crested wheatgrass (*Agropyron cristatum*) (Peabody and Williams 1994). Disturbed areas are dominated by Kentucky bluegrass (*Poa pratensis*) interspersed with common "weedy species" including field bindweed (*Convolvulus arvensis*), common dandelion (*Taraxacum officinale*), hairy crabgrass (*Digitaria sanguinalis*), and several ornamental species (Peabody and Williams 1994). Many of the species considered weeds are actually invasive and exotic in the environment. Wetland areas have been modified from their original condition primarily by impoundment. These areas contain hydrophilic plants including sedges and cattails. Trees and shrubs associated with the Northern Great Plains woody draws occur to a limited extent in some wetland areas, primarily along the base lakes system.

Many species of birds, reptiles, amphibians, and mammals characteristic of the Great Plains are present on EAFB. A total of 109 vertebrate species, including 16 mammals, 69 birds, 7 reptiles, 6 amphibians, and 11 fishes were observed on EAFB by either Peabody and Williams (1994), AMEC Earth and Environmental (2007), or both. There are no federal threatened or endangered species located on EAFB. However, among all the Species of Greatest Conservation Need (SGCN) identified in the South Dakota Wildlife Action Plan (SDGFP 2014) and species under petition for T&E listing with the USFWS, seven have been documented on EAFB.

3.5 CULTURAL RESOURCES

EAFB has 21 National Register of Historic Places eligible buildings. One of these buildings is located in the project area. There are no other archeological or historical features in the project area.

3.6 EARTH RESOURCES

• Geology – The Black Hills and adjoining areas were formed by the Black Hills uplift, which resulted from tectonic movement. EAFB is located in an area consisting of a series of thick beds of sandstone, limestone and shale, the oldest and deepest of which are crystalline basement rocks. These are overlain by deposits of limestone, sandstone and dolomite, several of which are known aquifers. A band over 1,000 feet thick of marine shale with intermittent sandstone and limestone beds extends to the surface at EAFB. The uppermost of these deposits is the Pierre Shale, which forms the bedrock surface at the base and occurs from depths of 40 feet below ground surface to surface outcroppings. Thickness of the Pierre shale

Environmental Assessment Affected Environment

is reported to be approximately 860 feet at EAFB, based on well logs for EAFB Production Well Number 1. Unconsolidated materials including colluvial deposits, alluvial deposits and residual material overlay the Pierre Shale at EAFB.

• Soils - Permeability of the soils on EAFB ranges from very slow in the clay soils to moderate in the loamy soils. Fourteen soil types are mapped on EAFB, the majority of which can be grouped into three soil series. Nunn series soils are dominant, covering approximately 85 percent of the installation. Nunn soils are composed of well-drained alluvium, nearly level to moderately sloping loamy soils that occur on terraces and uplands. Onita clay loam soils are found interspersed throughout the base, primarily located on the uplands and high terraces in swales and on foot slopes. These soils are very deep, well and moderately well drained soils that developed in local alluvium. Nunn soils are the dominant soil in the project area with small inclusions of Onita soils near the north slough.

• Topography - The topography of the installation is level to gently sloping, with the exception of the northern most section of the base that descends abruptly northward to a valley floor. The remainder of the base slopes southward towards Box Elder Creek. The highest base elevation is 3,380 feet in the north, and the lowest is 3,080 feet in the south.

4.0 ENVIRONMENTAL CONSEQUENCES

4.0 INTRODUCTION

This chapter describes the potential environmental consequences that are likely to occur as a result of implementation of all Alternatives that are being considered and analyzed. Impacts described in this chapter are evaluated in terms of type (positive/beneficial or adverse), context (setting or location), intensity (none, negligible, minor, moderate, severe), and duration (short-term/temporary or long-term/permanent). The type, context, and intensity of an impact on a resource are explained under each resource area. Unless otherwise noted, short-term impacts are those that would result during and shortly after implementation of the project. Long-term impacts are generally those persisting after completion of the proposed project.

4.1 AIR QUALITY

Alternative 1 (Preferred Alternative). No significant adverse effects would be expected. The proposed action will generate smoke and ash over the short term. However, to minimize smoke impacts, burning would only be conducted under the appropriate atmospheric conditions outlined in the prescribed burn plan. Prescribed burns in grasslands will be completed in a single burn cycle and will be of short duration with little residual smoke.

No Action Alternative. No significant adverse effects would be expected.

4.2 WATER RESOURCES

Alternative 1 (Preferred Alternative). No significant adverse effects would be expected. Fire will remove above ground biomass, but root systems will remain intact. Minimal short term ash runoff into surface water may occur, but would not degrade water quality. Fire lines are generally existing mineral surface fuel breaks or hard surface roads. Temporary fire lines will be mow lines eliminating soil disturbance and sedimentation concerns. No foam or retardant will be used near stream channels or waterbodies. Vegetation will quickly regrow with increased vigor, further stabilizing soils and improving quality of runoff.

No Action Alternative. No significant adverse effects would be expected.

4.3 SAFETY AND OCCUPATIONAL HEALTH

Alternative 1 (Preferred Alternative). No significant adverse effects would be expected. Short term risk to firefighters is expected. However, safety is the primary objective and the burn plan ensures that all personnel on the fire will be certified and all PPE will be used at all times. Smoke from the fire will be short term and burning will occur during conditions to minimize exposure. All equipment operators will be fully certified.

No Action Alternative. No significant adverse effects would be expected.

Environmental Assessment Environmental Consequences

4.4 BIOLOGICAL / NATURAL RESOURCES

Alternative 1 (Preferred Alternative). No significant adverse effects would be expected. Vegetation would be maintained to protect soil and water. Proposed prescribed fire would reduce non-native and invasive species. Plant productivity would be increased and native plant species diversity would be enhanced. Increased forb production and diversity would provide enhanced habitat for native pollinators, some of which are species of concern. Reduced fuel loads would reduce risk of catastrophic wildfire and potential damaging impacts to vegetation and wildlife.

No Action Alternative. Negative impacts to habitat for potential Endangered Species Act (ESA) candidate wildlife species and SD Species of Greatest Conservation Need would be expected. Continued decline in vegetation diversity and productivity would occur. Non-native vegetation would continue to dominate native vegetation with associated detrimental effects to native wildlife would be expected.

4.5 CULTURAL RESOURCES

Alternative 1 (Preferred Alternative). No significant adverse effects would be expected. EAFB has one National Register of Historic Places eligible building near the project area. However, this building is concrete block with a cleared area around it and would not be impacted by the proposed action. There are no other archeological or historical features in the project area.

No Action Alternative. No significant adverse effects would be expected.

4.6 EARTH RESOURCES

Alternative 1 (Preferred Alternative). No significant adverse effects would be expected. The proposed action would remove above-ground dead biomass from plants. Root systems would remain intact. Fires will not be hot enough to remove the seed bank and regrowth will be rapid. Little or no soil disturbance would occur. These measures will protect soils on the project area.

No Action Alternative. No significant adverse effects would be expected.

4.7 CUMULATIVE EFFECTS

This EA also considers the effects of cumulative impacts as required in 40 CFR 1508.7 and concurrent actions as required in 40 CFR 1508.25[1]. A cumulative impact, as defined by the CEQ (40 CFR 1508.7) is the "...impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Environmental Assessment Environmental Consequences

Prescribed Fire for Airfield Vegetation Management Ellsworth AFB, SD

Continued use of prescribed fire would become a part of a comprehensive vegetation management plan for open spaces and undeveloped areas of EAFB. Vegetation native to the area of EAFB evolved under a regime of fire and grazing. Prescribed grazing a small portion of the project area along the north boundary will not have cumulative negative impacts on the environment. Conversely, grazing will serve as an additional tool to enhance vegetation management on EAFB. This strategy is in place to meet the obligations of the Sikes Act while supporting the primary military mission of the 28th Bomb Wing. No cumulative effects would be expected from the addition of prescribed fire to the suite of vegetation management tools already employed.

Environmental Assessment List of Preparers

5.0 LIST OF PREPARERS

This EA has been prepared under the direction of the Air Force Civil Engineer Center, USAF, and 28th Bomb Wing, Ellsworth Air Force Base, South Dakota.

Gary C. Brundige, Natural / Cultural Resources Manager / Ph.D. 29 years of experience

The following Individuals from the Environmental Compliance branch at the 28th CES and the Ellsworth Module Lead for the Air Force Wildland Fire Center listed below contributed to the preparation of this EA.

Greg Johnson, Chief - Environmental Compliance / B.S. 33 years of experience

Kevin Goyer, Water Quality Program Engineer / B.S. 14 years of experience

Jens Christensen, Storage Tanks - Air Emissions - Spills Program Manager / M.S. P.E. 28 years of experience

Doug Baldwin, Hazardous Waste Program Manager / B.S. 16 years of experience

Joe Zushlag, Toxics Program Manager / USAF Certification 14 years of experience

Robert Lehmann, Ellsworth AFB Wildland Fire Module Team Leader / A.S. RXB2 25 years of experience

6.0 REFERENCES

Air Force Instruction (AFI) 32-2001. 2014. Fire Emergency Services (FES) Program. USAF Publications.

AFI 32-7064. 2014. Integrated Natural Resources Management. USAF Publications.

AMEC Earth & Environmental 2007. Comprehensive biological surveys 2006-2007. Report submitted to Ellsworth Air Force Base. August 2007.

Collins, S.L. and S.C Barber. 1985. Effects of disturbance on diversity in mixed-grass prairie. Vegetation 64:87-94.

Daubenmire R. 1968. Ecology of fire in grasslands. Advances in Ecological Research 5:209-266.

Design Works Inc. 2013. Landscape Design Guide, Ellsworth Air Force Base, South Dakota.

EAFB (Ellsworth Air Force Base). 1994. Wetlands Delineation at Ellsworth Air Force Base, Pennington and Meade Counties, South Dakota. Mariah Associates Inc. 109 pp.

EAFB 2003. Ellsworth Air Force Base. Final Natural Resource Database and Mapping and Wetland Database and Mapping Report. 28 CES Ellsworth Air Force Base, South Dakota.

EAFB. 2017. Ellsworth Air Force Base Integrated Natural Resources Management Plan. 28 CES Ellsworth Air Force Base, South Dakota.

EAFB. 2007. Ellsworth Air Force Base Storm Water Pollution Prevention Plan. 2007 update. Ellsworth Air Force Base, South Dakota.

EAFB. 2013. Ellsworth Air Force Base Wildland Fire Management Plan. 28 CES Ellsworth Air Force Base, South Dakota.

EAFB. 2016. 28th Bomb Wing Ellsworth Air Force Base Bird/Wildlife Aircraft Strike Hazard (BASH) Plan. OPR: 28 BW Flight Safety. Ellsworth Air Force Base, South Dakota.

EAFB 2016. U. S Air Force, Integrated Cultural Resources Management Plan. Ellsworth Air Force Base. 3-Aug-16.

NRCS (Natural Resource Conservation Service). 2017. Web Soil Survey. Available online at: <u>https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm</u>.

Peabody, F.J. and G. Williams. 1994. Biological Survey of Ellsworth Air Force Base South Dakota, University of South Dakota. February 1994.

SDGFP (South Dakota Department of Game, Fish and Parks). 2016. Threatened, Endangered or Candidate Species of South Dakota. Last updated April 7, 2016. Available online at: http://gfp.sd.gov/wildlife/threatened-endangered/threatened-species.aspx [accessed February 15, 2107].

Sieg, C.H. 1997. The role of fire in conserving the biological diversity on native rangelands of the Northern Great Plains. Pages 31-38 in: D.W. Uresk and G.L. Schenbeck, editors. Proceedings of the symposium on Conserving Diversity of the Northern Great Plains. USDA Forest Service, General Technical Report RM-298.

Truett, J.C. 2003. Migrations of grassland communities and grazing philosophies in the Great Plains: A review and implications for management. Great Plains Research 13:3-26.

Environmental Assessment References Prescribed Fire for Airfield Vegetation Management Ellsworth AFB, SD

USAF. 2001. Final Draft Integrated Natural Resources Management Plan (INRMP), Ellsworth AFB, South Dakota, November 2001.

USAF. 2017. BASH Home Page, Aviation Safety Division. Available on line at: http://www.safety.af.mil/Divisions/Aviation-Safety-Division/BASH.

Woodhouse, C.A. and J. T. Overpeck. 1998. 2000 years of drought variability in the central United States. Bulletin of the American Meteorological Society 79:2693-2714.

Environmental Assessment Appendices

Prescribed Fire for Airfield Vegetation Management Ellsworth AFB, SD

APPENDIX A

MAPS

Environmental Assessment Appendices

Prescribed Fire for Airfield Vegetation Management Ellsworth AFB, SD



Fire Management Units, Ellsworth AFB, South Dakota.

Environmental Assessment Appendices Prescribed Fire for Airfield Vegetation Management Ellsworth AFB, SD



Prescribed Fire Units and Firelines, Ellsworth AFB, South Dakota.

Environmental Assessment Appendices Prescribed Fire for Airfield Vegetation Management Ellsworth AFB, SD

APPENDIX B

Notice of Availability

A Notice of Availability (NOA) of the Draft EA and FONSI was published in the newspapers of record (listed below), announcing the availability of the EA for review on 16 March 2018. The NOA invited the public to review and comment on the Draft EA. The public and agency review period ended on 23 March 2018. Public and agency comments are provided below.

The NOA was published in the following newspapers: Rapid City Journal.

Copies of the Draft EA and FONSI were also made available for review at the following locations: http://www.ellsworth.af.mil/About -Us/Environmental/

COMMENTS:

Environmental Assessment Appendices

PUBLIC NOTICE United State Air Force Notice of Availability Draft Environmental Assessments (EA) Addressing the Use of Prescribed Fire for Vegetation Management at Ellsworth Air Force Base (AFB), South Dakota.

An Environmental Assessment (EA) has been prepared to analyze the impacts of prescribed burning to manage grassland vegetation on Ellsworth AFB. The purpose of the proposed action is to return fire as natural disturbance factor to remnant mixed-grass prairie vegetation on EAFB. Fire promotes vegetation diversity and a mosaic of habitats that supports a diverse assemblage of plants and animals. Prescribed fire will improve productivity and diversity, restore native vegetation, reduce invasive species, improve wildlife habitat including pollinator habitat, increase resiliency and reduce wildfire risk.

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

The Draft EA and proposed FONSI, dated 7 March 2018, are available for review at the following locations:

Rapid City Public Library (Main Library) 610 Quincy Street Rapid City, SD 57701 (605) 394-4171 The documents are also available online at http://www.ellsworth.af.mil/About -Us/Environmental/

You are encouraged to submit comments through March 23, 2018. Comments should be provided to:

Gary Brundige, 28 CES/CEIEN 2125 Scott Dr., Ste 2120, Ellsworth AFB, SD 57706 (605) 385-2690 gary.brundige@us.af.mil

PRIVACY ADVISORY NOTICE

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