INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN 2020-2024

Austin Training Area

Union County, South Dakota

West Camp Rapid Training Area
Pennington County, South Dakota

South Dakota Army National Guard

August 2020- Five Year Update

December 2021- Annual Update

EXECUTIVE SUMMARY

The National Guard Bureau (NGB) and South Dakota Army National Guard (SDARNG) have determined that preparation of this update to the Integrated Natural Resources Management Plan (INRMP) is appropriate and necessary for the SDARNG Austin Training Area (ATA) and West Camp Rapid Training Area (WCRTA) and to comply with the Sikes Act Improvement Act (SAIA) (16 United States Code [USC] §670a et seq.). The SAIA is the primary driver behind natural resources management and the INRMP, ensuring that established conservation programs are consistent with the mission-essential use of the installation and its land.

ATA is a 384-acre training area located on Federal land that is owned and administered by the United States Army Corps of Engineers (USACE) and licensed for use to the SDARNG. The USACE purchased the property in 1987 at the prompting of the SDARNG for the purpose of realistic field training exercises. The ATA is located in eastern South Dakota, six miles south of Elk Point, South Dakota, and borders the northwest bank of the Missouri River.

WCRTA is a 760-acre training area located on state-owned land in western South Dakota on the southwest side of Rapid City in Pennington County. WCRTA includes varying terrain ranging from rolling hills, gulches and draws to open meadows. Training activities include the use of the three small arms ranges, one grenade launcher range, two rotary wing landing pads, one training and maneuvering area, and one obstacle course. SDARNG troops also utilize WCRTA for bivouac, land navigation, and night- driving activities (in designated areas only). WCRTA is also used during Golden Coyote Annual Training exercises.

The purpose of this INRMP is to guide the natural resource management program at the SDARNG and assist the utilization of landscape and ecosystem perspectives in protecting and enhancing natural resources that are consistent with the military mission. This INRMP update has been prepared in accordance with the SAIA, the Department of Defense Instruction (DoDI) 4715.03 (Natural Resources Conservation Program), the DoD Manual (DoDM) 4715.03 (INRMP Implementation Manual), and the Army Regulation (AR) 200-1 (Environmental Protection and Enhancement).

This INRMP is being implemented under a Record of Environmental Consideration (REC). Use of a REC is considered an appropriate level of review under the National Environmental Policy Act (NEPA) because there are no changes relative to the training mission or operations of the SDARNG natural resources program managed under the INRMP and analyzed under the original Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) completed in 2005.

The format of this document is concurrent with generally accepted guidelines for preparation of INRMPs as follows:

- Section 1: Introduction
- Section 2: Installation and Military Mission
- Section 3: Natural Resources and Climate
- Section 4: Resource Management
- Section 5: Cultural Resources Protection
- Section 6: Land Use, Planning and Natural Resource Management
- Section 7: Responsible Parties and INRMP Implementation
- Section 8: Contact and Additional Information

The 2020 INRMP includes updated information from various inventories/surveys conducted since the 2015 INRMP, as well as corresponding management goals, objectives, and strategies (Section 4), as follows:

- Planning Level Surveys (Sections 1.7 and 3.6)
- Wetland Survey Report (Section 3.5)
- Vegetation Inventory (Section 3.6)
- Fire Management Plan and Risk Assessment (Section 3.7)
- Herpetological, Mammal, and Bird Inventory (Section 3.9)
- Bat Survey (Section 3.9)
- Threatened and Endangered Species (Section 3.10)

This five-year update to the INRMP was drafted and reviewed by South Dakota Game Fish and Parks (SDGFP), US Fish and Wildlife Service (USFWS), and National Guard Bureau (NGB). Before the completion of signatures for the 2020 INRMP document, several changes, including a significant fire, occurred, so the INRMP was updated, and signatures were completed at that time. The changes included:

- A fire occurred on the WCRTA in the spring of 2021, burning approximately 480 acres, resulting in the need for implementation of a vegetation restoration plan at the training area.
- The tricolored bat (*Perimyotis subflavus*) and the little brown bat (*Myotis lucifugus*) are currently undergoing species status reviews to assess population numbers and species-level health across each of the species' ranges. Conservation and management actions for these bat species will be addressed in the 2021 update.
- The 2021 update addresses the northern bobwhite quail (*Colinu virginianus*), a Department of Defense Mission Sensitive Species. Northern bobwhite quail had not been documented on the ATA since the 2005-2006 survey. Individuals were not visually observed but were heard vocalizing during the 2021 wetland delineation.

Items added or revised as part of the 2021 update will appear in blue font throughout the document.

SIGNATURE PAGE

Integrated Natural Resources Management Plan
Austin Training Area - Union County, South Dakota
West Camp Rapid Training Area - Pennington County, South Dakota
2021

This Integrated Natural Resources Management Plan (INRMP) meets the requirements of the Sikes Act (16 USC Section 670a et seq.) as amended and has set appropriate and adequate guidelines for conserving and protecting the Natural Resources of the Austin Training Area and West Camp Rapid Training Area. This annual review also serves as a review for operation and effect unless otherwise noted.

REVIEWED:

_____	_____
Anthony Hammett	Joseph Jacobson
Colonel, U.S. Army	Colonel, SDARNG
Chief, G-9 Army National Guard	Deputy Chief of Staff, Operations

REVIEWED:

_____	_____
Amity Bass, South Dakota Field Supervisor	Kevin Robling, Secretary
U.S. Fish & Wildlife Service	South Dakota Game Fish & Parks

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ANNUAL REVIEW AND COORDINATION SIGNATURE PAGE

Integrated Natural Resources Management Plan
Austin Training Area - Union County, South Dakota
West Camp Rapid Training Area - Pennington County, South Dakota

In accordance with Army Guard Integrated Natural Resources Template format and content as identified in Title 32, Code of Federal Regulations, Part 190, this signature page is attached to be utilized to record the signatures of United States Fish and Wildlife Service and the South Dakota Department of Game, Fish and Parks. Signatures are to be recorded on a yearly basis, after annual review and comment is completed by the agencies identified within the table.

REVIEWED BY: ________________________ *South Dakota Army National Guard* Date: ____________________	**REVIEWED BY:** ________________________ U.S. Fish & Wildlife Service Date: ____________________	**REVIEWED BY:** ________________________ South Dakota Department of Game, Fish & Parks Date: ____________________
REVIEWED BY: ________________________ South Dakota Army National Guard Date: ____________________	**REVIEWED BY:** ________________________ U.S. Fish & Wildlife Service Date: ____________________	**REVIEWED BY:** ________________________ South Dakota Department of Game, Fish & Parks Date: ____________________
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REVIEWED BY: ________________________ *South Dakota Army National Guard* *Date:* ____________________	***REVIEWED BY:*** ________________________ *U.S. Fish & Wildlife Service* *Date:* ____________________	***REVIEWED BY:*** ________________________ *South Dakota Department of Game, Fish & Parks* *Date:* ____________________

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TABLE OF CONTENTS

EXECUTIVE SUMMARY i
SIGNATURE PAGE iii
ANNUAL REVIEW AND COORDINATION SIGNATURE PAGE v
TABLES OF CONTENTS viii
LIST OF ACRONYMS AND ABBREVIATIONS xiii
1.0 INTRODUCTION 1
1.1 PURPOSE 2
1.2 LEGAL AUTHORITIES/REGULATORY DRIVERS 3
1.3 INRMP REVIEW AND INRMP UPDATE DEVELOPMENT 3
1.3.1 Review for Operation and Effect 3
1.3.2 INRMP Update Development 6
1.4 ECOSYSTEM MANAGEMENT AND BIODIVERSITY 7
1.4.1 Ecosystem Management 7
1.4.2 Biodiversity 7
1.5 NATURAL RESOURCES GOAL 7
1.6 COOPERATIVE AGREEMENTS 7
1.7 PLANNING LEVEL SURVEYS 8
1.7.1 ATA 8
1.7.2 WCRTA 9
1.8 NEPA COMPLIANCE 10
2.0 INSTALLATION AND MILITARY MISSION 12
2.1 ATA 12
2.1.1 Location and Acreage 12
2.1.2 Installation Acquisition 12
2.1.3 Surrounding Land Use 12
2.2 WCRTA 15
2.2.1 Location and Acreage 15
2.2.2 Installation Acquisition 15
2.2.3 Surrounding Land Use 15
2.3 SDARNG MILITARY MISSION 17
2.3.1 Overview 17
2.3.2 Federal Military Mission 17
2.3.3 SDARNG State Military Mission 17
2.3.4 SDARNG Community Mission 18
2.3.5 SDARNG Major Commands 18
2.3.6 Golden Coyote Training Exercise 21

2.3.7 Military Mission 21
2.3.8 Natural Resources Needed to Support the ATA and WCRTA Military Mission 21
2.3.9 Effects of Natural Resource Management on the ATA and WCRTA Military Mission 22
2.3.10 Effects of the Military Mission on Natural Resources 22
2.3.11 Facilities and Training Assets 23
2.3.12 Natural Resources Law Enforcement 26
3.0 NATURAL RESOURCES AND CLIMATE 28
3.1 SETTING AND TOPOGRAPHY 28
3.1.1 ATA 28
3.1.2 WCRTA 30
3.2 CLIMATE 33
3.2.1 ATA 33
3.2.2 WCRTA 33
3.3 AIR QUALITY FOR THE ATA AND WCRTA 33
3.3.1 ATA 34
3.3.2 WCRTA 34
3.4 SOILS AND GEOLOGY 34
3.4.1 ATA 34
3.4.2 WCRTA 37
3.5 WATER RESOURCES AND WATER QUALITY 44
3.5.1 ATA 44
3.5.2 WCRTA 46
3.6 FLORA 49
3.6.1 ATA 49
3.6.2 WCRTA 52
3.7 FIRE MANAGEMENT PLAN RISK ASSESSMENT 55
3.7.1 ATA 55
3.7.2 WCRTA 56
3.8 FOREST PEST MANAGEMENT 63
3.8.1 ATA 63
3.8.2 WCRTA 63
3.9 FAUNA 64
3.9.1 ATA 64
3.9.2 WCRTA 68
3.10 THREATENED AND ENDANGERED SPECIES 71
3.10.1 Federally Listed Species 71
3.10.2 State Listed Species 73

3.10.3 The South Dakota Natural Heritage Program 76
3.10.4 Partners in Flight (PIF) 78
4.0 RESOURCE MANAGEMENT 81
4.1 CLIMATE CHANGE 81
4.2 FOREST AND FIRE MANAGEMENT 82
4.2.1 ATA 82
4.2.2 WCRTA 84
4.3 FISH and WILDLIFE MANAGEMENT 87
4.3.1 Overview 87
4.3.2 Compliance 87
4.3.3 Goals, Objectives and Management Strategies 88
4.3.4 Inventory and Monitoring 96
4.3.5 Wildlife Management Projects 96
4.3.6 Relationship to Other Natural Resources Issues 98
4.3.7 Military Mission Considerations 98
4.4 STORMWATER AND WATER QUALITY CONTROL 99
4.4.1 Overview 99
4.4.2 Compliance 99
4.4.3 Goals, Objectives, and Management Strategies 100
4.4.4 Inventory and Monitoring 101
4.4.5 Stormwater and Water Quality Projects 101
4.4.6 Relationship to Other Natural Resources Management 102
4.4.7 Military Mission Considerations 102
4.5 FLOODPLAIN AND RIPARIAN ZONE MANAGEMENT 102
4.5.1 Overview 102
4.5.2 Compliance 103
4.5.3 Goals, Objectives and Management Strategies 103
4.5.4 Inventory and Monitoring 104
4.5.5 Floodplain and Riparian Zone Projects 104
4.5.6 Relationship to Other Natural Resource Issues 104
4.5.7 Military Mission Considerations 104
4.6 WETLANDS AND AQUATIC HABITAT MANAGEMENT 104
4.6.1 Overview 104
4.6.2 Compliance 104
4.6.3 Goals, Objectives, and Management Strategies 105
4.6.4 Inventory and Monitoring 106
4.6.5 Wetland and Aquatic Habitat Management Projects 106

4.6.6 Relationship to Other Natural Resource Issues 107
4.6.7 Military Mission Considerations 107
4.7 INVASIVE AND EXOTIC SPECIES AND NOXIOUS WEEDS 107
4.7.1 Overview 107
4.7.2 Compliance 108
4.7.3 Goals, Objectives, and Management Strategies 109
4.7.4 Inventory and Monitoring 109
4.7.5 Invasive and Exotic Species Management Projects 110
4.7.6 Relationship to Other Natural Resource Management 110
4.7.7 Military Mission Considerations 111
4.8 INTEGRATED PEST MANAGEMENT 111
4.8.1 Overview 111
4.8.2 Compliance 111
4.8.3 Goals, Objectives, and Management Strategies 111
4.8.4 Inventory and Monitoring 113
4.8.5 Integrated Pest Management Projects 114
4.8.6 Relationship to Other Natural Resource Management 114
4.8.7 Military Mission Considerations 115
4.9 EROSION CONTROL AND SOIL CONSERVATION 115
4.9.1 Overview 115
4.9.2 Compliance 115
4.9.3 Goals, Objectives, and Management Strategies 115
4.9.4 Inventory and Monitoring 117
4.9.5 Erosion Control and Soil Conservation Projects 117
4.9.6 Relationship to Other Natural Resource Issues 117
4.9.7 Military Mission Considerations 118
4.10 OUTDOOR RECREATION MANAGEMENT 118
4.10.1 Overview 118
4.10.2 Compliance 118
4.10.3 Goals and Objectives 118
4.11 RECREATION AND ECOSYSTEM MANAGEMENT 118
4.11.1 Overview 118
4.11.2 Relationship to Other Natural Resource Management 119
4.11.3 Military Mission Considerations 119
4.12 THREATENED AND ENDANGERED SPECIES MANAGEMENT 119
4.12.1 Overview 119
4.12.2 Compliance 119

4.12.1 Goals, Objectives and Management Strategies 120
4.12.2 Inventory and Monitoring 120
4.12.3 Threatened and Endangered Species Projects 120
4.12.4 Relationship to Other Natural Resource Management 121
4.12.5 Military Mission Considerations 121
5.0 CULTURAL RESOURCE PROTECTION 121
5.1 REGULATORY FRAMEWORK 121
5.2 CULTURAL RESOURCES AT THE TRAINING AREA 123
5.2.1 ATA 123
5.2.2 WCRTA 123
5.3 CULTURAL RESOURCES MANAGEMENT 124
5.4 EFFECTS OF NATURAL RESOURCES MANAGEMENT ON CULTURAL RESOURCES 124
6.0 LAND USE, LAND PLANNING, AND NATURAL RESOURCES MANAGEMENT 126
6.1 Current Land Use and Natural Resource Management 126
6.1.1 ATA 126
6.1.2 WCRTA 127
6.2 Natural Resource and Land Use Planning 129
7.0 RESPONSIBLE PARTIES AND INRMP IMPLEMENTATION 132
7.1 Responsible Parties 132
7.2 INRMP Implementation 132
7.2.1 Administrative and Technical Support 133
7.2.2 Funding 136
7.2.3 Priorities and Scheduling 136
7.2.4 Proposed Implementation Projects 138
7.2.5 INRMP Approval and Revisions/Updates 138
8.0 CONTACTS AND ADDITIONAL INFORMATION 141
9.0 REFERENCES 143

APPENDIX A
APPENDIX B
APPENDIX C
APPENDIX D

LIST OF ACRONYMS AND ABBREVIATIONS

AR	Army Regulation
ARNG	Army National Guard
ASL	Above Sea Level
ATA	Austin Training Area
BMP	Best Management Practice(s)
CAAA	Clean Air Act Amendments
CFR	Code of Federal Regulations
CWA	Clean Water Act
DENIX	Defense Environmental Network & Information Exchange
Det	Detachment
DoD	Department of Defense
DODI	Department of Defense Instruction
DCSOPS	Deputy Chief-of-Staff for Operations
EA	Environmental Assessment
ENG	Engineer
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FIRM	Flood Insurance Rate Map
GIS	Geographic Information System
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
JFHQ	Joint Forces Headquarters
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	Operations and Maintenance

OSA	Operational Support Airlift
PLS	Planning Level Survey
REC/CK	Record of Environmental Consideration and Environmental Checklist
ROTC	Reserve Officer Training Corp
RTI	Regional Training Institute
SAIA	Sikes Act Improvement Act
SDARNG	South Dakota Army National Guard
SDDA	South Dakota Department of Agriculture
SDDANR	South Dakota Department of Agriculture and Natural Resources
SDGFP	South Dakota Department of Game, Fish and Parks
SDNHP	South Dakota Natural Heritage Program
SHPO	State Historic Preservation Office
SRP	Sustainable Range Program
TAG	The Adjutant General
TSC	Training Site Command
USACE	United States Army Corp of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WCRTA	West Camp Rapid Training Area

1.0 INTRODUCTION

The National Guard Bureau (NGB) and the South Dakota Army National Guard (SDARNG) have determined that preparation of this update to the Integrated Natural Resources Management Plan (INRMP) covers fiscal year (FY) 2020 through 2024, is appropriate and necessary for the Austin Training Area (ATA) and the West Camp Rapid Training Area (WCRTA) to comply with the Sikes Act Improvement Act (SAIA) of 1979 (16 U.S.C. 670 et seq.) at the discretion of the respective Secretary of the Military Services, and requires the preparation of an INRMP for all military installations with significant natural resources. Updates to the INRMP will be completed as needed and will be included in Appendix A.

Section 101(b)(2) of the SAIA [16 U.S.C. 670a(b)(2)] states that each INRMP "must be reviewed as to operation and effect by the parties thereto on a regular basis, but not less often than every 5 years." The National Environmental Policy Act (NEPA) of 1969 dictates that planners of public actions using federal monies, such as those on military installations, shall consider the environmental impacts and effects of "major federal actions." Section 1508.18 in the Council for Environmental Quality (CEQ) regulations lists the adoption of a formal INRMP as a major federal action. The INRMP has been prepared in accordance with the SAIA, the U.S. Fish and Wildlife Service (USFWS), the Department of Defense Instruction (DoDI) 4715.03 (Natural Resources Conservation Program), DoD Manual (DoDM) 4715.03 (INRMP Implementation Manual), and the Army Regulation (AR) 200-1 (Environmental Protection and Enhancement).

ATA is a 384-acre training area located on Federal land that is owned and administered by the United States Army Corps of Engineers (USACE) and licensed for use to the SDARNG. The USACE purchased the property in 1987 at the prompting of the SDARNG for the purpose of realistic field training exercises. The ATA is located in eastern South Dakota, 6 miles south of Elk Point, South Dakota, and borders the northwest bank of the Missouri River.

WCRTA is a 769-acre training area located on state-owned land in western South Dakota on the southwest side of Rapid City in Pennington County. WCRTA includes varying terrain ranging from rolling hills, gulches, and draws, to open meadows. Training activities include the use of the three small arms ranges, one grenade launcher range, two rotary wing landing pads, one training and maneuvering area, and one obstacle course. SDARNG troops also utilize WCRTA for bivouac, land navigation, and night-driving activities (in designated areas only). WCRTA is also used during Golden Coyote Annual Training exercises.

This INRMP describes the baseline conditions of natural resources at the ATA and WCRTA and provides management programs and guidance allowing for the performance of successful military training while providing for the conservation of renewable natural resources, preservation of rare and unique resources, and long-term sustainability of ecosystem-oriented resources. In accordance with the SAIA, this INRMP will, to the extent appropriate and applicable, provide for:

- Fish and wildlife management, land management, forest management
- Fish and wildlife habitat enhancement or modifications
- Wetland protection, enhancement, and restoration where necessary for support of fish, wildlife, or plants
- Integration of, and consistency among, the various activities conducted under the plan
- Establishment of specific natural resources management goals and objectives and time frames for proposed action
- Sustainable use by the public of natural resources to the extent that the use is not inconsistent with the needs of fish and wildlife resources

- Public access to the military installation that is necessary or appropriate for the use described in subparagraph (F), subject to requirements necessary to ensure safety and military security
- Enforcement of applicable natural resource laws (including regulations)
- No net loss in the capability of military installation lands to support the military mission of the installation
- Such other activities as the Secretary of the Military Department determines appropriate (16 USC 670a)

1.1 PURPOSE

The purpose of this INRMP is to guide the Natural Resources Management Program at SDARNG and assist the installation in protecting and enhancing natural resources using landscape and ecosystem perspectives that are consistent with the military mission.

Goals for the INRMP include the following:

- Provide a comprehensive planning document that allows the SDARNG to carry out its mission, promote ecosystem health, and maximize biodiversity at its installations and in the surrounding region.
- Document specific natural resources management goals, objectives, guidelines, and the desired future direction of natural resources programs.
- Establish the framework for the implementation of natural resources programs and ecosystem management.
- Provide a centralized source of information on the status of natural resources programs.
- Identify physical and legal environmental constraints to land use and the military missions, allowing the military missions to be matched to the ecosystem carrying capacity.
- Identify mission-related impacts and options for conflict resolution.
- Serve as a baseline for defensible EAs and environmental impact statements.
- Ensure that installations comply with environmental regulations.
- Preliminary identification, prioritization, and scheduling of long-term budget requirements.

The SDARNG recognizes that training activities have the potential to use or consume the natural resources on mission land, and that successful execution of its mission depends on maintaining the environment for sustainable use. The SDARNG recognizes its responsibility to guarantee continued access to its land, air, and water resources for realistic military training while ensuring that the natural and cultural resources entrusted to its care are sustained in a healthy condition for scientific research, education, and other compatible uses by future generations. The SDARNG is committed to the planned management of natural resources, supporting the installation's operational mission, meeting or exceeding stewardship requirements, and enhancing the quality of life for its personnel and guests.

1.2 LEGAL AUTHORITIES/REGULATORY DRIVERS

This INRMP has been prepared in accordance with the following:

- SAIA (16 USC §670a et seq.)
- NEPA (42 USC §4321)
- AR 200-1 – Environmental Protection and Enhancement
- 32 CFR Part 651 – Environmental Effects of Army Actions
- DoDM 4715.03 – INRMP Implementation Manual
- DoDI 4715.03 – Natural Resources Conservation Program

Additional laws and regulations pertaining to natural resource management are referenced throughout the document.

The SAIA, states "the Secretary of each military department shall prepare and implement an integrated natural resources management plan for each military installation in the United States under the jurisdiction of the Secretary, unless the Secretary determines that the absence of significant natural resources on a particular installation makes preparation of such a plan inappropriate" (16 USC §670a). INRMPs must provide for:

- The conservation and rehabilitation of natural resources on military installations
- The sustainable multipurpose use of the resources, including hunting, fishing, trapping, and non-consumptive uses
- Public access to the military installations, subject to requirements necessary to ensure safety and military security (16 USC §670a)

The INRMP will be coordinated with appropriate federal, state, and local natural resources managers and agencies with natural resource expertise, including the U.S. Fish and Wildlife Service (USFWS) and South Dakota Department of Game, Fish and Parks (SDGFP).

Management programs addressed in this INRMP include:

- Climate Change
- Forest Management
- Fish and Wildlife Management
- Floodplain and Riparian Zone Management
- Wetland and Aquatic Habitat Management
- Invasive and Exotic Species and Noxious Weeds
- Integrated Pest Management
- Threatened and Endangered Species
- Erosion Control and Soil Conservation
- Stormwater and Water Quality Control
- Outdoor Recreation

1.3 INRMP REVIEW AND INRMP UPDATE DEVELOPMENT

1.3.1 Review for Operation and Effect

At least every 5 years, the INRMP will be reviewed to determine if a revision is necessary. SDARNG reviewed the operation and effect for the 2015-2019 INRMP. ***Table 1-1a*** and **Table *1-1b*** provide a

summary of the programs and projects implemented on the ATA and WCRTA since the INRMP in 2015. Detailed information on the projects completed is provided in Section 4.0, Resources Management.

Depending on scale of updates required, annual updates and reviews may consist of face-to-face meetings with all agencies, conference calls, or briefing letters. Through annual updates, it is expected that the INRMP can remain a living document and avoid the need for large scale revisions.

Table 1-1a. Projects Implemented from 2015-2019 INRMP at ATA

Project	Description	Status
1. GIS Database	GIS mapping	Ongoing
2. Trail Maintenance	Maintain existing trails	FY 2014-2015
3. Perimeter Road Clearing	Maintain 3.1 miles of perimeter road	Ongoing
4. Forest Ecosystem Health	Perimeter road clearing (noxious weeds, dog hair thinning, cedar tree removal (average 15 acres/year))	FY 2015-2018
5. Update Herpeto-Fauna Survey	Inventory of herpetological, mammal, and bird species, including threatened and endangered species	Biological surveys completed 2017 Bat surveys completed 2019
6. Wildlife Enhancement	Construct artificial bat houses, bird houses, native vegetation plantings	Not implemented
7. Land Use Considerations	Riparian Zone survey	Not implemented
8. Invasive and Exotic Species Survey	Conduct invasive and exotic species survey	FY 2017
9. Invasive and Exotic Species Management	Treat 20 acres/year	FY 2015-2019
10. Pest Management	Integrated ATA into statewide IPMP	Implemented at the ATA
11. INRMP Training	Conduct training on INRMP BMP's and conservation practices	Ongoing
12. Annual Reviews	USFWS, SDGFP	Ongoing

Table 1-1b. Projects Implemented from 2015-2019 INRMP at WCRTA

Project	Description	Status
1. GIS Database	GIS Mapping	Ongoing
2. Beetle control	Bug tree removal	Ongoing
3. Bivouac site clearing	Monitoring	Ongoing
4. Forest ecosystem health	Thinning dog hair stands (20 acres annually)	Ongoing
5. Update Fire Management Plan	Wildland Fire Management Plan	Ongoing
6. Revegetate	Survey for erosion after training events and revegetate.	Ongoing
7. Botanical Surveys	Conduct survey, targeting sensitive species, aquatic, and wetland plants	Not Implemented
8. Update Bird and Mammal Surveys	Update 2007 bird and mammal surveys	Biological survey completed 2017 Bat Survey completed 2019
9. Wetlands Management	Create 50' buffer zone around wetlands	Not Implemented
10. Forest Management	Monitoring and treatment of 10 acres of infested trees annually	Ongoing
11. INRMP Training	Conduct training on INRMP BMP's and conservation practices	Ongoing
12. Annual Reviews	USFWS, SDGFP	Ongoing

Based on (1) no change in the ATA or WCRTA mission, (2) no changes to the ATA or WCRTA natural resources policy, programs, prescriptions, or procedures, (3) no change to the type of projects proposed in the previous plan, and (4) minor changes to the INRMP document itself, SDARNG proposes to implement an INRMP update in 2020. Projects have been added or removed as part of adaptive management for this INRMP update (Section 7.2.4). The management changes are not materially different in biological or physical consequences, and include:

ATA

- Photo-point monitoring – to document habitat conditions/future changes. Seven photo points were taken along perimeter roads in the 2020 survey. In addition to the 2020 photo point locations, an additional seven photo point locations were added in 2021.
- Section 4.3, Wildlife Management – updated to reflect recommendations from herpetological, mammal, and bird surveys and current information on threatened and endangered species.
- Section 4.4, Stormwater and Water Quality Projects. There are no specific natural resources management projects pertaining to stormwater and water quality control scheduled at this time. Water quality monitoring is implemented on a case-by-case basis when required for construction, training, or other event that may impact surface water quality.
- Section 4.7, Invasive and Exotic Species and Noxious Weeds – updated to reflect current information and recommendations from surveys.
- Section 4.2, Forest Management – updated to reflect recommendations from surveys and Integrated Wildland Fire Management Plan.

- Section 4.6, Wetlands and Aquatic Habitat – updated to reflect recommendations from surveys.

WCRTA

- Photo-point monitoring – to document habitat conditions/future changes. Seven photo points were taken along the perimeter roads in the 2020 survey. In addition to the 2020 photo point locations, an additional ten photo point locations were added in 2021.
- Section 4.3, Wildlife Management – updated to reflect recommendations from herpetological, mammal, and bird surveys and current information on threatened and endangered species
- Section 4.7, Invasive and Exotic Species and Noxious Weeds – updated to reflect current information and recommendations from surveys
- Section 4.2, Forest Management – updated to reflect recommendations from surveys and Integrated Wildland Fire Management Plan
- Section 4.6, Wetlands and Aquatic Habitat – updated to reflect recommendations from surveys

1.3.2 INRMP Update Development

This INRMP was developed using an interdisciplinary approach, including incorporation of information from the 2015 INRMP/EA; resource surveys and reports prepared since the 2015 INRMP; information gathered from federal, state, and local agencies with an interest in the management of natural resources at the ATA and WCRTA. The SDARNG continues to manage its natural resources in accordance with strategies presented in Section 4, which have remained consistent since the first INRMP in 2000 and the subsequent update and EA completed in 2006.

The SDARNG prepared this INRMP in coordination with the USFWS and SDGFP. This interagency participation acknowledges current management strategies at the installation and local and regional levels; ensures mutual agreement concerning conservation, protection, and management of natural resources; and satisfies a portion of the requirements of 32 CFR Part 651.

The implementation of the INRMP at the ATA and WCRTA will successfully promote adaptive stewardship practices that protect and enhance natural resources for multiple uses, sustainable yield, and biological integrity, while supporting the military mission. Cultural resources (Section 5) will be referenced within the context of established management protocols as a means of ensuring the compatibility of the INRMP.

Formal adoption of this INRMP by the SDARNG constitutes a commitment to seek funding and execute projects, subject to the availability of funding, resources, and command priorities. All actions contemplated in this INRMP are subject to the availability of funds properly authorized and appropriated under federal and state law. Nothing in this INRMP is intended to be nor shall be construed to be a violation of the Anti-Deficiency Act, 31 USC §1341.

1.4 ECOSYSTEM MANAGEMENT AND BIODIVERSITY

1.4.1 Ecosystem Management

Maintaining healthy and functioning ecosystems within military lands is an essential component of maintaining military readiness. Natural resources at the ATA and WCRTA will be managed using an ecosystem-based management approach to maintain, protect, and enhance the ecological integrity of the training lands and the biological communities inhabiting them.

1.4.2 Biodiversity

Specific management practices identified in this INRMP have been developed to enhance and conserve biological diversity within the ecosystems at the ATA and WCRTA based on a DoD Biodiversity Management Strategy (Keystone Center 1996) that identifies the INRMP as the primary vehicle to implement biodiversity protection on military installations.

1.5 NATURAL RESOURCE GOAL

The primary purpose of natural resource management at the ATA and WCRTA is to support the military training mission. Natural resource management goals for the ATA and WCRTA include:

- Manage the land to ensure sustainability of installation lands to support existing and projected military training and operations.
- Manage natural resources within the spirit and letter of environmental laws, particularly the SAIA upon which this INRMP is predicated.
- Maintain and restore natural ecosystems favorable for the production of indigenous fish and wildlife populations, particularly federally listed species protected under the Endangered Species Act of 1973, as amended (ESA) (16 USC §1531 et seq.).
- Monitor and manage soils, water, vegetation, and wildlife with a consideration for all biological communities and human values associated.
- Protect and enhance floodplains, riparian zones, and wetland communities.
- Control invasive and exotic species to protect native ecosystems.
- Control erosion on-site to protect water quality.

1.6 COOPERATIVE AGREEMENTS

Memoranda of Understanding between the DoD and other resource agencies provide the authority for installations to develop their own cooperative agreements with agencies to establish mutual conservation objectives. Such agreements include, but are not limited to:

- Memorandum of Understanding (MOU) between DoD and the USFWS concerning ecosystem-based management of fish, wildlife, and plant resources on military lands
- Cooperative Agreement between the DoD and the Nature Conservancy for assistance in natural resources inventory
- Memorandum of Agreement (MOA) for Professional and Technical Assistance Conducting Biological Surveys, Research and Related Activities between the DoD and the National Biological Service of the Department of the Interior
- MOU between the U.S. Environmental Protection Agency (USEPA) and the DoD with respect to Integrated Pest Management (IPM)
- 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 more than 110 other federal and state agencies and non-governmental organizations
- MOU between the U.S. Army Environmental Center and the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) for Watershed and Environmental Enhancement of U.S. Army Installations
- MOU between the DoD and Ducks Unlimited, Inc., to provide a foundation for cooperative development of selected wetlands and associated uplands to maintain and increase waterfowl populations and fulfill the objectives of the North American Waterfowl Management Plan, within the context of DoD's environmental security and military missions
- MOU for Watchable Wildlife Programs

1.7 PLANNING LEVEL SURVEYS

Natural Resources Planning Level Surveys (PLS) are training site-wide inventories to characterize essential components of the training site natural resources, which includes landform, soil, water, and biota. PLS include spatial products that can be hard-copy maps, geographical information system (GIS) data layers, or both according to training site needs and capabilities.

1.7.1 ATA

The following PLS surveys have been completed for the ATA in preparation of the INRMP update:

Threatened & Endangered Species Inventory PLS—An inventory of herpetological, birds, and mammals completed since 2015 (Louis Berger 2017a, Banner Associates 2020a, WSP 2020b). In addition, a management plan was developed (Banner Associates 2020b) to assist in providing a comprehensive plan for maintaining and enhancing populations and habitats of federally and state listed species on the SDARNG training areas while maintaining military training missions. See Section 3.10.

Flora Inventory PLS—An update on habitat types was completed in conjunction with biological surveys conducted since 2015 (Louis Berger 2017a, Banner Associates 2020a). See Section 3.6.

Invasive and Exotic Species PLS- An invasive and exotic species study was completed in 2017 (Louis Berger 2017c). See Section 4.7.2 for additional information.

Bat Species Acoustic PLS—An acoustic study to determine the bat species present was conducted in 2019 (WSP 2020b). The study was conducted from April to November 2019 and obtain updated information about the diversity and relative abundance of bats using the training area.

Fauna Inventory PLS— An inventory of herpetological, birds, and mammals completed since 2015 (Louis Berger 2017a, Banner Associates 2020a, WSP 2020b). The inventories provide a discussion on fauna located within the ATA site. See Section 3.9 for additional information. The annual biological survey update occurred in April of 2021.

Wetland Delineation – A wetland delineation was completed in 2021. The delineation report describes the aquatic resources on the ATA and can be used in conjunction with training exercise planning to avoid impacts to potential environmentally sensitive areas.

1.7.2 WCRTA

The following PLS surveys have been completed for the WCRTA in preparation of the INRMP update:

Threatened & Endangered Species Inventory PLS—An inventory of herpetological, birds, and mammals completed since 2015 (Louis Berger 2017b, Banner Associates 2020a, WSP 2020a). In addition, a management plan was developed (Banner Associates 2020b) to assist in providing a comprehensive plan for maintaining and enhancing populations and habitats of federally and state listed species on the SDARNG training areas while maintaining military training missions. See Section 3.10.

Flora Inventory PLS—An update on habitat types was completed in conjunction with biological surveys conducted since 2015 (Louis Berger 2017b, Banner Associates 2020a). See Section 3.6.

Bat Species Acoustic PLS—An acoustic study to determine the bat species present was conducted in 2019 (WSP 2020a). The study was conducted from April to November 2019 and obtain updated information about the diversity and relative abundance of bats using the training area.

Fauna Inventory PLS— An inventory of herpetological, birds, and mammals completed since 2015 (Louis Berger 2017b, Banner Associates 2020a, WSP 2020a). The inventories provide a discussion on fauna located within the WCRTA site. See Section 3.9 for additional information. The annual biological survey update occurred in June of 2021.

Wetland Delineation – A wetland delineation was completed in 2021. The delineation report describes the aquatic resources on the WCRTA and can be used in conjunction with training exercise planning to avoid impacts to potential environmentally sensitive areas.

1.8 NEPA COMPLIANCE

The development of this INRMP is considered a major Federal action and therefore is subject to the NEPA process. An EA was completed as part of the 2006 INRMP. The NEPA process has been fully integrated into the development of management plans. The environmental effects of all management actions, concepts, and activities were considered during the development of this INRMP. As a result, changes were made, concepts altered and/or rejected, and mitigation measures incorporated into the plans before finalization, with the purpose of avoiding or minimizing the negative environmental or ecological effects from the proposed management actions. For this update of the INRMP, a Record of Environmental Consideration is sufficient to comply with the requirements of NEPA, and a copy can be found in Appendix B. The USFWS and SDGFP were consulted, and their comments were incorporated into the INRMP.

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2.0 INSTALLATION AND MILITARY MISSION

2.1 ATA

2.1.1 Location and Acreage

The ATA consists of approximately 384 acres, located 6 miles south of Elk Point, South Dakota and 3 miles north of Ponca, Nebraska (see ***Figure 2-1***). The property is located in portions of Sections 19 and 20, Township 90 North, Range 49 West, and a portion of Section 25, Township 90 North, Range 50 West, Ponca Quadrangle (Nebraska – South Dakota) 7.5-minute series topographic map, latitude 42º 35' 14" and longitude 96º 41' 13". The ATA borders the northwest bank of the Missouri River.

2.1.2 Installation Acquisition

The training area is located on federal land that is owned and administered by the USACE and licensed for use to the SDARNG. The USACE purchased the property in 1987 at the request of the SDARNG for the purpose of realistic field training exercises (South Dakota Department of the Military and Veterans Affairs letter titled "Request to Acquire Real Estate," dated 15 March 1985).

An EA was completed prior to the acquisition of the property (dated March 1983) and concluded that Army National Guard tactical field exercises would have no significant impact on the property. The property is utilized for training purposes by the SDARNG, Nebraska Army National Guard, North Dakota Army National Guard, United States Army, and United States Army Reserve for battalion, or smaller, sized unit training. Training includes waterway bridging/boating, field training exercises (e.g., land navigation and squad-size training activities), and aviation support. However, limited training was conducted in 2012–2015 because of significant flooding along the Missouri River in 2011. A usage license for the ATA has been granted to the SDARNG by the USACE Management and Disposal Branch, Real Estate Division, and the SDARNG has held title on the ATA since the 1987 purchase. The license titled, Department of the Army, License for National Guard Purposes, (No. DACA45-3-87-6160), dated August 1987, grants the SDARNG indefinite use of the property. The license also states that the property may be used at any time by the Department of the Army for such purposes as are deemed appropriate.

The SDARNG 211th Engineering Company (Madison, DeSmet), 730th Area Support Medial Company (Vermillion), and 196th Regional Training Institute Modular Training (Sioux Falls), as well as the Reserve Officer Training Corp (ROTC) and South Dakota State University (SDSU) utilize the property for military training. No buildings, housing, training facilities, or range facilities currently exist on ATA. Existing bank erosion control structures along the Missouri River were constructed by, and are maintained by, the USACE.

2.1.3 Surrounding Land Use

Surrounding land use consists of residential, farming, recreation, open space, and river-abased activities. The City of Elk Point is located approximately 6 miles directly north of the ATA, and the City of Jefferson is located approximately 6 miles southeast of the ATA site location. Elk Point is a small municipality with

a population of 1,940 (City-Data.com 2020) with residential, commercial, agriculture, industrial, and business use. Jefferson is a small municipality with a population of 535 (City-Data.com 2020) with business, agriculture, and industrial land use. Access to the ATA is via Interstate 29 (I-29) Exits 18, 15, or 9. Direct access to the ATA from these I-29 Exits is west on 330th Street from Exit 9, or south on 477th Avenue from Exits 15 or 18. The property access road is at the intersection of 330th Street and 477th Avenue.

The USACE Omaha District leases approximately 31 acres for private agriculture hay production and 353 acres for bison grazing. Bison on the property are free roaming; however, the current lease limits grazing to 300 animal unit months for the 5-month grazing season. Hay and grazing activities are overseen by the SDARNG. In 2021, the grazing window was revised from a five-month to a three-month timeframe for 2022, extending from January 1 to March 31. The current hay production lease extends from May 20, 2021 to February 28, 2022 and requires one haying prior to August 15th. Current training activities at the ATA are conducted year-round, and no known difficulties between bison grazing and training activities have been identified.

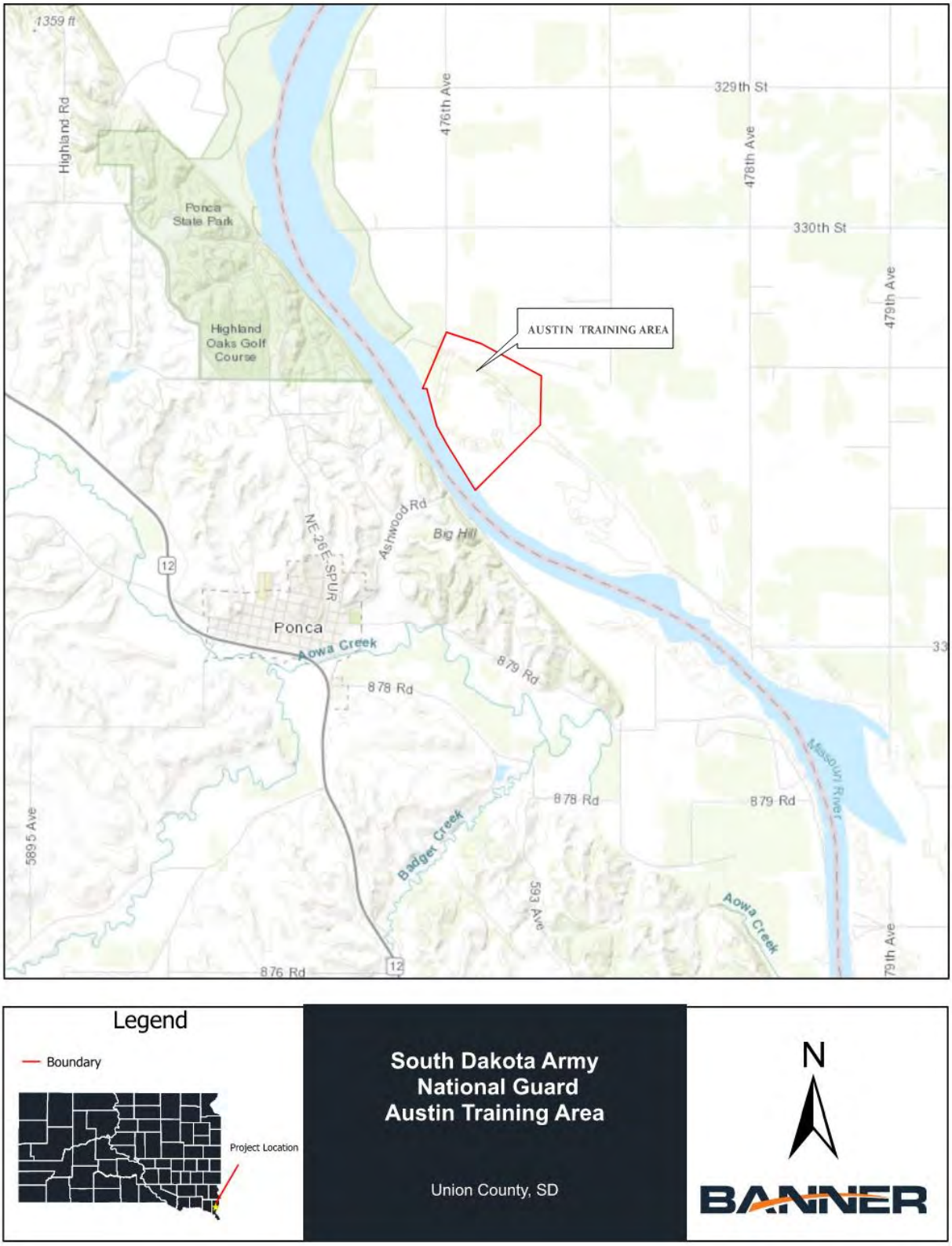

Figure 2-1. Austin Training Area Location Map

2.2 WCRTA

2.2.1 Location and Acreage

The WCRTA, an approximately 760-acre tract, is located west of Rapid City in Pennington County, South Dakota (see ***Figure 2-2***).

2.2.2 Installation Acquisition

In 1950, the Secretary of the Interior authorized 673 acres of the Indian Health Service property located in the Black Hills region of South Dakota to be transferred to the South Dakota National Guard (SDNG) for its use and benefit; this area was referred to as West Camp Rapid. This transfer was made with the understanding that the land would revert to the Department of the Interior if it were no longer used for military training. The SDARNG established Camp Rapid as its National Guard Headquarters in 1932. Camp Rapid is located about 2 miles east of West Camp Rapid.

The SDARNG deeded about 90 acres of WCRTA to the Rapid City School District No.1 for the construction of a high school in 1962. The NGB designated about 22 acres for use as a National Guard Armory in 1963. This area is referred to as the Range Road Armory. Subsequent additions of about 200 acres to the northwestern portion of the property bring it to its present size of 760 acres of forest-covered rolling hills used by the SDARNG for training activities.

2.2.3 Surrounding Land Use

West Camp Rapid bounds the western edge of Rapid City, South Dakota, a community with a population estimate in 2018 of 75,448 (U.S. Census 2018). Residential neighborhoods lie to the north and east of the property. Stevens High School, which enrolls approximately 1,500 students is located directly across 44th Street to the east. Open areas of vegetated hills and ravines lie to the west and south of the property. The WCRTA property is shown in ***Figure 2-2***.

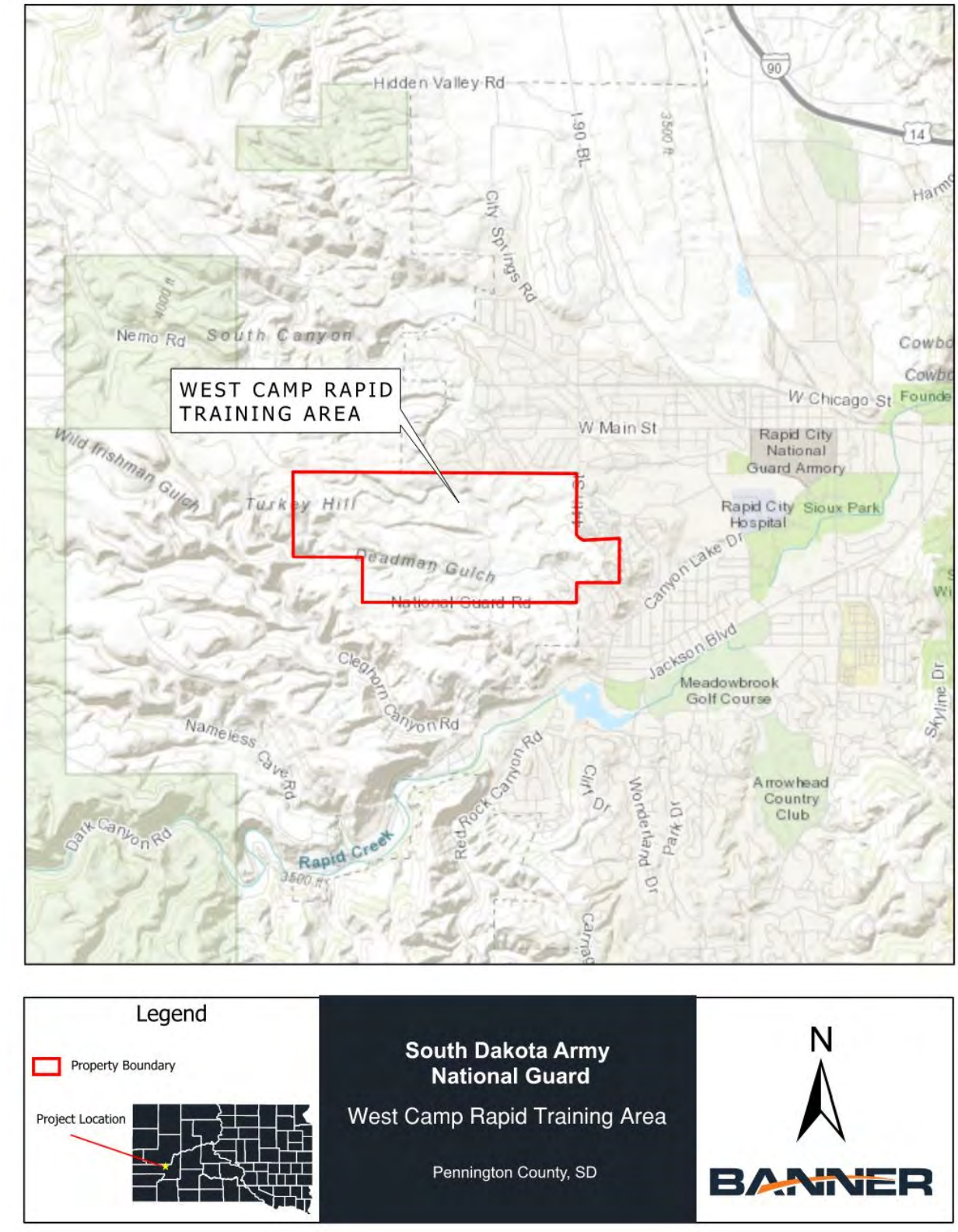

Figure 2-2. West Camp Rapid Training Area Location Map

2.3 SDARNG MILITARY MISSION

2.3.1 Overview

The National Guard is the only military component that holds a dual mission that consists of both federal and state roles. The following sections review these responsibilities separately, including SDARNG's community mission and major commands.

2.3.2 Federal Military Mission

The Federal mission is to maintain trained and equipped units available for prompt mobilization for war or a national emergency. Dating back to 1862, the SDARNG has a proud heritage of serving as the state's militia. Since that time, guard units have served in nearly every major war or conflict since the Civil War (SDARNG 2014).

The SDARNG is trained and equipped to:

- Defend critical areas of the country against any form of invasion, including land, sea, or air.
- Assist with the mobilization of all other reserve forces.
- Participate by unit in all types of operations, including domestic or foreign offensive or defensive missions.

The ARNG operations can fall into one or more of the following five categories:

1) Maintain civil peace and order—units can be deployed to break up a riot or to assist with maintaining crowd control at a local event.
2) Contain threat—at a state, national, or international level.
3) Actively participate in war.
4) Protect public utilities and Missouri River dams during times of terrorist threat.
5) Assist in times of natural disaster—perform rescue and relief missions during tornadoes, flooding, or snowstorms.

2.3.3 SDARNG State Military Mission

At the state level, the governor reserves the ability, under the Constitution, to call up members of the National Guard during times of natural disaster or domestic emergencies. This gives the governor the broad authority to use National Guard assets to support civil authorities in domestic requirements from protecting lives and property to maintaining peace during civil disturbances. Throughout the years, natural disasters have called for the Guard's spirit of teamwork and sacrifice to battle floods, fires, blizzards, and tornado destruction, including the Rapid City Flood of 1972, 1998 Spencer Tornado, 2011 Missouri River Flood, October 2013 Storm Atlas in western South Dakota, and 2014 Wessington Springs Tornado (SDARNG 2014).

2.3.4 SDARNG Community Mission

Local armories provide meeting space, recreational opportunities, and support services to communities throughout the state. SDARNG personnel are part-time soldiers and full-time citizens of the communities they serve. From hosting local blood drives and basketball leagues to providing a gathering place for community groups and functions, the SDARNG is an integral part of many local communities and their day-to-day operations.

The Community Projects Program provides hands-on readiness training opportunities while providing a direct benefit to communities such as performing approved engineering projects and construction projects. During Golden Coyote annual training exercises, several Native American communities located within the state receive firewood or specific construction project assistance.

2.3.5 SDARNG Major Commands

The SDARNG is located in 21 communities comprised of 42 Army Guards and 17 Air Guard units. These units provide a variety of missions that include command and control, engineering, field artillery, transportation, logistics, communications, maintenance, aviation, public affairs, military police, firefighting, personnel support services, and medical (SDARNG 2020).

In 2016, the SDARNG won a National Guard Bureau (NGB) Excellence in Diversity Award for fiscal year 2016. The NGB Excellence in Diversity Awards are presented to outstanding National Guard individuals, organizations, states, and territories for significant contributions to diversity and inclusion initiatives. In 2017, SDARNG was the overall winner in the 2017 Army Communities of Excellence Awards. The awards recognize top performance within the U.S. Army, National Guard and Reserve installations/communities and their approach to systems management. Also, in 2017 the 114th Fighter Wing unit was awarded the Distinguished Flying Unit Plaque and Air Force Outstanding Unit Award, for the third consecutive year. In addition, the 155th Engineer Company received the Society of American Military Engineers Itschner Award as the best ARNG engineer company in the nation for outstanding military and engineering service. They also were awarded the Reserve Family Readiness Award, the fourth time in five years a SD unit has received this award (SDARNG 2017).

The SDARNG received numerous awards in 2019, distinguishing itself as one of the top National Guard organizations in the nation. The 114th Fighter Wing was awarded the Meritorious Unit Award along with the Winston P. Wilson Trophy. Other achievements included the 139th Brigade Support Battalion award of the Maj. Gen. Milton A. Reckord Trophy and the Gen. Walter T. Kerwin, Jr. Award for the most outstanding ANG battalion in the nation for achieving the highest standards in training and readiness. The 153rd Forward Support Company received the General John J. Pershing Plaque and the 730th Area Support Medical Company received the Certificate of Victory, both for excellence in weapons marksmanship. The SDARNG also won national awards for recruiting excellence, purchasing and contracting, environmental initiatives, facilities management, and family readiness (SDARNG 2019b).

The SDARNG is divided into task forces to aid communities throughout the state in the event of an emergency. Units (separated by geographical regions) are assigned to each task force to provide personnel and equipment for response to natural disasters, severe fires, search-and rescue operations, civil disturbances, and homeland defenses. The task forces are briefly described below (SDARNG 2020):

SDARNG Joint Forces Headquarters (JFHQ)

Located in Rapid City, SDARNG Joint Forces Headquarters is one of four major commands in the SDARNG and is a critical element for all 412 units across the state, providing command and control of essential services in administration, intelligence, training, logistics, maintenance, communications, soldier and family services, and other support functions. It supports nearly 3,200 members, providing trained and equipped, ready forces capable of mobilizing and deploying in support of federal and state missions as well as missions authorized by the governor and/or the National Command Authority.

109th Regional Support Group

The Regional Support Group (RSG) provides command and control, and supervision for 23 units with approximately 900 soldiers in 9 communities. The Regional Support Group provides mission command for non-major combat operations and assists units meeting training, readiness, and development requirements. It includes the following:

Medical Command- Plans, programs and provides health force protection and medical/dental support.

Training Site Command- Manages and administers the use of resources, provides administrative training and logistical support to assigned, attached, or tenant units.

82nd Civil Support Team- Certified as hazardous material technicians to provide hazard response to natural or man-made disasters (Ellsworth Air Force Base).

881st Troop Command- Command and control and supervision for 13 distinct units and detachments in western South Dakota, composed of mostly aviation units, including:

- Company C, 1/189th Aviation Regiment
- Detachment 2 Headquarters and Headquarters Company 1/189th Aviation
- Detachment 2 Company D 1/189th Aviation
- Detachment 2 Company E 1/189th Aviation
- Company D 1/112th Aviation Regiment—aero medical evacuation support
- Detachment 1 Company B 1/112th Aviation
- Detachment 3 A Company 641st Aviation
- Detachment 48 Operational Support Airlift Command
- Detachment 1, Company B, 935th Aviation Support Battalion
- 129th Mobile Public Affairs Detachment—public affairs support to units
- 216th Engineering Detachment—command and control over firefighting teams
- 451st Engineering Detachment—firefighting services and support
- 1978th Acquisition

152nd Combat Sustainment Support Battalion- Provides mission command for combat operations and assists unit in meeting training, readiness, and deployment requirements. Pierre is the headquarters for the following units:

- 740th Transportation Company (Milbank, Aberdeen)
- 1742nd Transportation Company (Sioux Falls, Flandreau)

- 147th Army Band (Mitchell)
- 730th Area Support Medical Company (Vermillion)

196th Regional Training Institute (RTI)

The 19th Regiment (RTI) provides a model environment for training future leaders for the ARNG and provides general instruction on a variety of military courses. The regiment includes two subordinate battalions:

- 1st Battalion, 196th Regiment (Officer Candidate School)
- 2nd Battalion, 196th Regiment (Modular Training)

196th Maneuver Enhancement Brigade (MEB)

The 196th Maneuver Enhancement Brigade enables, enhances, and protects operational and tactical freedom of action for a supported maneuver force and includes the following battalions:

139th Brigade Support Battalion (Brookings)

- Company A 139th Support Battalion (Watertown)
- Company B 139th Support Battalion (Mitchell)
- 235th Military Police Company (Sioux Falls, Rapid City)
- 115th Signal Company (Brookings)—24-hour operational command control and communications

1st Battalion, 147th Field Artillery——command and control for two multiple launch rocket system batteries

- Battery A 1st Battalion, 147th Field Artillery—rocket and missile firing support
- Battery B 1st Battalion, 147th Field Artillery (Yankton)—long-range missile firing support
- 147th Forward Support Company (Watertown)—multifunctional organization

153rd Engineer Battalion (Huron) **-** mission command and supervision for the following units:

- Forward Support Company, 153rd Engineer Battalion (Parkston, Huron)
- 155th Engineering Company (Rapid City, Wagner)—vertical engineering company
- 200th Engineering Company (Pierre, Chamberlain, Mobridge)—multi-role bridge company
- 211th Engineering Company (Sapper)—mobility and survivability tasks (DeSmet, Madison)
- 842nd Engineer Company (Spearfish, Belle Fourche, and Sturgis)— horizontal construction unit
- 927th Engineer Detachment (Survey and Design Team)—planning studies and testing (Huron) (SDARNG 2014b)

2.3.6 Golden Coyote Training Exercise

Golden Coyote is one of the nation's top training opportunities for the National Guard. Reserve and active duty forces, as well as military personnel from allied countries participate in this two-week exercise in support of overseas contingency operations and homeland defense missions. 3,000 military personnel from all of the military services, numerous states' military organizations, and foreign nations who work together to create an invaluable training experience for future overseas deployment (SDARNG 2019a). This exercise offers military units the opportunity to conduct combat support missions in a realistic training environment and offers valuable services to local communities.

2.3.7 Military Mission

2.3.7.1 ATA

The overall mission of the ATA is to provide year-round training facilities and maneuver areas for the SDARNG and other Army agencies. The purpose of this INRMP is to evaluate the potential effects of training and operations at the ATA and the effects that training will have on the natural resources identified on the ATA. The primary units that train on the ATA are the 730th medical command units, 211th Engineering Company, 196th RTI Modular Training, and ROTC.

2.3.7.2 WCRTA

The overall mission of the WCRTA is to provide year-round training facilities and maneuver areas for the SDARNG and other Army agencies to support the Integrated Training Strategy. The purpose of this INRMP is to evaluate, under the provisions of NEPA, the potential effects of training and operations at the WCRTA and the effects that training will have on the natural resources.

The WCRTA is utilized for training by nearly all SDARNG units stationed in western South Dakota. Training activities conducted at WCRTA included the use of the three small arms ranges, one grenade launcher range, two rotary wing landing pads, one training and maneuvering area, and one obstacle course. SDARNG troops also used the WCRTA for bivouac, land navigation, and night-driving activities (in designated areas only). WCRTA was also used during Golden Coyote Annual Training exercises. Other users of WCRTA include South Dakota Air National Guard, out of state Army National Guard (ARNG) Units, Reserve Officer Training Corps (ROTC), Junior ROTC, the Rapid City Police Department, South Dakota Highway Patrol, State Department of Criminal Investigation, and the U.S. Marshals.

2.3.8 Natural Resources Needed to Support the ATA and WCRTA Military Mission

Soldiers require a training environment that is similar to what they might expect in combat. To accomplish that, the training environment must be maintained in as natural a condition as possible.

The SDARNG recognizes that on-going and proposed training activities could potentially degrade natural resources on mission land, and that successful execution of its mission depends on the optimum maintenance of the environment in a mode of sustainable use. The SDARNG recognizes its responsibility to guarantee continued access to its land, air, and water resources for realistic military training, while ensuring that the natural and cultural resources entrusted to its care are sustained in a healthy condition

for scientific research, education, and other compatible uses by future generations. Based on current GIS data, approximately 100 percent of land area is available for training at WCRTA.

2.3.9 Effects of Natural Resource Management on the ATA and WCRTA Military Mission

The SAIA requires that INRMPs provide for "…no net loss in the capability of military installation lands to support the military mission of the installation" (16 USC §670 et seq.). Primary impacts result from restrictions and conditions placed on areas of environmental concern, including wetlands, and endangered species locations. The primary issues potentially creating incompatibilities between natural resources conservation and the military mission are the protection of the federally listed species under the Endangered Species Act, migratory birds, and bald and golden eagles. Training may also be adjusted periodically to allow for natural resources management activities. Forest management and other wildlife management programs provide a greater degree of diversity to the training environment.

2.3.10 Effects of the Military Mission on Natural Resources

2.3.10.1 ATA

According to the SDARNG, there are no current designations of areas at the ATA that are off limits to training. Poaching and other illegal activities that potentially affect wildlife resources are diminished because of the military presence. Development is minimized by the military requirement for undeveloped lands. The most positive benefit of the military mission on ATA natural resources is the commitment to natural resources management. ***Table 2-3a*** describes the land area designations on the ATA.

Table 2-3a. Designation of Land Areas at the ATA

Activity Designation	Area (Acres)	Cover Type	Military Use	General Impacts
Light maneuver, training areas/bison grazing	353	Riparian forest	Dismounted training or bivouac	Moderate to heavy use/dismounted training/bison grazing/moderate to heavy effects
Agricultural	31	Agricultural fields	Dismounted navigation training	Light use/minimal effects
TOTAL	384			

2.3.10.2 WCRTA

Based on current GIS approximately 769 acres are available for training at the WCRTA. An Operational Range Assessment (Phase I Qualitative Assessment Report) determined that several ranges overlap and thus, the sum of range areas is greater than the total installation area. No portion of the installation is identified as other than operational area. The assessment determined through review of readily available information there are no known releases or source-reception interactions off-range that could present an unacceptable risk to human health or the environment. WCRTA will be reassessed every 5 years (Malcom Pirnie 2008). ***Table 2-3b*** describes the land area designations on the WCRTA.

Table 2-3b. Designation of Land Areas at the WCRTA

Activity Designation	Area (Acres)	Cover Type	Military Use	General Impacts
Maneuver Training	593	Pine steppe, mixed prairie, gypsum prairie, wetland	Bivouac sites, infantry defensive positions, squad emplacements, land navigation courses, chemical warfare, decontamination training, first aid, survivability training	Erosion, vegetation management, compaction, wetland management
Engineering Training	45	Deciduous drainage, mixed prairie bank erosion, vegetation management, erosion		Two existing bridging sites, culverts, minefields, rigging, engineering tasks
Facility Training	131	Disturbed areas	Rotary-wing aircraft landing zone, automated rifle range, pistol range, M203 grenade launcher familiarization range, sub caliber light antitank weapons instruction range, driver lanes training	Disturbed areas, vegetation management, erosion, unexploded ordnance
TOTAL	769			

The 2014 Master Plan (42nd Street Design Studio et al. 2014) established a long-range vision and provided guidance to assist SDARNG in current and future training site development. The master planning process included inventory, analysis, program development, and master plan development. Analyses and recommendations from the master plan are incorporated within the applicable sections of the INRMP.

The 2014 Master Plan noted that WCRTA has three major gulches west to east on the property. The gulches are narrow and steep-sided ravines making the course of a stream or drainage way. The gulch walls have areas of exposed sandstone and limestone. Care should be exhibited when in the proximity of gulch walls and no training activities or property development should take place within 75-feet of gulch walls.

WCTRA makes up a portion of a western hills viewshed (an area that is visible by the human eye from a fixed vantage point) from and in Rapid City. Development or training activities in these areas should be limited and reviewed during planning to determine if the vantage point will be disturbed (42nd Street Design Studio et al. 2014).

2.3.11 Facilities and Training Assets

2.3.11.1 ATA

An MOU exists between the SDARNG and the USACE allowing indefinite use of the property by the SDARNG. Existing bank erosion control structures along the Missouri River were constructed by, and are

maintained by, the USACE. The ATA was originally established for bridge training and is also used for bivouac, land navigation, and other squad-size training activities. Access to the location is via I-29 Exits 9, 15, or 18. Direct access to the ATA from these I-29 Exits is west on 330th Street from Exit 9, or south on 477th Avenue from Exits 18 or 15.

2.3.11.2 WCRTA

WCRTA is the main training land asset for the SDARNG and consists of a 769-acre training area west of Rapid City. Additionally, Camp Rapid is a SDARNG training facility consisting of 84 acres located inside the city limits of Rapid City. These are the only deeded (state owned) training areas for the SDARNG. The remaining training areas are short-term leases for properties located throughout the state.

The following WCRTA facilities and areas are identified on ***Figure 2-3b***:

- M203 Familiarization Range
- Combat Pistol Training Range
- Confidence Course
- Leadership Reaction Course
- 10/25M Qualification Range
- Enemy Prisoner of War Training Area
- Bivouac Training Areas
- Military Operations in Urban Terrain Training (MOUT) Facility
- Landmine Training Area

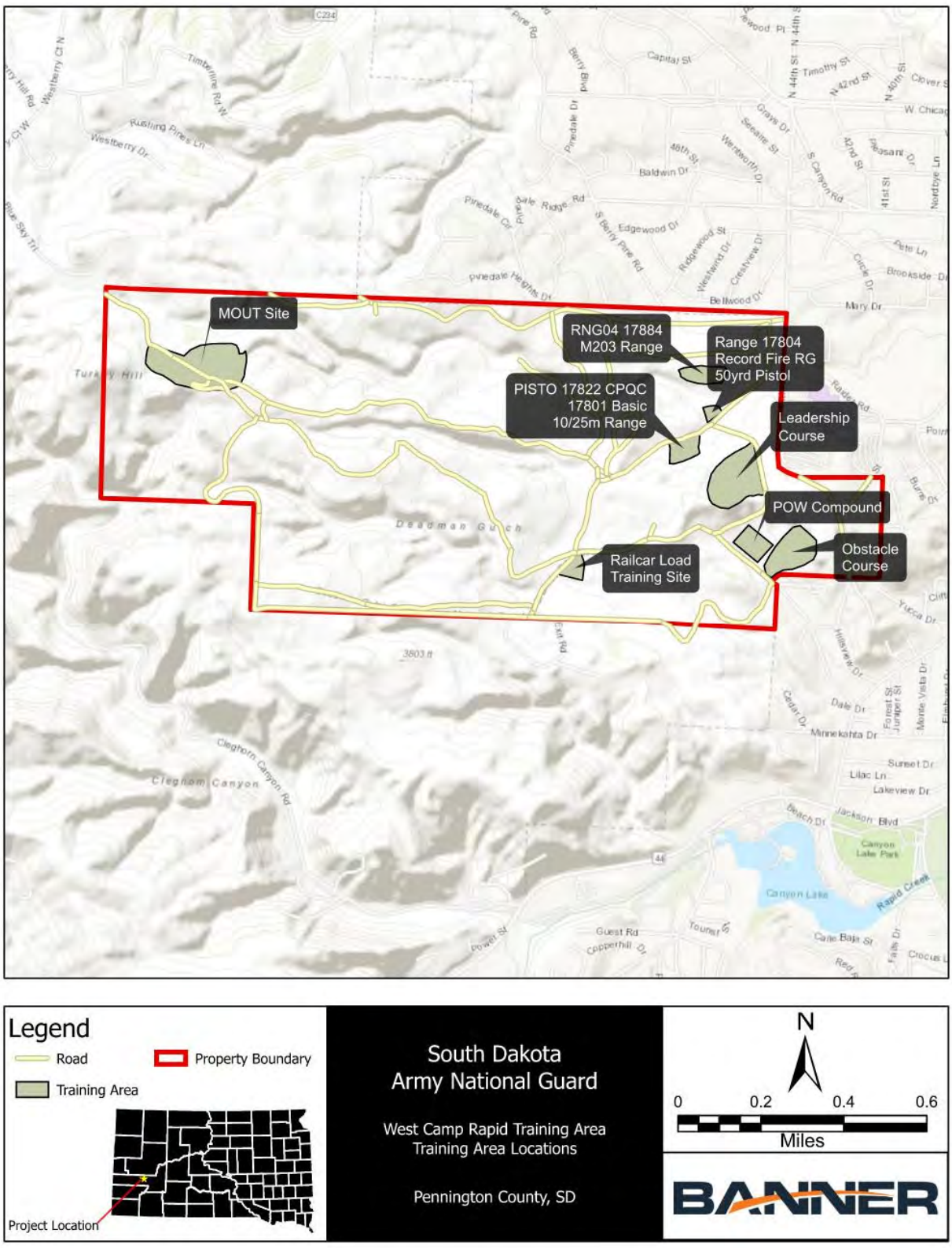

Figure 2-3b. Location of Training Areas on the WCRTA

2.3.12 Natural Resources Law Enforcement

2.3.12.1 ATA

Natural resources law enforcement for ATA is performed by Union County Sheriff's Office and SDGFP Conservation Officers as needed. Violations can include, but are not limited to, trespassing and game violation. No fishing, hunting, or recreational activities are allowed within the ATA.

2.3.12.2 WCRTA

Law enforcement at the WCRTA is performed by the Pennington County Sheriff's Department and state conservation officers (SDGFP), as needed. Violations can include, but are not restricted to, trespassing and game violations. No hunting, fishing, or public recreation is allowed at WCTRA.

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3.0 NATURAL RESOURCES AND CLIMATE

3.1 SETTING AND TOPOGRAPHY

3.1.1 ATA

The ATA is located 6 miles south of Elk Point, South Dakota (see Figure 2-1), and 3 miles north of Ponca, Nebraska. The ATA borders the northwest bank of the Missouri River. A trail follows the perimeter of the training area for approximately 2.7 miles. The ATA lies within the Missouri River Trench physiographic subdivision of the Central Lowlands Province in Union County (Malo 1997), southeastern South Dakota. The ATA is characterized by low, flat depositional terrain, consisting of two floodplain terraces. Elevations for the ATA vary from the level of the Missouri River, approximately 1,105 feet to 1,125 feet above sea level. The majority of the west, east, and central portions of the property are 1 to 5 feet above the river surface, with the flat area averaging 2 feet above the water level. Topography slopes to the north and northeast. There is also a remnant island structure showing the highest elevation on the property forming the southern point of the ATA (AMEC 2008a). See ***Figure 3-1a***.

Slopes at the ATA range from 0 percent to 20 percent; the majority of the property is relatively flat, with small areas of higher slope in the southern tip and along the northern rise. The overall site shows an average slope of approximately 0.8 percent with the ground falling in a southwesterly direction. In areas with high slopes, activity may need to be limited or monitored to avoid soil erosion. (AMEC 2008a).

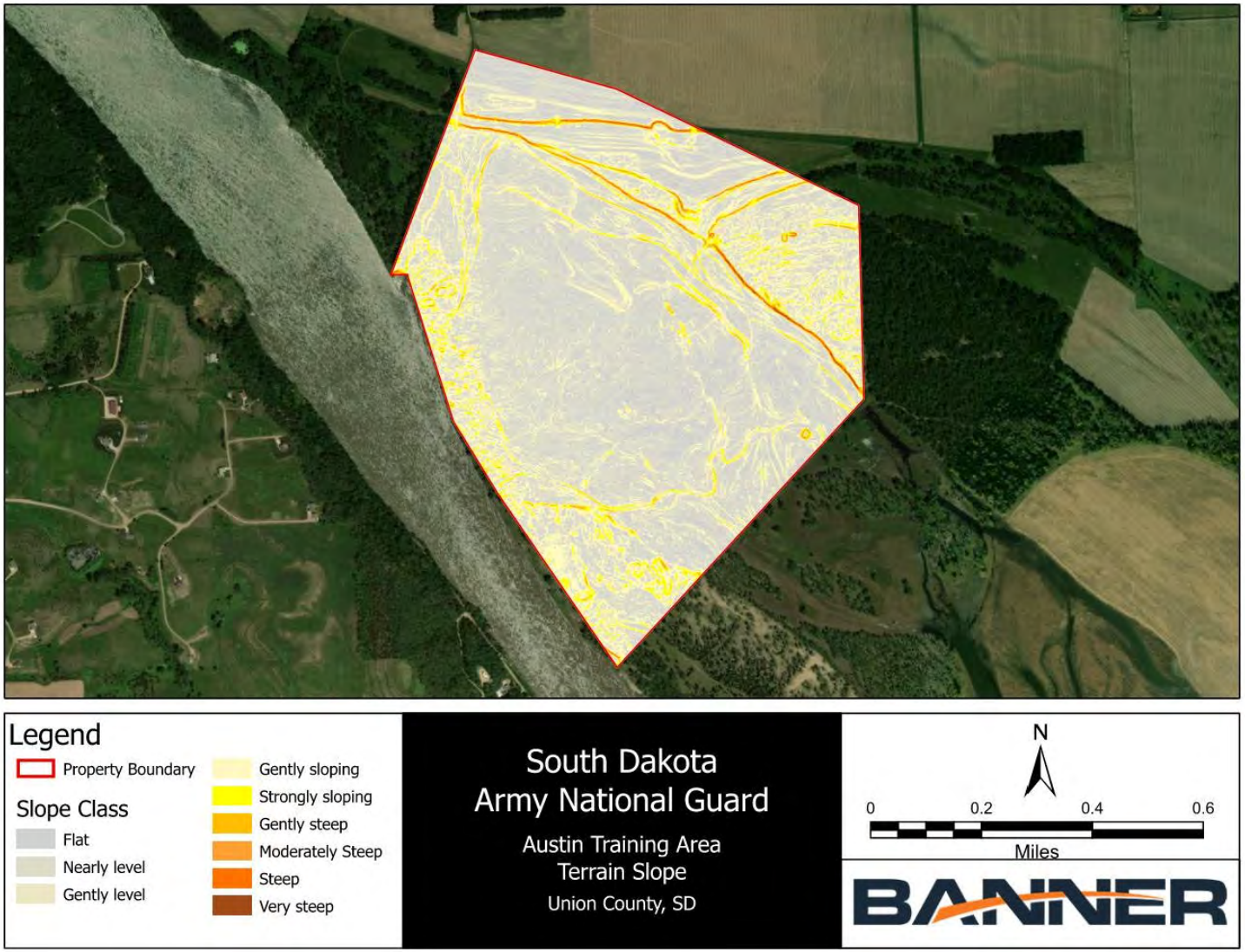

Figure 3-1a. Austin Training Area Topography Map

3.1.2 WCRTA

WCRTA is located in western South Dakota on the southwest side of Rapid City in Pennington County. It includes varying terrain ranging from rolling hills, gulches, and draws, to open meadows. Regional topography is dominated by the Black Hills, which rise west of the site to elevations over 7,000 feet above sea level (ASL). The landscape east of the site is characterized as Great Plains physiographic province, with elevations around 3,000 feet ASL. Elevations at WCTRA increase from approximately 3,420 feet ASL on the east to 4,020 feet ASL on the west. Topography is steeper on the western half of the site than on the eastern half. Landscape morphology of WCRTA is erosional in nature. Three intermittent creeks originate on the west side of WCTRA and cut east-southeast across the site, dissecting the sloping landscape into a series of ridges and gulches.

Slopes at WCRTA range from 0 percent to 48 percent with the flatter regions to the south and east, and areas of higher slope occurring to the west and within the intermittent creek beds. The overall site shows an average slope of approximately 10 percent with the ground falling in an easterly direction. ***Figure 3-1b*** shows areas with high slopes where activity is limited or monitored to avoid soil erosion.

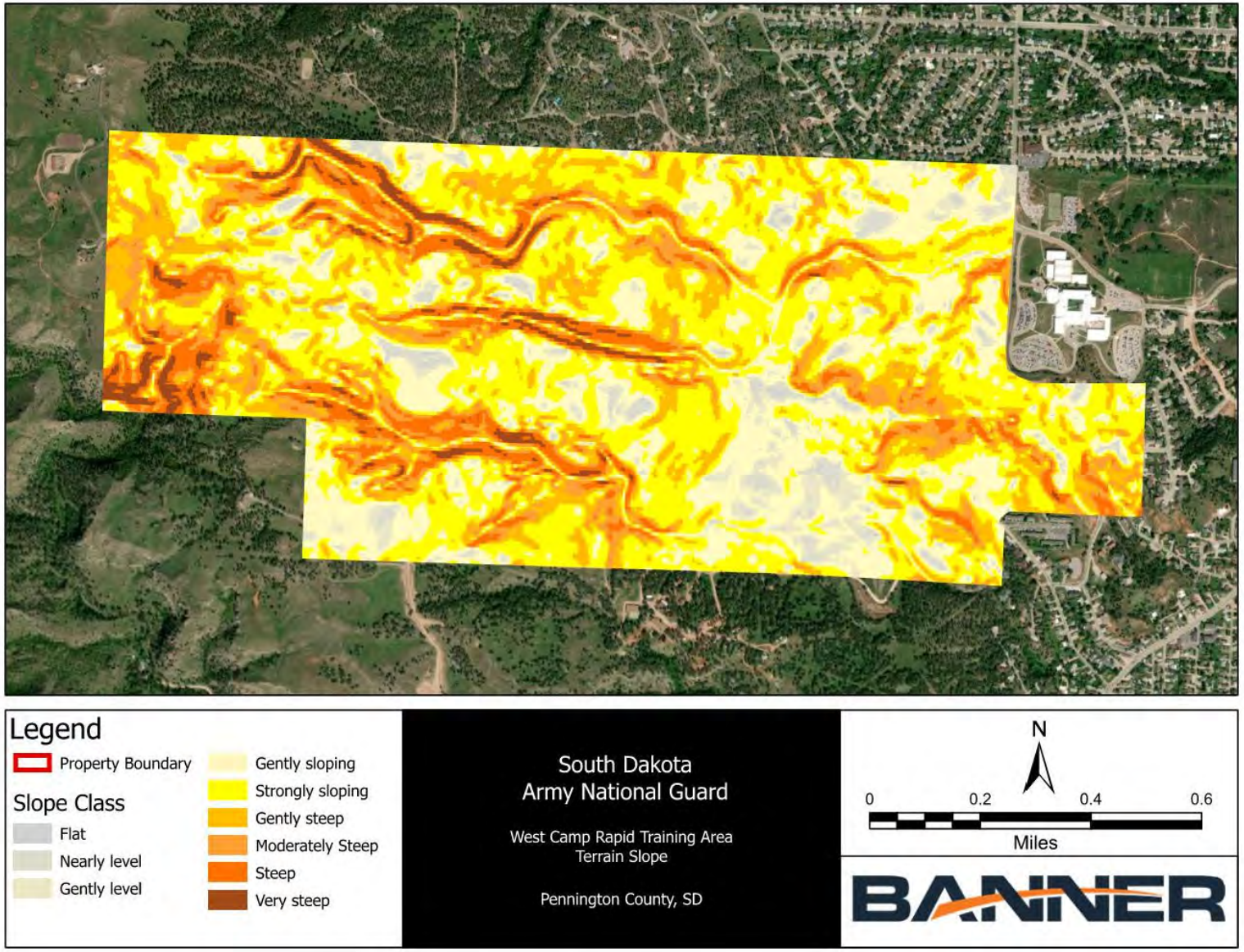

Figure 3-1b. West Camp Rapid Training Area Topography Map

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3.2 CLIMATE

3.2.1 ATA

Union County has a semi-temperate, humid climate characterized by mild summers and mild to moderately cold winters. The average annual temperature is 47.1 degrees Fahrenheit (°F). July tends to be the hottest month, with an average mean maximum temperature of 86.8 °F. January is the coldest month, with the average mean minimum temperature of 7 °F. Freezing temperatures are common during the winter months. The first frost usually occurs in late October, and snow is normal for the early months of the year. The annual precipitation average is 26.5 inches and is fairly well distributed (NOAA 2020).

Rains usually occur during April, May, and June. Winds in the area are seldom strong and there is no persistent wind direction. Light breezes or calm prevails; although during passages of cyclonic disturbances, destructive local windstorms develop, some into tornadoes with winds of 100 miles per hour or more.

3.2.2 WCRTA

The climate of the Black Hills region is semi-arid continental, with generally low precipitation and wide variations in daily and seasonal temperature (Driscoll et al. 2002). Orthographic effects of the Black Hills strongly control local climate patterns, with cooler temperatures and greater precipitation occurring at higher elevations of the Black Hills than on the Great Plains (42nd Street Design Studio et al. 2014). The average annual temperature for Pennington County is 45.2 °F. January is the coldest month, with the average mean minimum temperature of 9 °F. The hottest month tends to be July, with the average mean maximum temperature of 85.7 °F. The average annual precipitation for Pennington County is 18.03 inches (NOAA 2020). High winds and local thunderstorms are frequent on WRCTA, with winds usually more severe in the plains area.

3.3 AIR QUALITY FOR THE ATA AND WCRTA

The USEPA is the overall regulatory agency for air quality throughout the U.S. The primary regulatory authority for air quality in South Dakota is the Department of Environment and Natural Resources (SDDANR) Air Quality Program. The ambient air quality in an area can be characterized in terms of whether it complies with the primary and secondary National Ambient Air Quality Standards (NAAQS). The Clean Air Act Amendments of 1990 requires the USEPA to set NAAQS for pollutants considered harmful to public health and the environment.

Areas are designated as “attainment,” “nonattainment,” “maintenance,” or “unclassified” with respect to meeting the established NAAQS for identified pollutants. Regions that are in compliance with the standards are designated as attainment areas. Areas that do not meet the NAAQS for a pollutant are designated a nonattainment area for that pollutant. South Dakota does not currently have any nonattainment areas (USEPA 2020).

3.3.1 ATA

The ATA is located in Union County and is in full attainment of both the National Ambient Air Quality Standards (NAAQS) and the South Dakota Ambient Air Quality standards for all criteria pollutants (SDDANR 2020a).

3.3.2 WCRTA

The SDDANR issued a general air quality permit (#28.9901-02G) to SDARNG effective from May 13, 2019 to May 13, 2024, which covers a state facility conducting continuous operation activity within the Rapid City Air Quality Zone. The permit establishes air pollution limits for visibility and reasonably available control technology for vehicle/equipment tracking, paved and unpaved roads and parking lots, and material handling and open storage piles. A copy is on file with the SDARNG Environmental Office.

The City of Rapid City has an Air Quality Division that monitors and maintains compliance status with the USEPA NAAQS. The Rapid City area is in the high plains region and is subject to periods of droughts and high winds. These are the main ingredients for fugitive dust problems. Fugitive dust is identified as dust from mining activity, gravel roads, construction activities, street sanding operations, and wind erosion. Fugitive dust is the main air quality problem in the Rapid City area. A Natural Events Action Plan for high winds was developed for Rapid City to control fugitive dust emissions (City of Rapid City 2005). Extended periods of high wind in the area may require that best available control measures be implemented to control dust on the WCRTA.

3.4 SOILS AND GEOLOGY

3.4.1 ATA

The ATA is underlain by the Dakota Formation (Munter et al. 1983). The Dakota Formation consists of the two members; the Nishnabotna Member, composed of coarse to medium sandstones interbedded with massive gray to light gray mudstones, and the Woodbury Member, composed of shales and siltstones, with minor sandstones and coal seams (Witzke and Ludvigson 1994).

The ATA is located on the Quaternary Alluvium plains, a 2,000 square mile alluvium bed following the Missouri River in southeastern South Dakota. The alluvium field is described as clay to boulder-sized clasts with locally abundant organic material with a thickness up to 75 feet (Martin et al. 2004).

No minerals are presently mined on the ATA, and no petroleum deposits are known.

Soils of the ATA are highly variable as a result of topography and drainage, parent material, and vegetation. The Soil Survey of Union County, South Dakota, identifies eight soil map units within the boundaries of the ATA. The major soil associations on the ATA are the Norway Loamy Sand (Fb; 64 percent of surface area), and the Sardak Loamy Fine Sand (ScB; 19 percent of surface area).

The stratified loamy fine sand to silt loam of the Norway Loamy Sand comprises the majority of the floodplain valley while the fine sand, loamy fine sand, and sand of the Sardak association forms the majority of the hillier portions of the property, with the other associations forming the remainder of the hills. Four of the soil associations found on the ATA are classified as prime farmland by the USDA.

Combined they form 13 percent of the property, all found in the northern line of hills. Descriptions of soil units located on the ATA are summarized in ***Table 3-4a*** and shown on ***Figure 3-4a***.

Hydrologic soil group classifications refer to soils that are grouped according to their runoff producing characteristics. The primary consideration is the inherent capacity of bare soil to permit water infiltration. Group A soils have a high infiltration rate when thoroughly wet and a low runoff potential. Such soils are mainly deep, well drained, and sandy or gravelly. Group B soils have a moderate rate of infiltration and runoff. Soils in Group C are borderline. Group D soils have a very slow rate of infiltration; therefore, the associated runoff potential is high (USDA 1991).

Soil erodibility potential is represented in ***Table 3-4a*** by erosion factors Kw and T. Erosion factor Kw indicates the susceptibility of a whole soil to sheet and rill erosion by water. In general, the higher the number (0.02 to 0.69) the more susceptible the soil is to sheet and rill erosion. Erosion factor T is an estimate of the maximum average annual rate (tons per acre per year) of soil erosion by wind and water that can occur without affecting crop productivity over a sustained period. Soil erosion concerns on the ATA are minimal (AMEC 2008a).

Table 3-4a. Soil Types in the Austin Training Area

SOIL MAP UNIT (ACRES)	Map Unit Symbol	SLOPE (%)	Kw-FACTOR	T-FACTOR	USDA TEXTURE	HYDROLOGIC SOIL GROUP	HIGHLY ERODIBLE SOIL	PRIME FARMLAND	HYDRIC CLASSIFICATION
Norway loamy sand (261 acres)	Fb	0-2	0.17	5	Stratified loamy fine sand to silt loam	B/D	Slight	No	Yes
Grable silt loam (8 acres)	Ga	0-2	0.32	4	Silt loam, very fine sandy loam	B	Moderate	Yes	Yes
Haynie silt loam (22 acres)	Ha	0-2		5	Silt loam, very fine sandy loam	B	Moderate	Yes	Yes
Haynie silty clay loam (13 acres)	Hb	0-1	0.32	5	Silt loam, very fine sandy loam	B	Moderate	Yes	Yes
Onawa silty clay (9 acres)	Ob	0-1	0.28	5	Clay, silty clay	C/D	Slight	Yes	Yes
Sardak loamy fine sand (78 acres)	ScB	3-9	0.17	5	Fine sand, loamy fine sand, sand	A	Slight	No	Yes
Sardak soils (18 acres)	SeA	0-3	0.17	5	Fine sand, loamy fine sand, sand	A	Slight	No	No

Source: USDA 2007

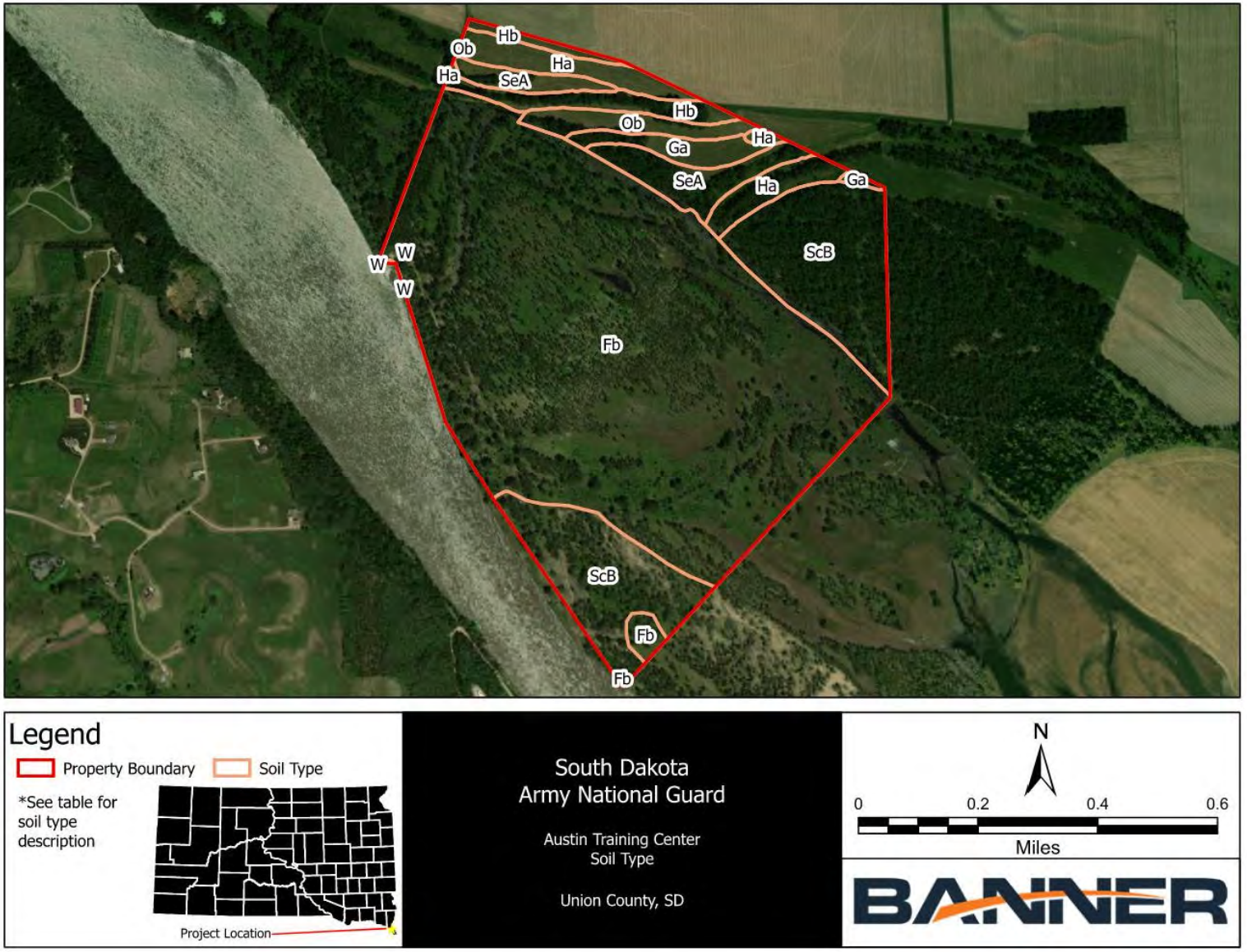

Figure 3-4a. Austin Training Area Soil Types

3.4.2 WCRTA

The PLS (AMEC 2008b) describes the soils and geology of the WCRTA as follows:

The *Soil Survey of Pennington County, Black Hills Parts, South Dakota* (Ensz 1990) identifies 13 soil map units within the boundaries of WCRTA. The Rockerville series was established to replace the Paunsaugunt series previously described in Ensz 1990 (USDA NRCS 2020). The major soil associations on WCRTA are the Sawdust-Vanocker-Rockerville Association (Q0665E) - 28 percent of surface area, the Hopdraw-Sawdust-Rock Outcrop Complex (Q0634G) - 14 percent of surface area, the Rockerville-Rock Outcrop Complex (Q0659E) - 14 percent of surface area, and the Rekop-Gypnevee Rock Complex (P384F) - 11 percent of surface area. The Sawdust-Vanocker-Rockerville complex channery to gravelly loam mantles ridges of Minnekahta Limestone, and the Hopdraw-Sawdust-Rock Outcrop complex cobbly sand, channery loam, and unweathered bedrock lines gulches where Opeche Shale is exposed. The Rockerville-Rock and Rekop-Gypnevee-Rock outcrops form the majority of the central and eastern valley. None of the soil units present at WCRTA are considered prime farmland. Descriptions of soil units located on WCRTA are summarized in ***Table 3-4b*** and mapped in ***Figure 3-4b***.

Soil erodibility potential is represented in ***Table 3-4b*** by factors Kw and T. Erosion factor, Kw, indicates the susceptibility of a whole soil to sheet and rill erosion by water. In general, the higher the number (0.02 to 0.69) the more susceptible the soil is to sheet and rill erosion. Erosion factor, T, is an estimate of the maximum average annual rate (tons per acre per year) of soil erosion by wind and water that can occur without affecting crop productivity over a sustained period. Soils most susceptible to water erosion include the Bullflat -Cordeston (Q0609C), located in local pockets on the extreme western side of the site; and the Gypnevee (P155D and P156E), Nevee (P246C), and Tilford (P526B) loams that are concentrated in the eastern third of the site and overlying the Spearfish Formation. These soils have Kw values that range from 0.20 to 0.43, and slopes that range from 0 to 15 percent.

WCRTA is located on the eastern flank of the Black Hills structural province, an uplifted dome of Precambrian granitic and metamorphic rock surrounded by tilted sedimentary rocks of Paleozoic and Mesozoic age (Driscoll et al. 2002). From west to east, the WCRTA is underlain by Pennsylvanian- to Triassic-age sedimentary rocks of the Minnelusa Formation (PPm), Minnekahta Limestone and Opeche Shale (Pmo), and the Spearfish Formation (TrPs) (Fahrenbach and Sawyer 2001). These strata are exposed at the surface and dip approximately 5 to 15 degrees to the east. Several minor structural folds with north-south orientation are mapped within surface outcrops. Underlying the Minnelusa Formation and overlying crystalline bedrock, but not exposed at the surface of WCRTA, are Cambrian- to Mississippian-age strata of the Deadwood, Winnipeg, Whitewood, and Englewood Formations, and the Madison Limestone. On the eastern edge of the site, discontinuous terrace deposits of Quaternary age unconformably overlie strata of the Spearfish Formation. Geologic descriptions of the formations exposed at WCRTA are summarized in ***Table 3-4c*** and mapped in ***Figure 3-4c***.

Several analyses were performed as part of the 2014 Master Plan (42nd Street Studio et al. 2014) relating to soil and erosion using the NRCS's web soil survey database, as described below.

- **Site degradation analysis—**The NRCS's web soil survey database indicated that a majority of WCRTA is highly or moderately susceptible to soil degradation. The ratings represent the relative risk of water and wind erosion, salinization, sodification, organic matter and nutrient depletion and/or redistribution, and loss of adequate rooting depth to maintain desired plant communities. Steep slopes increase the potential for water erosion. Shallow rooting depth and excess salt or sodium can reduce plant diversity, resistance to stress, and seedling survival.

- **Category 5 trafficability analysis**— was completed using the NRC's Web soil survey for military category type 5 vehicles including all-wheel-drive trucks, trailed vehicles, and heavy tanks. For this interpretation, trafficability is the capacity of the soil to support these vehicles during dry periods. Trafficability performance was estimated for a minimum number of vehicle passes (one) or a maximum of 50 vehicles in the same ruts. Slope, stoniness, depth to bedrock or a cemented pan, flooding, ponding, and the Unified soil classification are the main soil properties used in determining vehicular trafficability. For good trafficability, the surface of the soil should absorb rainfall readily, should remain firm under repeated traffic, and should not be dusty when dry. Soil properties that influence soil strength, slickness, and stickiness are the Unified soil classification and its relationship to soil moisture conditions and surface ponding, flooding, and stoniness. A majority of WCRTA has been indicated as excellent or good. "Excellent" indicates that the soil has no characteristics that limit trafficability and that very low maintenance can be expected. "Good" indicates that the soil may have characteristics that limit trafficability but are favorable for use. Good operational performance and low maintenance can be expected. The limitations can be overcome or minimized by special planning, design, or management."
- **Bivouac suitability** analysis was performed using the NRC's Web soil survey bivouac suitability analysis tool. Bivouac areas are used intensively as field operation centers for military activity. They commonly require site preparation, such as shaping and leveling in areas used for tents and in parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Bivouac areas are subject to heavy foot traffic and some vehicular traffic. A majority of WCRTA is classified as very limited in the development of bivouac areas. "Very limited" indicates that the soil has one or more features that are unfavorable for bivouac use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Table 3-4b. Soil Types in the West Camp Rapid Training Area

SOIL MAP UNIT (ACRES)	Map Unit Symbol	SLOPE (%)	Kw-FACTOR	T-FACTOR	USDA TEXTURE	HYDROLOGIC SOIL GROUP	HIGHLY ERODIBLE SOIL	PRIME FARMLAND	HYDRIC CLASSIFICATION
Bullflat Cordeston silt loams (21 acres)	Q0609C	2-9	0.43	4	Silt Loam	B	No	No	Yes
Gypnevee Rekop Rock Outcrop Complex (41 acres)	P155D	6-15	0.43	4	Silt Loam. Loam, unweathered bedrock	B/D	Yes	No	No
Gypnevee Rock Outcrop Urban Land Complex (5 acres)	P156E	9-25	0.43	4	Silt loam, unweathered bedrock	B/D	Yes	No	No
Hilger Urban Land Complex	P170B	0-6	0.24	3	Cobbly loam	B	No	No	No

SOIL MAP UNIT (ACRES)	Map Unit Symbol	SLOPE (%)	Kw-FACTOR	T-FACTOR	USDA TEXTURE	HYDROLOGIC SOIL GROUP	HIGHLY ERODIBLE SOIL	PRIME FARMLAND	HYDRIC CLASSIFICATION
(13 acres)									
Hopdraw Sawdust Rock Outcrop Complex (106 acres)	Q0634G	40-80	0.24	5	Cobbly loamy fine sand, channery loam, unweathered bedrock	A/B/D	Yes	No	No
Nevee Silt Loam (44 acres)	P246C	2-9	0.43	5	Silt loam	B	No	No	No
Rockerville Gurney Complex* (17 acres)	Q0658D	2-15	0.32	2	Gravelly loam, loam	D/B	Yes	No	No
Rockerville Rock Outcrop Complex* (106 acres)	Q0659E	6-30	0.20	1	Gravelly loam, unweathered bedrock	D	Yes	No	No
Rekop Gypnevee Rock Outcrop Complex (82 acres)	P384F	15-40	0.43	4	Loam, silt loam, unweathered bedrock	D/B	Yes	No	No
Sawdust Vanocker Rockerville Complex* (210 acres)	Q0665E	10-40	0.24	2	Channery loam, gravelly loam	B/D	Yes	No	No
Spearfish Nevee Silt Loams (51 acres)	P256D	9-30	0.43	5	Silt loam	D/B	Yes	No	No
Tilford Urban Land Complex (13 acres)	P526B	0-9	0.43	5	Silt Loam	B	No	No	No
Vanocker Hickok Complex (24 acres)	Q0676E	10-40	0.32	5	Channery loam, very fine sandy loam	B	Yes	No	No
Water (10 acres)	W	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: Ensz 1990

*Rockerville series was established to replace the Paunsaugunt series (USDA NRCS 2020)

Table 3-4c. Geologic Units Underlying the WCRTA

Geologic Unit	Description
Minnelusa Formation (Pmo)	Light brown to red and gray sandstone, solution reccia (anhydrite in subsurface), limestone and shale. Distinguished radiometrically from surrounding units by slight uranium anomalies in basal part of formation. Thickness 400 to greater than 1,500 feet.
Opeche Shale	Red silty shale. Thickness 25-150 feet
Minnekahta Limestone	Gray to purplish-gray, slabby limestone. Thickness 35–50 feet. May contain solution caverns or sinkholes; however, no sinkhole features appear on the Rapid City West Quadrangle map.
Spearfish Formation	Red shale and siltstone, and white gypsum and minor limestone. Characterized geochemically by high concentrations of strontium and lithium, presumable in gypsum beds. Distinguished radiometrically from surrounding units by anomalous concentrations of potassium and uranium. Thickness 325-900 feet.

Source: Dewitt et al. 1989

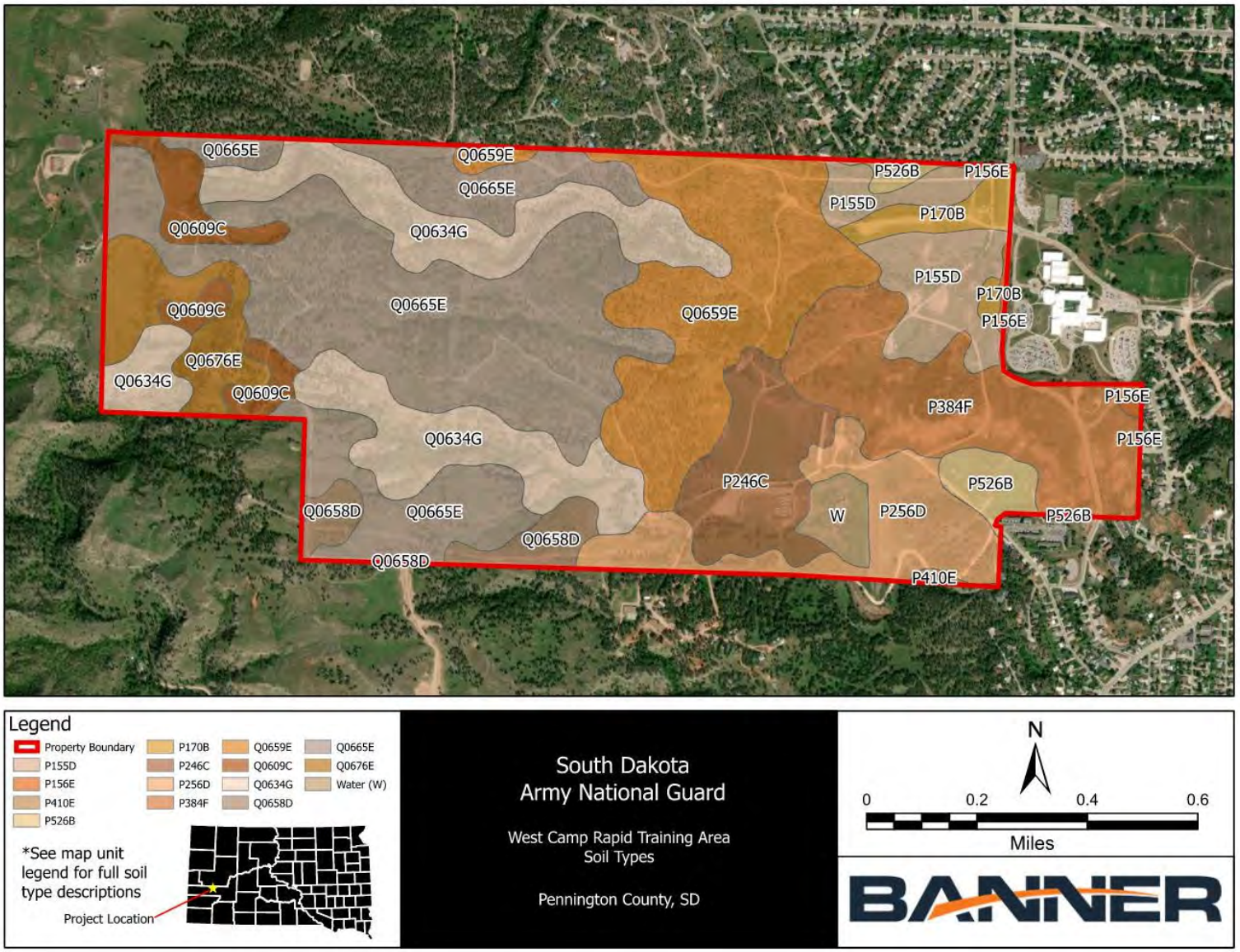

Figure 3-4b. West Camp Rapid Training Area Soil Types

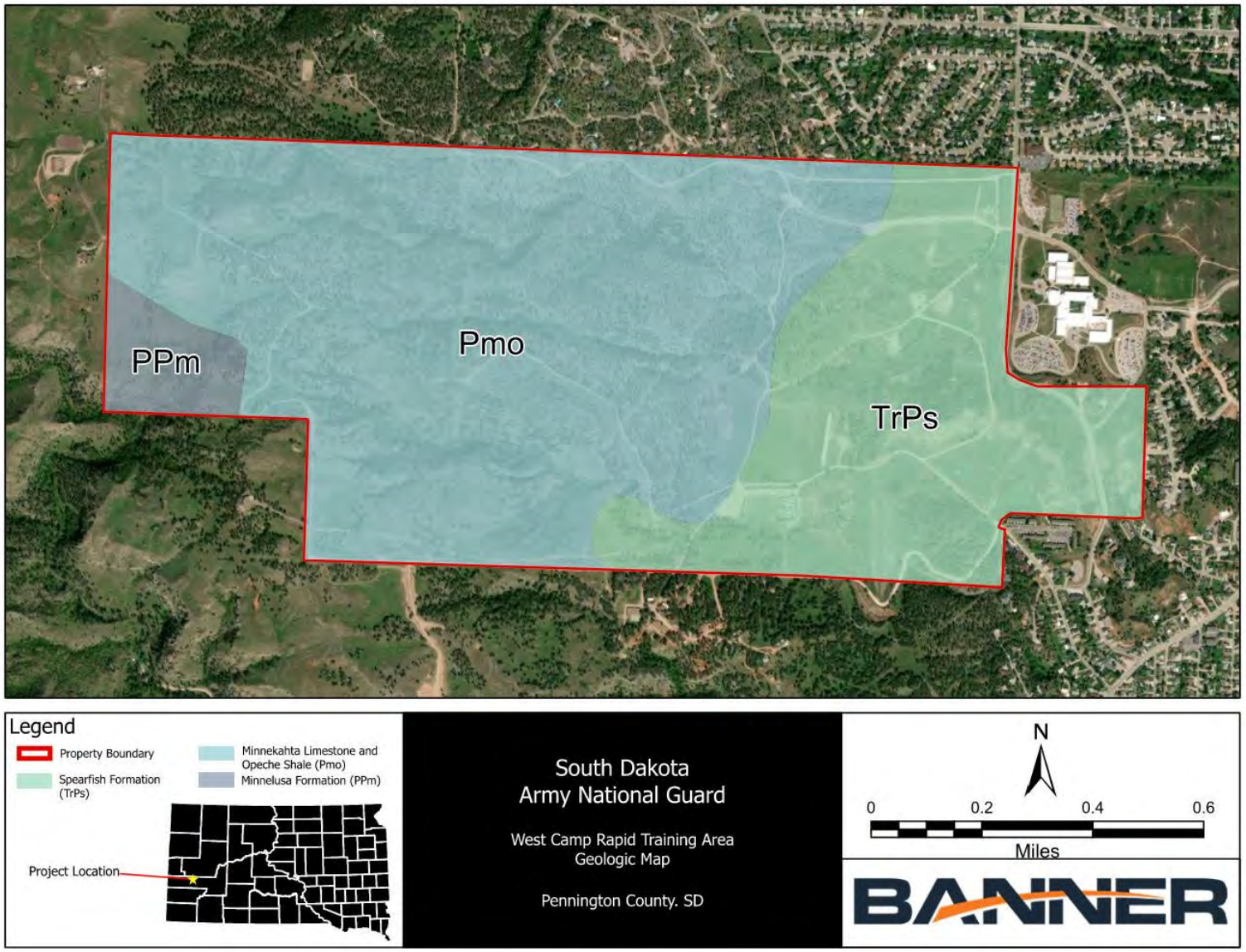

Figure 3-4c. West Camp Rapid Training Area Geologic Map

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3.5 WATER RESOURCES AND WATER QUALITY

3.5.1 ATA

3.5.1.1 Watersheds and Surface Waters

The ATA is located along the Missouri River within the Lewis and Clark Lake Watershed, a 3,210 square-mile area stretching west to east from Lake Francis to South Sioux City along the Missouri River and associated floodplains (Lewis and Clark Lake, NE, SD, HUC#10170101). The Lewis and Clark Lake Watershed is part of the Missouri-Big Sioux Basin, which includes the Missouri River Basin from Fort Randall Dam to and including the Big Sioux River Basin, but excluding the Ponca Creek, Niobrara River, and James River Basins (AMEC 2008a).

The Missouri River forms the majority of the southern boundary of the ATA (see ***Figure 2-2***); the elevation of the river is relative to the lowest elevations of the ATA. An intermittent stream crosses the northern half of the property, flowing to the southeast, eventually joining the Missouri River. The ATA has been historically and seasonally flooded. Regulating the Missouri River has largely limited the presence of surface water on the site to temporary storm events and regional flood events. The most recent flooding event occurred in 2011, inundating 75 percent of the training area.

3.5.1.2 Groundwater

Groundwater for the ATA ranges from the upper limits of approximately 1.5 feet below ground surface, to the lower limits of approximately 6.0 feet below ground surface. These limits are present for all months of the year and rise or fall in accordance with the river levels, due to the proximity of the property to the Missouri River.

3.5.1.3 Floodplains

Floodplains are generally low areas adjacent to streams, rivers, or lakes that are prone to flooding. The Federal Emergency Management Agency (FEMA) identifies flood-prone areas on Flood Insurance Rate Maps (FIRMs). FIRMs are based primarily on historic, meteorological, hydrologic, and hydraulic data. Open-space conditions, flood control works, and development are also considered when creating FIRMs. Base flood areas, or the 100-year floodplain, are delineated on FIRMs. An area within the 100-year floodplain has a 1 percent chance of flooding each year or a 26 percent chance of flooding over a 30-year period.

The entire ATA falls within the Missouri River floodplain (***Figure 3-5a***), which historically floods for long periods of time in the spring and dries out in the summer and fall. In the past, the Missouri River has been maintained at lower levels and has not flowed through the property. The only time surface water accumulates on site is when the Missouri River rises over its banks, which occurred early in 2011, flooding 75 percent of the ATA area.

During the 2020 biological survey, it was observed that the majority of the ATA would be considered a riparian upland system.

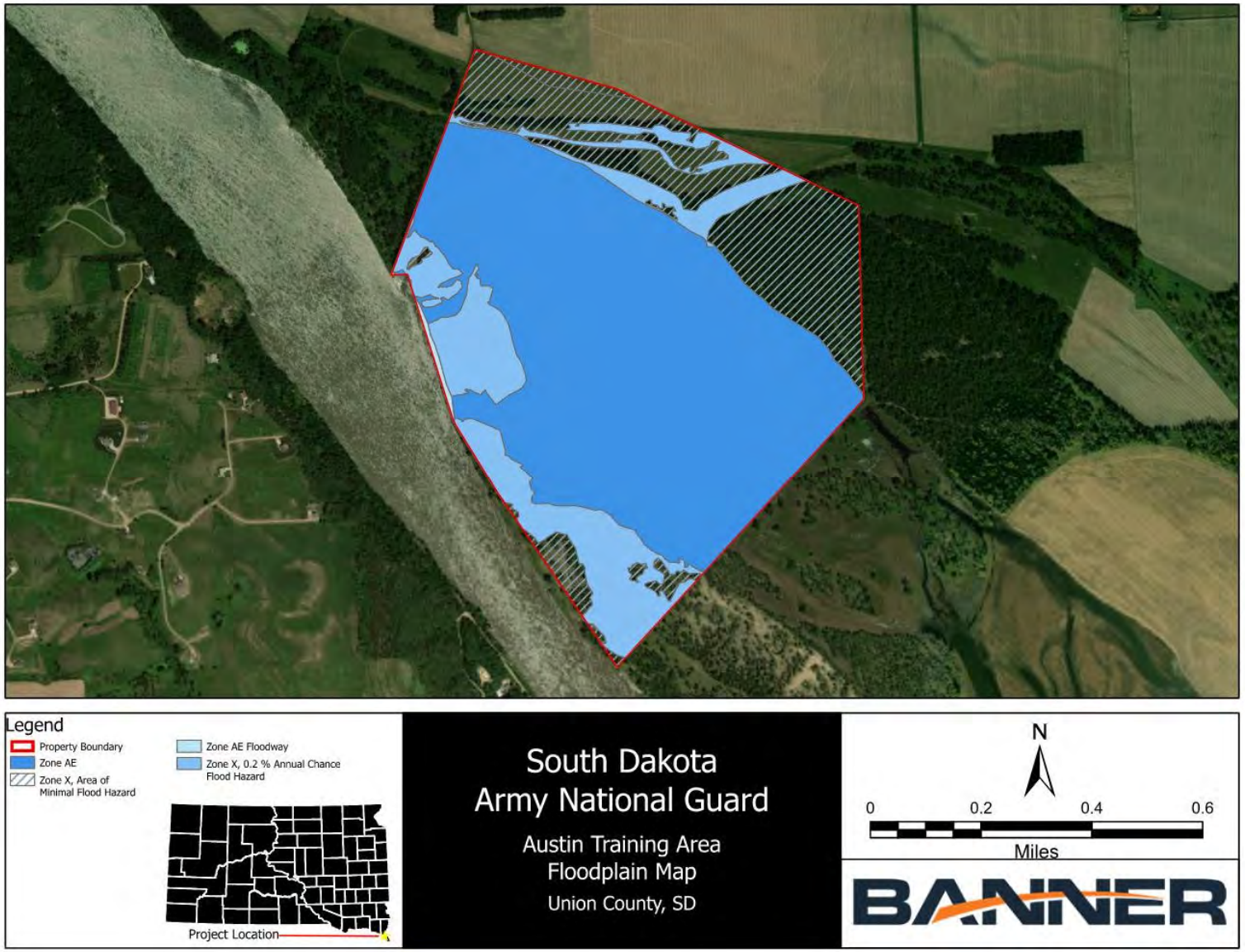

Figure 3-5a. Austin Training Area Floodplain Map

3.5.1.4 Wetlands

In the 2013 wetland delineation report (RESPEC 2013), 254.5 acres of wetland were determined to exist on the ATA. The ATA was described as not being susceptible to the historic inundation patterns of the Missouri River due to the construction of the mainstream dams in the period of 1940-1960. However, due to the relatively flat landscape of the property, disturbance by inundation is still relatively frequent, with the last occurrence in 2011. In 2011, the Missouri River experienced a record-setting water year, and the majority of the ATA was inundated for a 5-to-6-month period. Watermarks on cottonwood trees can still be seen at levels of 6 to 7 feet, indicating consistent inundation during the flood event. During the 2020 biological survey, a formal wetland delineation was not conducted. However, it was observed that the ATA was functioning as a riparian area adjacent to the Missouri River. It was also observed that red cedar, dogwood, smaller cottonwood, and willows had higher die-off rates in the areas of inundation. Some of these deadfalls had been cleaned up and stockpiled for burning, but dead trees remain in some areas. It is likely that the flood event in 2011 affected the species composition and dominance on the ATA, with sediment deposition adding to the change in herbaceous cover and composition. A wetland delineation was conducted in 2021 and, although the report was not finalized at the time of this update, noted floodplain wetland currently existing on the ATA. The wetland area is primarily located in the center of the property, bordered by upland areas immediately adjacent to the Missouri River and upland areas on the northern border of the property in the location of the hay fields and pasture areas.

3.5.2 WCRTA

3.5.2.1 Watersheds and Surface Waters

The WCRTA is located within the Rapid Creek Watershed, a 725 square-mile area stretching west to east through the Rapid City, South Dakota area (Rapid City, South Dakota, HUC #10120110). The Rapid Creek Watershed is part of the Cheyenne River Basin, which includes the Cheyenne River drainage area above the normal operating pool of Lake Oahe, covering portions of Montana, Nebraska, South Dakota, and Wyoming, an approximate 24,300 square mile area. On a national scale, the area is a part of Region 10, the Missouri Region, which includes the Missouri River Basin, the Saskatchewan River Basin, and several small, closed basins and covering all of Nebraska and parts of Colorado, Iowa, Kansas, Minnesota, Missouri, Montana, North Dakota, South Dakota, and Wyoming.

Previous reports indicate that three intermittent creeks originate on the west side of WCRTA and flow east-southeast across the site, draining into Rapid Creek. The Rapid Creek drainage basin is designated as a Zone A Source Water Area. A Zone A Source Water Area is an environmentally sensitive area that contributes drinking water to public water supply systems. Stream flow loss may be significant as streams cross from one hydrogeological unit to another (Driscoll et al. 2002). Artesian springs are common occurrences within the dipping strata of the Black Hills region. Complex interactions of surface water and groundwater occur through stream flow loss and artesian flow. Ultimately, surface water in the form of run-off and shallow groundwater constitute base flow to the intermittent creeks and discharge into Rapid Creek.

No permanent water is known to exist on the WCRTA property. During the 2020 biological surveys, areas previously identified as wetlands were inspected and were determined not to display one or more of the three characteristics, hydric soil, hydric vegetation, and hydrology, needed to qualify as a wetland. Previous surveys had noted three intermittent streams within the WCRTA. One area of intermittent stream with fringe wetland was observed within the WCRTA during the 2020 survey (***Figure 3-5b***).

3.5.2.2 Groundwater

The Deadwood Formation; Madison Limestone, Minnelusa Formation; and Minnekahta Limestone are major bedrock aquifers in the Black Hills region (Carter et al. 2003). These aquifers are collectively confined by underlying crystalline bedrock and the overlying Spearfish Formation and are separated by minor leaky confining layers. Recharge to these aquifers occurs in outcrops on the flank of the Black Hills dome, where the strata are uplifted and eroded. Regional groundwater flow is from upland recharge areas toward the east. Individual aquifers are generally confined, except near surface exposures. Cross-aquifer hydraulic connection (leakage) is prevalent because of the wide variability in the thickness and porosity of confining layers. Artesian flow is common for wells constructed in these aquifers, where confined conditions exist. At WCRTA the Deadwood and Madison aquifers are "confined" at depth below the entire site, and the Minnelusa and Minnekahta aquifers are exposed in outcrop on the western two thirds of the site.

3.5.2.3 Floodplains

Floodplains are generally low areas adjacent to streams, rivers, or lakes that are prone to flooding. The Federal Emergency Management Agency (FEMA) identifies flood-prone areas on Flood Insurance Rate Maps (FIRMs). FIRMs are based primarily on historic, meteorological, hydrologic, and hydraulic data. Open-space conditions, flood control works, and development are also considered when creating FIRMs. Base flood areas, or the 100-year floodplain, are delineated on FIRMs. An area within the 100-year floodplain has a 1 percent chance of flooding each year. FEMA data for the WCRTA indicate that the property is entirely within Zone X Area of Minimal Flood Hazard. Flooding on the property is unlikely and any impacts from a flood would not be significant.

3.5.2.4 Wetlands

Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (40 CFR Part 230.3 [t]). Three indicators must be present for an area to be designated as a wetland: hydrophytic vegetation, hydric soils, and hydrology.

Wetlands function to store water, dissipate flood waters, filter particulates, and provide critical support to groundwater and aquifer connections. Resulting benefits include maintaining and improving water quality, managing floodwater quantity and flow, and providing habitat for fish, wildlife, and plants.

No permanent water is known to exist on the WCRTA property. In the 2013 wetland delineation report (RESPEC 2013), 2.12 acres of wetland were determined to exist on the WCRTA. The National Wetlands Inventory (NWI) database identifies four palustrine wetland environments on the WCRTA. The Cedar Canyon Dam impoundment in the southeast portion of the site is designated primarily as unconsolidated shore and lesser freshwater pond. A second impoundment, adjacent to the pistol range in the east-central portion of the site, is also designated as freshwater pond. During the 2020 biological surveys, areas previously identified as wetlands were inspected and were determined not to display one or more of the three characteristics, hydric soil, hydric vegetation, and hydrology, needed to qualify as a wetland. Previous surveys had noted three intermittent streams within the WCRTA. One area of intermittent stream, approximately 1,766 feet in length, with fringe wetland was observed within the WCRTA during the 2020 survey (***Figure 3-5c***). Previous reports also indicated that a freshwater emergent wetland existed in the northwest corner of the site as well; however, upon inspection during the 2020 survey, a wetland in this location was not observed.

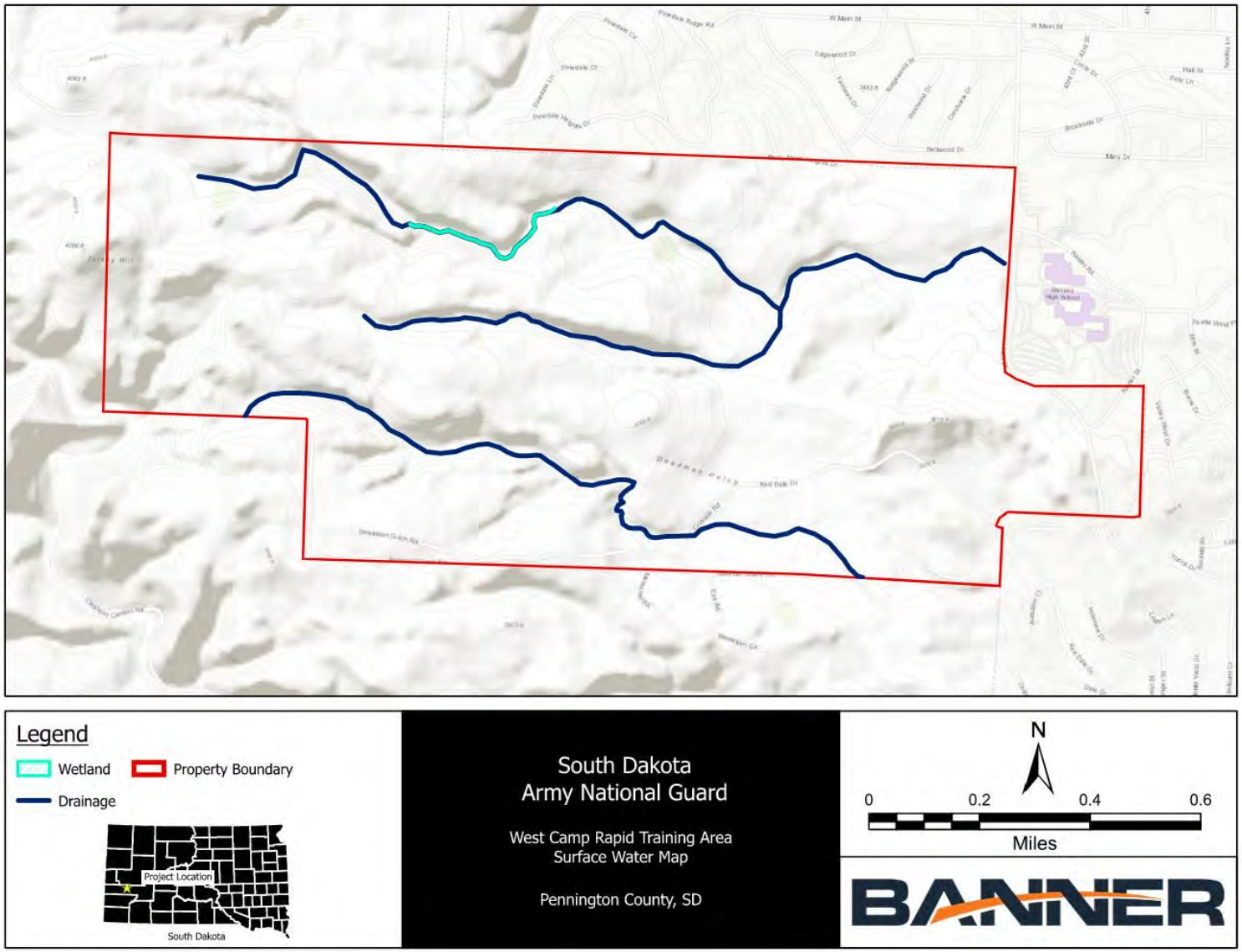

Figure 3-5b. WCRTA Surface Water Map

3.6 FLORA

3.6.1 ATA

Plant inventories (Butler et al. 1994) and surveys have been conducted in the past (Accipiter 2006, Louis Berger 2017a, Banner Associates 2020a), identifying four major habitat types at ATA. These include 1) alluvial forest, 2) upland forest, 3) open field, and 4) riverside riparian.

Habitat data was collected during the 2020 survey at six collection stations within the four habitat types at the ATA. ***Figure 3-6a*** shows the four habitat types. The descriptions are as follows.

Alluvial Forest (AF)— This habitat is the largest area and is found throughout the lower level of the ATA and is comprised of common ragweed (*Ambrosia artemisiifolia*), Canada anemone (*Anemone canadensis*), common milkweed (*Asclepias syriaca*), common mullein (*Verbascum thapsus*), plains cottonwood (*Populus deltoides*), dogwood (*Cornus spp*.), fescue sedge (*Carex brevior*), green ash (*Fraxinus pennsylvanica*), leafy spurge (*Euphorbia esula*), Russian olive (*Elaeagnus angustifolia*), Kentucky bluegrass (*Poa pratensis*), smooth horsetail (*Equisetum laevigatum*), and smooth brome (*Bromus inermis*). The tree layer had 30 to 35% canopy cover with plains cottonwood trees being the dominant species at 50 to over 100-feet tall and averaging 10-20 feet in diameter at breast height (dbh). The shrub layer consisted of approximately 50-60% cover of moderate rough-leafed dogwood as the dominant species. Average young shrubs were 2.5 to 6 feet tall. A mix of forbs and grasses (85 to 95% cover) consisted of hoary vervain (*Verbena stricta*), Canada goldenrod (*Solidago canadensis*), smooth brome, Kentucky bluegrass, common ragweed, fescue sedge, cannabis (*Cannabis sativa*), and common milkweed. There was a moderate amount of herbaceous leaf litter. Varying sizes of logs were present and scattered throughout the area with wood stacked in piles from previous thinning projects. Two sampling stations (1 and 2) were established in this habitat type.

Upland Forest (UF)— This habitat area has a relatively flat topography located on a secondary bench that is elevated approximately 15 to 20 feet above the Missouri River. It is dominated by an overstory of mature cottonwood and dogwood trees with an understory of Kentucky bluegrass. Other herbaceous vegetation types included leafy spurge, brome, annual ragweed, smooth horsetail, stinging nettle (Urtica dioica), prairie cordgrass (*Spartina pectinata*), Canada thistle (*Cirsium arvense*), and common milkweed. Dogwood and eastern red cedar (Juniperus virginiana) comprise a moderate to heavy cover shrub layer. Cottonwood trees are the dominant tree species, with most over 50 feet tall, averaging 15 to 25 dbh, with a 75 to 85% canopy cover. There is moderate leaf litter with scattered amounts of woody debris. Sampling Station 5 was established in this habitat type.

Open Field (OF)— This habitat area is found in various areas of the ATA and is comprised primarily of Kentucky bluegrass surrounded by a scattered overstory of cottonwood and dogwood. The herbaceous layer consists of cannabis, leafy spurge, Kentucky bluegrass, prairie cordgrass, Canada thistle, common milkweed, stinging nettle, annual ragweed, white clover (*Trifolium pratense*), and broad leaf plantain (*Plantago major*). Downed logs and snags, along with stacked wood piles from previous thinning and clean-up projects, are present. Sampling Stations 4 and 6 were established in this habitat near the edge of the UF boundary.

Riverside Riparian (RR)— This habitat area is adjacent to the Missouri River with an overstory of plains cottonwood trees ranging from 50 to over 100-feet tall (15 to 30 dbh). Scattered

eastern red cedar and dogwoods are mixed throughout the mid-canopy layer. Most of the post-flood, dead eastern red cedar trees have been removed, although some remain. The herbaceous understory is moderate (50 to 60% cover) with patchy bare areas and is comprised of Kentucky bluegrass, leafy spurge, annual ragweed, and brome. Heavy leaf litter and scattered woody debris is present. Topography is mostly flat, and the area is located on a secondary bench that is elevated approximately 15-feet above the Missouri River, with moderate to steep sloping banks leading to the river. This area also contains vegetated sand dunes adjacent to the Missouri River, dominated by dogwood, cottonwood, brome, hoary vervain, leafy spurge, and Kentucky bluegrass. Sampling Station 3 was established in this habitat.

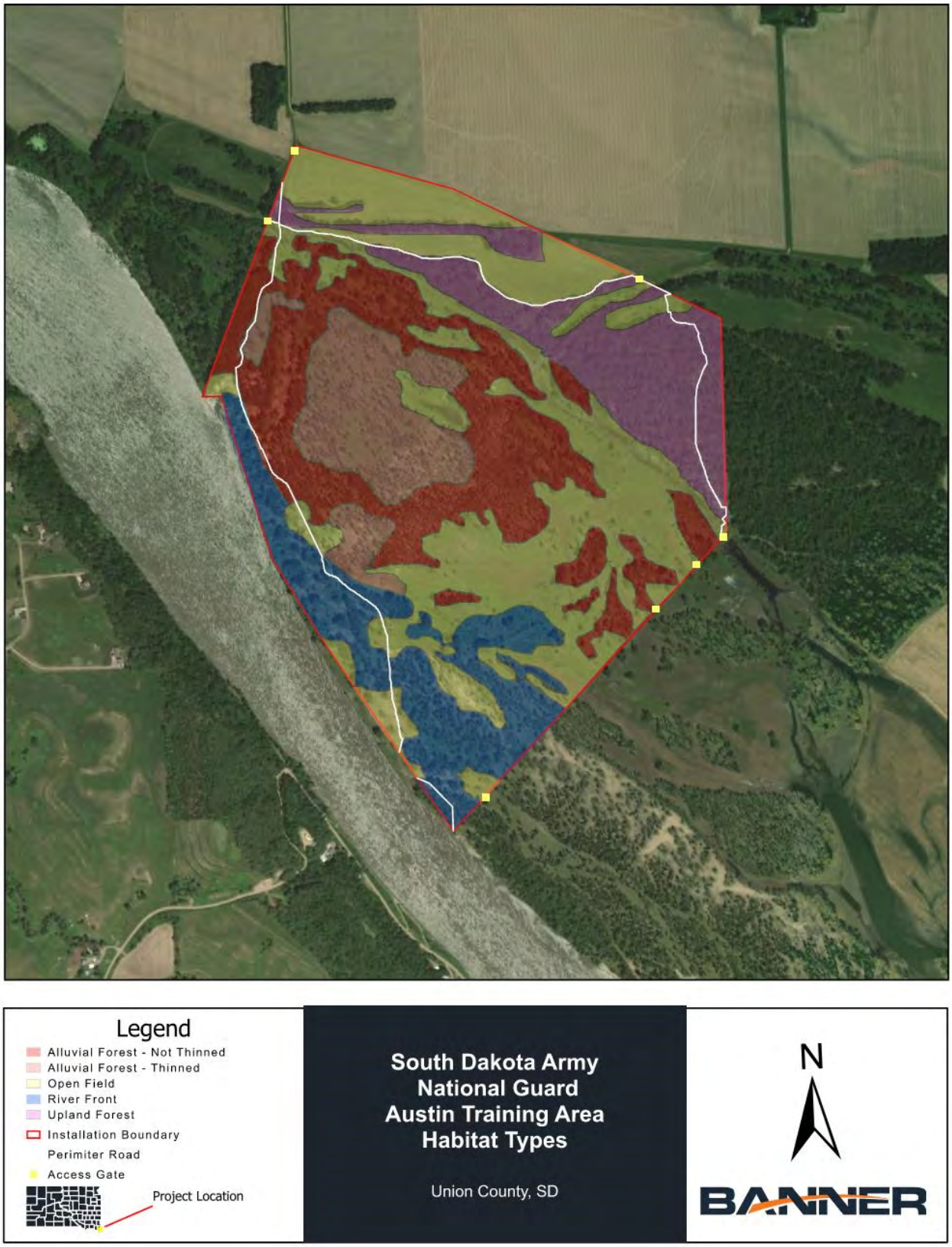

Figure 3-6a. Habitat Types Found on the ATA

3.6.2 WCRTA

Plant inventories (Accipiter 2015) and surveys have been conducted in the past (Accipiter 2007, Louis Berger 2017b, Banner Associates 2020a), identifying four major habitat types at WCRTA. These include 1) pine steppe, 2) deciduous drainage, 3) gypsum prairie, and 4) mixed prairie. ***Figure 3-6b*** shows the four habitat types.

Five biological collection stations were surveyed in 2020 within the four habitat types at the WCRTA. These habitat types are described as follows:

Pine Steppe (PS)— Ponderosa pine (*Pinus ponderosa*) is the predominant species; however, Rocky Mountain juniper (*Juniperus scopulorum*) is also intermixed in places. Scattered mature ponderosa pines range from 50 to 100 feet tall, while junipers range from 30 to 35 feet tall. Except for steep, north-facing slopes, canopy coverage is mostly open enough to permit a dense, but somewhat patchy understory. The most dominant understory shrubs encountered were chokecherry (*Prunus virginiana*), western snowberry (*Symphoricarpos occidentalis*), yucca (*Yucca glauca*), northern gooseberry (*Ribes oxyacanthoides*), smooth sumac (*Rhus glabra*), juniper, and pine samplings. Dominant grasses and forbs included Kentucky bluegrass, smooth bromegrass, western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula*), Canada thistle, and hound's tongue (*Cynoglossum officinale*). Several various sized downed logs were also present. Large pine snags were also observed, as were several rock outcrops. Sampling Station 5 was established in this habitat type.

Deciduous Drainage (DD)— Two major drainages, Deadman Gulch and an unnamed gulch, along with smaller drainages are dominated by several deciduous, woody species. Woody species common to this habitat type are green ash, bur oak (*Quercus macrocarpa*), American elm (*Ulmus americana*), ponderosa pine, plains cottonwood, box elder (*Acer negundo*), and common buckthorn (*Rhamnus cathartica*). Bur oak, green ash, and American elm, estimated at 40 to 100 feet tall, were the dominant species at the stations. The understory shrub layer consisted of primarily ponderosa pine, juniper (*Juniperus spp*.), gooseberries (*Ribes spp*.), western snowberry, roses (*Rosa spp.*), and common ninebark (*Physocarpus opulifolius*) with some small stands of chokecherry intermixed. Shade-tolerant and moisture-dependent grasses and forbs are common, but most are not confined to this plant community. Common grasses and forbs observed at the stations included smooth brome, hound's tongue, dames rocket (*Hesperis matronalis*), Kentucky bluegrass, Canada thistle, and milkweed (*Asclepias spp*.). A small amount of herbaceous litter and several logs of various sizes were present from previous thinning projects. A two-track trail running through the main drainage likely serves as a corridor for many species of wildlife traveling through the area. Sampling Stations 2 and 3 were established within this habitat type. In addition, a spring feature was present between Sampling Stations 2 and 3 and contained several species of vegetation not found in drier parts of the drainage. These species included fowl mannagrass (*Glyceria striata*), orchardgrass (*Dactylis glomerata*), clustered field sedge (*Carex praegracilis*), Dudley rush (*Juncus dudleyi*), orange hawkweed (*Hieracium aurantiacum*), field mint (*Mentha arvensis*), Absinth wormwood (*Artemisia absinthium*), American speedwell (*Veronica americana*), and wild columbine (*Aquilegia canadensis*).

Gypsum Prairie (GP)—This habitat type consists of open grasslands and scattered ponderosa pine, approximately 5-25 feet tall, and plains cottonwood, approximately 50-100 feet tall. Dominant species observed within the shrub layer were yucca and northern gooseberry with an average height of 1 to 3 feet. The herbaceous layer was dominated by grasses: western

wheatgrass, green needlegrass, and smooth bromegrass. Other species observed included hound's tongue, common mullien, yellow evening primrose (*Calylophus serrulatus*), and prairie coneflower (*Ratibida columnifera*). Limestone/gypsum outcrops are located along the northern edge of this community. Sampling Station 1 was established in this habitat type.

Mixed Prairie (MP)—This vegetation community is characterized by a mixture of mid- and short-grass species; abundant forbs; and scattered, small woody shrubs. Mixed-age ponderosa pine trees, Russian olive, and plains cottonwoods were the dominant tree species. The shrub layer was made up of northern gooseberry (1 to 2 feet tall) and willows (*Salix* spp.), 10 to 15 feet tall). The most common grasses and forbs at both stations included green needlegrass, wheatgrasses, smooth bromegrass, leadplant (*Amorpha canescens*), yucca, and smooth sumac. Downed logs and several large ponderosa pine and cottonwood snags were observed. Sampling Station 4 was established in this habitat type.

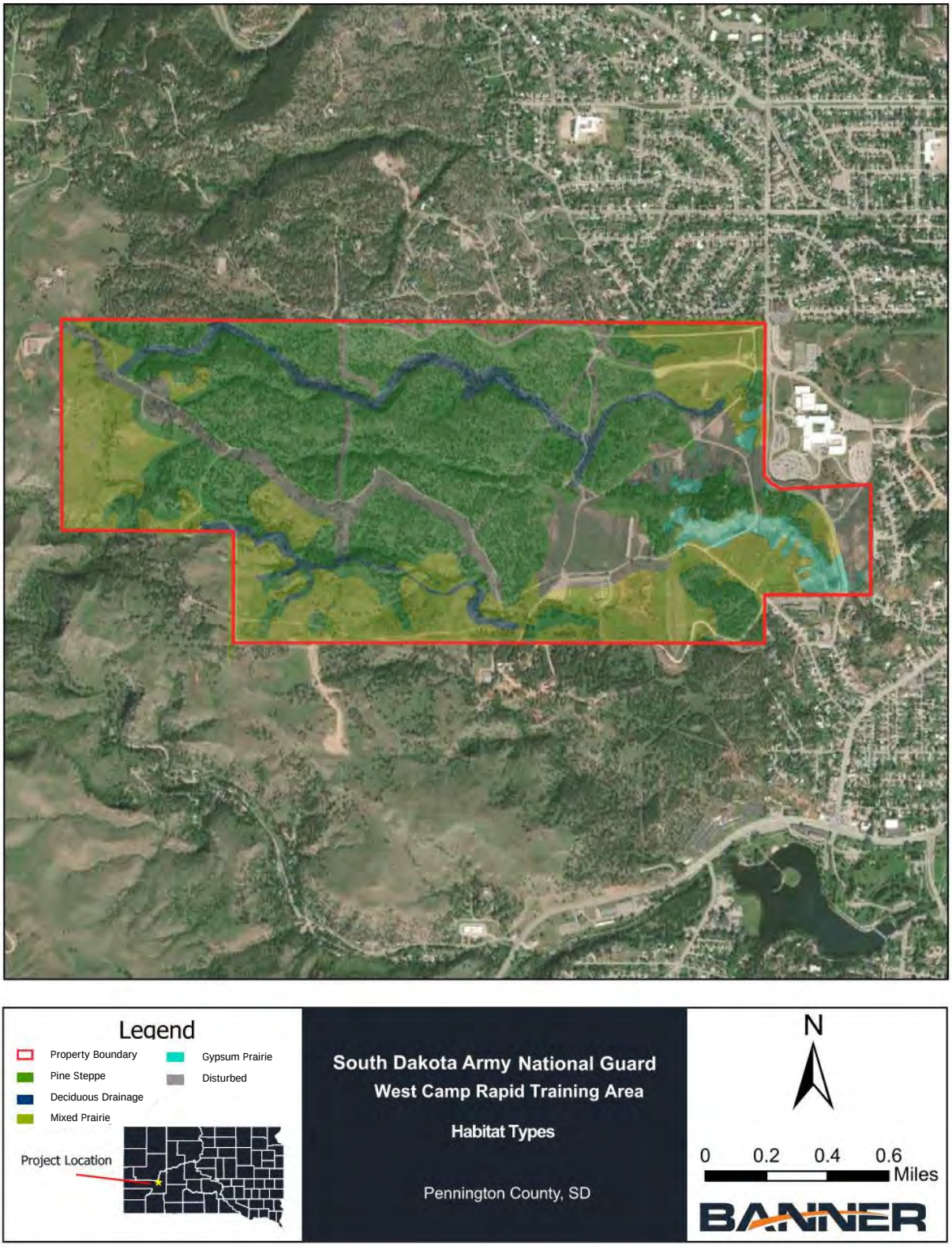

Figure 3-6b. Habitat Types found on the WCRTA

3.7 FIRE MANAGEMENT PLAN RISK ASSESSMENT

Wildland fires are described in Army Regulations (AR) 200-1 as "any non-structural fire that occurs on unimproved grounds. This includes wildfires and prescribed fires." Under AR 200-1, wildland fire management includes reducing wildfire potential through management; development of an Integrated Wildland Fire Management Plan (IWFMP); providing adequate training and resources to personnel involved in wildland fire management; and ensuring that only qualified personnel conduct prescribed burns. Wildland fire management also plays a role in supporting habitat diversity on the SDARNG installations.

3.7.1 ATA

A Fire Management Plan Risk Assessment (Mattox 2011) identified and quantified existing conditions within ATA. Mapping infrastructure; ingress/egress; topography; fuel loads; and water resources; and protecting lives, property, resources, and critical infrastructure is a primary concern for mitigating the threat from wildfire. Areas of higher fuel loads cause more concern during wildfire events for firefighter and public safety. Reducing the risk from uncontrolled wildfire is an important concern for the ATA. Mitigation measures should be implemented to protect community values and the values of the training facilities from uncontrolled wildland fire. A draft Integrated Wildland Fire Management Plan was submitted in February 2021 for the SDARNG and will aid in fire management on the training areas.

Areas that sustained high water levels (6 to 8 feet) during 2011 flooding sustained mortality of a large percentage of the under-and mid-story vegetation**.** This includes deciduous (cottonwood) and evergreen (cedar) vegetation. This mortality, along with the downed trees, created a heavy fuel load.

In 2014–2015, the 3.1-mile perimeter road/trail was cleared of downed debris to open and improve the road and inner training areas. The project included mulching of trees and shrubs within the perimeter road and up to 10 feet on each side of the roadway. Large diameter trees that could not be mechanically mulched/chopped were cut, removed from the roadway, de-limbed, and left in place. Canada thistle and poison ivy were also treated.

A tremendous amount of sediment was deposited during the 2011 flooding (some areas receiving as much as 6–8 feet. The remaining vegetation on the ATA will continue to be thinned to maintain stand health and diversity of the property. All dead and down material will be treated. Invasive species also will require continued treatment and monitoring.

A site visit to the ATA in June of 2020 during the biological surveys indicated that in areas inundated during the 2011 Missouri River flood, vegetation consists of established stands of shrubs, saplings, and herbaceous vegetation with some large previously established eastern cottonwoods. Herbaceous vegetation is a mix of native and non-native grasses, sedges, and forbs. Forests near the Missouri River consist of cottonwood, willow, and dogwood with an understory of juniper and mixed grasses and forbs. Many large dead trees, eastern red cedar, and areas with dense shrub cover occur in the recently flooded areas.

In areas that were not flooded, vegetation consists of cottonwood-dominated forests mixed with Russian olive and juniper with an understory of shrubs and herbaceous vegetation of mostly Kentucky bluegrass. The shrub layer in many areas is dense with thick patches of dogwood and prickly ash (*Zanthoxylum americanum*).

3.7.2 WCRTA

A Fire Management Plan Risk Assessment (Mattox 2011) identified and quantified existing conditions of fuel loads located within WCRTA using GIS. Areas of higher fuel loads cause more concern during wildfire events for firefighter and public safety. Reducing the risk to values from uncontrolled wildfire is an important concern for the WCRTA. Mitigation measures are being implemented to protect community values near WCRTA and the values of the training facilities from uncontrolled wildland fire. Cooperation between all agencies is important to reduce the threat from wildfire. A draft Integrated Wildland Fire Management Plan has been developed for the SDARNG and will aid in fire management on the training areas.

In 1988, 247 acres of what is now WCRTA were burned in the West Berry Trails fire. The areas burned generally have smaller fuel loads and are in relatively good condition due to the fuels consumed during the fire. However, a proactive fuels reduction program can reduce the impact wildfire has on the land. A fire history map was created as part of the assessment (***Figure 3-7a***). The assessment indicated that the structure and orientation of fuels within WCRTA vary tremendously. Fuel reduction projects have been done in some areas in recent history. Areas that have had some type of fire or fuels activity have less hazardous fuels than areas that have not had any vegetation management in many years.

In March of 2021, several wildfire events occurred in the Black Hills. One fire, the Schroeder Fire, started approximately four miles west of Rapid City and burned approximately 2,200 acres, including approximately 480 acres on the WCRTA. With the occurrence of the Schroeder Fire, previously identified thinning areas have been modified and additional firebreaks have been proposed. Figure 3-7b. shows the boundary of the Schroeder Fire.

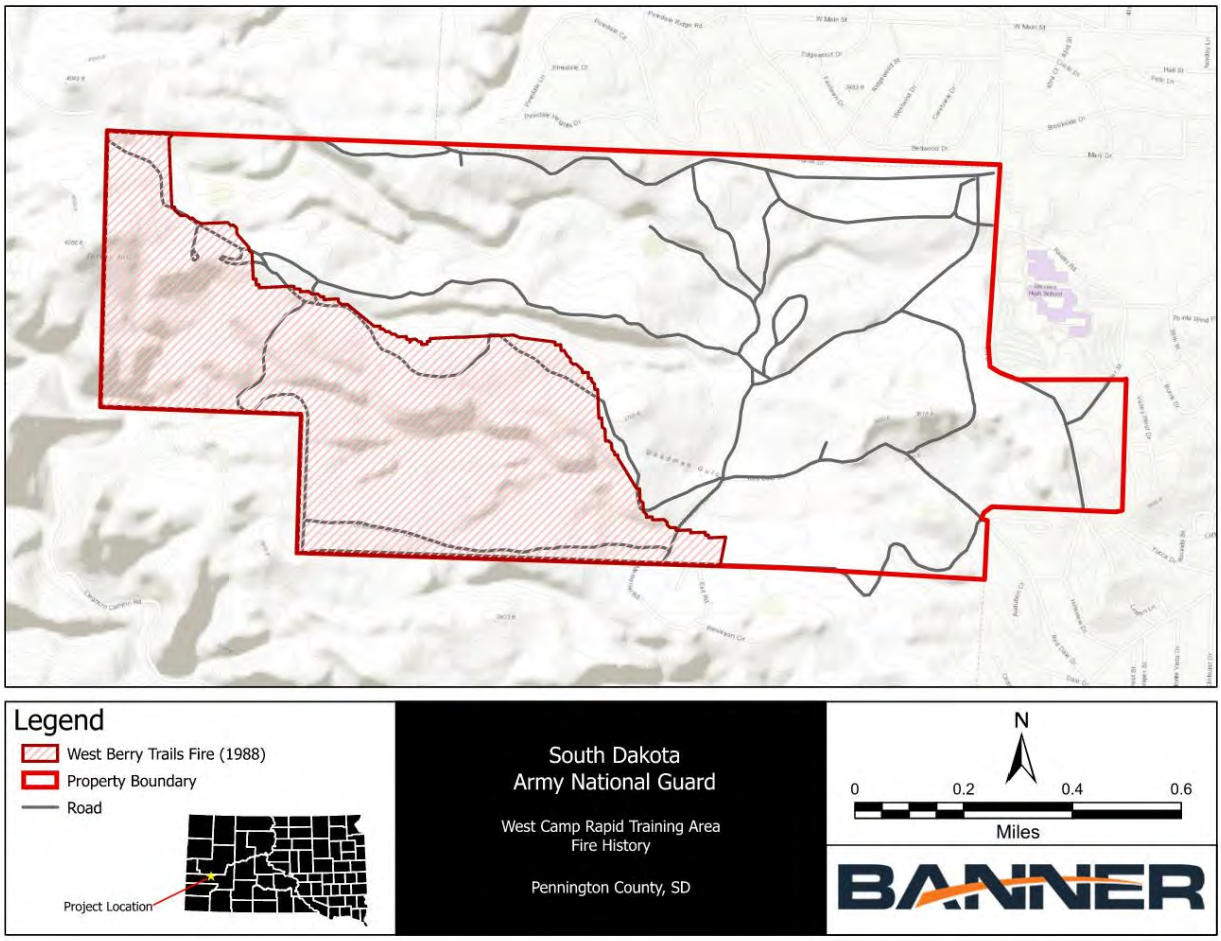

Figure 3-7a. Fire History on WCRTA

Data collection and mapping included roads, structures, power lines, gates, cattle guards, bridges, water sources, and access points. This information was all entered into a GIS database. In addition, the closest municipal fire hydrants were mapped to identify suitable water sources for wildland fire suppression activities. These hydrants are primarily on the east side of the property.

There are approximately 13.8 miles of roads and trails within the boundary. There are several areas in WCRTA that have vegetation growing close to power lines. The primary risk of wildland fire ignition at WCRTA is from lightning. There is also a risk of ignition from human activities, including equipment, munitions, and other unintentional heat sources.

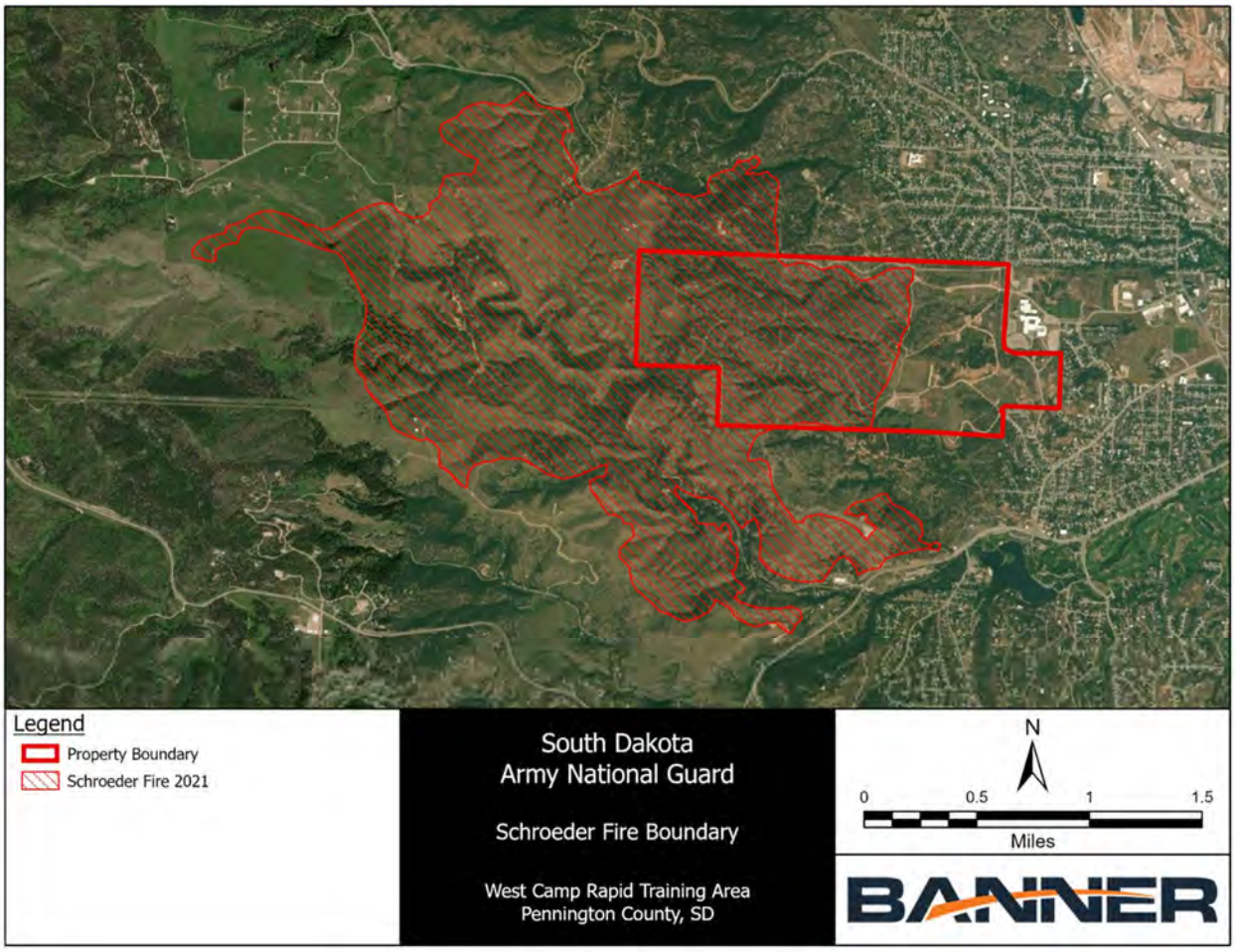

Figure 3-7b. Schroeder Fire Boundary

Wells

There are four wells on the WCRTA facility. There are two wells on the east side of the property but there is no water storage in these locations that could be utilized for wildland fire suppression activities. There are two water tanks placed at the western well head west of the small arms range, but they are not operational. There are two additional wells on the west end of the property that were present on private property that was acquired by the SDARNG.

The closest municipal hydrants that can be used for suitable water sources for wildland fire suppression activities are on the east side of the property.

Fire Risk

The risk of wildfire occurring at WCTRA is evident based on the fire history. Ignitions within WCRTA have occurred from burning debris, incendiary, lightning, target shooting, and other human-caused events. Reducing risk means reducing the likelihood and frequency of an ignition from occurring.

Tracer rounds have been eliminated from use at WCRTA, which reduces risk of ignition by eliminating the pyrotechnic charge that could cause ignition of surface fuels. Survivable space around values and structures is very important when mitigating the risk from wildfire. Building materials, topography, types

of vegetation, and fuel loads are key considerations when determining how much survivable space is required. Effective survivable space varies from 30 to 200 feet around the value and provides firefighters working room to safely perform suppression activities. Conifer regeneration is the primary understory component that creates hazardous fuels. This fuel loading can result in surface fire spreading vertically into midstory and overstory conifers.

The Fire Management Risk Assessment recommended that all the area in WCRTA should have dead and down surface fuels reduced, including thatch that has built up from previous growing seasons (Mattox 2011). A prescribed burn is the most economical way to accomplish this. Goals, objectives, and planning procedures for prescribed burns can be found in the draft SDARNG Integrated Wildland Fire Management Plan for Austin and West Camp Rapid Training Areas (February 2021).

The majority of the buildings on the WCRTA are at risk from initial ignition from a wildland fire. In many cases, the natural fuels are not separated from the fuels that make up the structure. A wildland fire could spread to structures by direct flame impingement. In addition, structures could be ignited from convective/radiant heat or fire brands.

After the 2021 fire event, it was apparent that additional fire breaks may be needed on the WCRTA. Fire breaks can effectively reduce the intensity of a fire by providing an area of reduced fuel load and allow for more effective combating. Fire breaks may also serve as a line from which back burns can be started.

Figure 3-7c. shows the Schroeder Fire boundary and the existing firebreaks on the WCRTA.

Prescribed Burns

Prescribed burning can be used on both the ATA and WCRTA to successfully improve large areas of habitat while also improving training land condition and reducing wildfire hazard. The current strategy through the foreseeable future is to manage the training areas with prescribed fire and mechanical thinning treatments. Suppression alone will not eliminate the risk for wildfires. Although fires may occur less frequently, they will inevitably occur. Fire on the WCRTA has the potential to threaten human resources, both on the installation and on adjacent public and private property. Fire on the ATA is less of a threat to human resources, as adjacent land use is primarily uninhabited farmland. Prevention, detection, and suppression of wildfires should remain a priority for local fire control organizations, but resource managers must, at the same time, actively work to reduce fuel loads in areas on both the ATA and WCRTA where flammable fuels have accumulated as a result of past management.

Prescribed burning is not meant to be an annual management practice but can be utilized to meet a specific management objective. In general, burning should be managed with regard for wildlife needs, such as nesting, feeding, and cover. Large plots of land should usually not be burned at one time. The timing of the burn may depend on the specific management objective that is desired. Please refer to Table 3.7 for general prescribed burn guidelines.

Table 3.7. Prescribed Burn Guidelines

Purpose of Prescribed Burn	Vegetation Type	Season to Burn	Frequency of Burn
Improve Quality of Wildlife Habitat	Warm Season Native Grasses*	April 1 – May 15 (when natives have ½ to 3 inches of new growth, less than 1 inch of growth preferred)	3-5 years (ATA) >5 years (WCRTA)
	Forbs	September 1 – February 1	3-5 years
	Cool Season Grasses**	March 1 – April 15 (when cool season grasses have 2 inches or less of new growth)	3-5 years
Improve Forage Quality for Grazing, Haying, Biomass Production	Warm Season Native Grasses	April 1 – May 15 (when natives have ½ to 3 inches of new growth, less than 1 inch of growth preferred)	3-5 years
	Cool Season Grasses	April 1 – May 15 (< 2 inches of new growth; less than 1 inch of growth preferred)	2-4 years
	Mixed Warm and Cool Season Grasses	Use above date to promote growth of declining group	2-5 years
To control Undesirable Vegetation	Cedar Trees	September 1 – May 20	3-5 years (effective for trees less than 5 feet tall)
	Deciduous Trees and Shrubs	April 1 – May 15 (when buds start to swell)	2 consecutive years, then every 3-5 years as needed (combine with mechanical/chemical controls)
	Introduced Grasses	April 20 – May 20 (when introduced grasses have 5-10 inches of new growth)	3-5 years (may combine with mechanical controls)
	Reduce Noxious Weeds (Perennials)	Before flowering	As needed

*species include big bluestem, Indiangrass, little bluestem, side-oats grama, switchgrass

**species include Kentucky bluegrass, tall fescue, creeping fescue, annual ryegrass, perennial ryegrass, orchardgrass, timothy

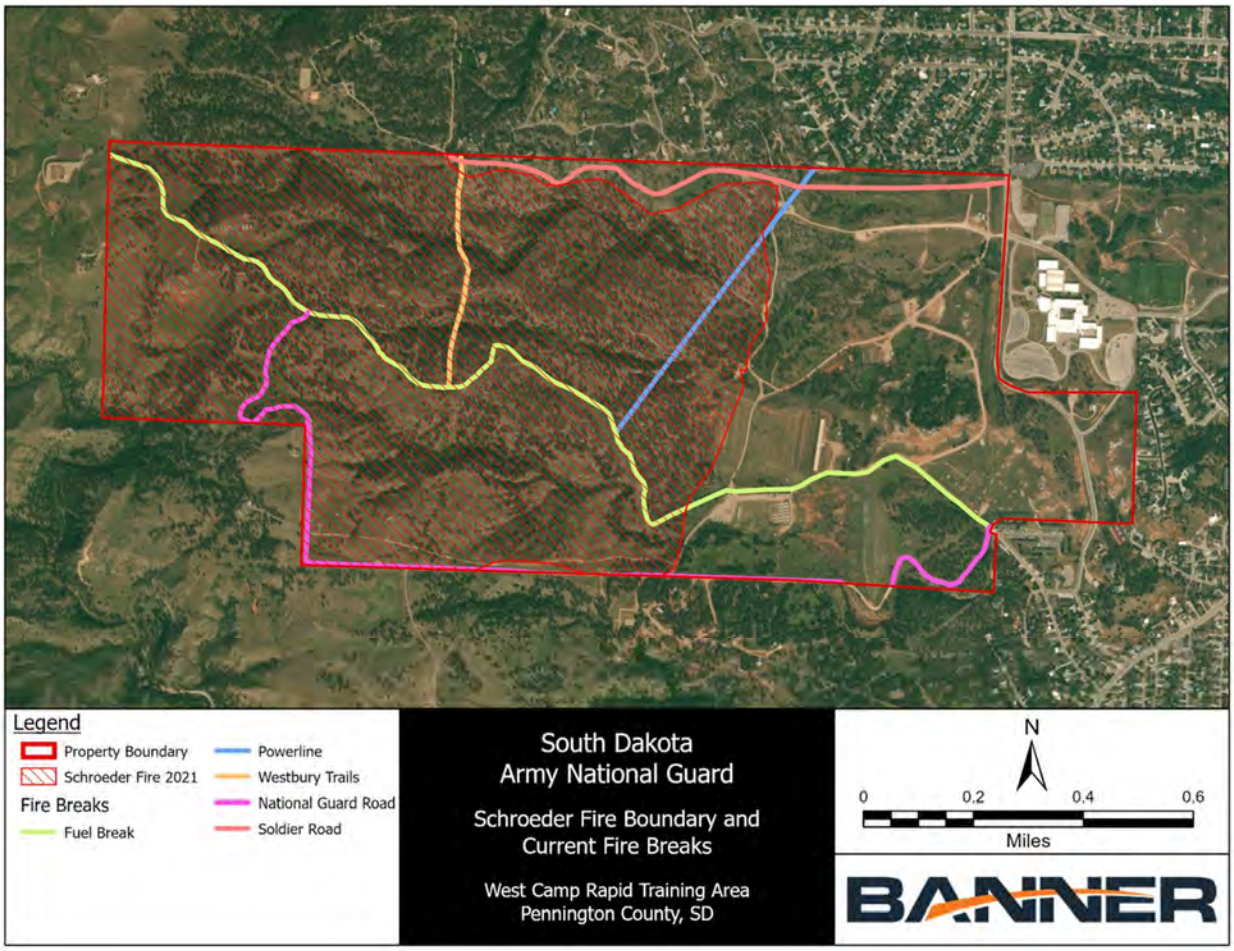

Figure 3-7c. Schroeder Fire and Firebreak Locations

Fuels Reduction

Shown in Figure 3-7d., previous hazardous fuels reduction work has been performed as follows:

- 2011—60 acres thinned (dog hair pines, bark beetle infested trees)
- 2012—100 acres thinned (removal of bark beetle infected trees)
- 2013—Infested tree removal (not to exceed 150 trees) non-infected dead tree removal and storm damage tree removal (not to exceed 230 trees)
- 2014—80 acres tree thinning (ladder fuel trees, marketable mature trees, and dog hair pines)
- Dog hair pine was chipped, chunked, or removed from the training area. Bug trees were cut, removed, slash chipped or chopped. Dog hair pine that was large enough to be utilized for firewood was de-limbed and centrally stockpiled for future humanitarian firewood haul missions to local reservations as part of a Golden Coyote Annual Training Project.
- 2015 – 14 acres thinned
- 2016 – 55 acres thinned
- 2017 – 24 acres thinned
- 2018 – 24 acres thinned, burned 2000 slash piles from thinning project

- 2019 – 13 acres thinned (8 acres of fire break), burned 2000 slash piles from thinning project

Continued proactive fuel management will reduce the impact on the property in the event of wildland fire and will be continued with appropriate management practices, including commercial harvesting, mastication, cut pile and burn, fuel breaks, and overall fuel reductions on a landscape scale. (See Section 4.2, Forest Management). Forestry BMPs for South Dakota (SDDA 2003) will be followed. These BMPs are practical activities that protect water quality during and after timber harvest and management by reducing erosion and the amount of sediment that reaches streams. Forestry BMPS are incorporated in numerous management strategies summarized in the Appendix, Table A-3. The BMPs were established in 1980 and revised in 1993 and 2003. Both revisions were then adopted in the South Dakota Non-point Source Pollution Management Plan (SDDANR 2014).

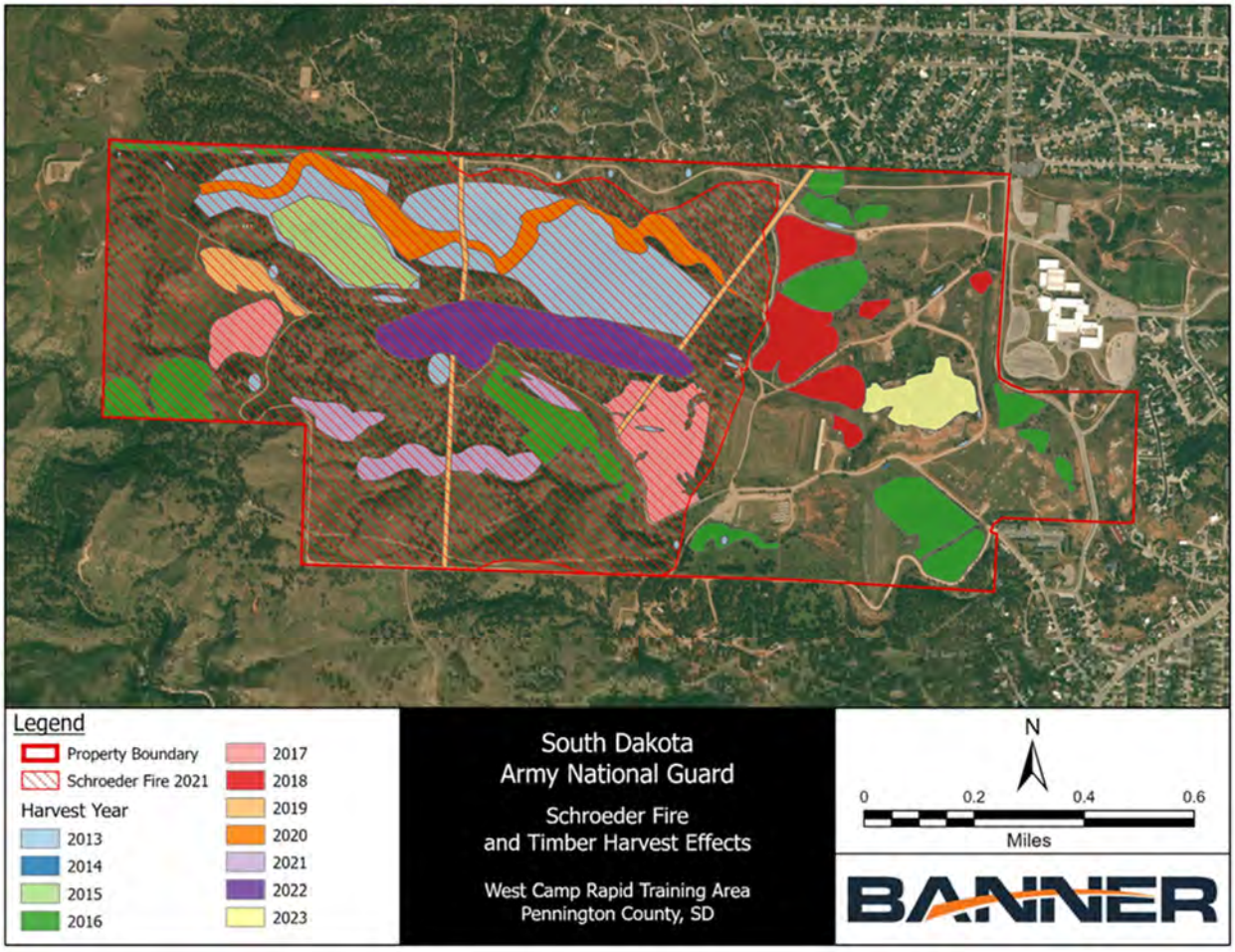

Figure 3-7d. Schroeder Fire and Proposed Timber Thinning Locations

3.8 FOREST PEST MANAGEMENT

3.8.1 ATA

No forest pests have been identified at ATA. The emerald ash borer has been documented in Lincoln County near Canton. During annual biological surveys, personnel conducting surveys will monitor for evidence of emerald ash borers.

3.8.2 WCRTA

A Forest Pest Management Plan (AMEC 2007) addressed current issues associated with bark beetle control and ponderosa pine health and management. The document provided a thorough literature review and a forest pest management strategy for the 355 acres of forested land at WCRTA.

In 1998, U.S. Forest Service entomologists conducted a site visit at WCRTA. The only pest of concern found at that time was *Ips spp.* bark beetles. In May 1998, there was no evidence of mountain pine beetles or any other damaging agents (i.e., sawflies, rodents, foliage and/or root rust or decay diseases) within the SDARNG property. In late July 2007, AMEC biologists and a U.S. Forest Service entomologist met with WCRTA staff to better understand the extent of the bark beetle infestation on the property. Both mountain pine beetle and pine engraver (*Ips spp.)* were identified within WCRTA.

Mountain pine beetles attack and kill lodgepole (*Pinus contorta*), ponderosa (*Pinus ponderosa*), sugar (*Pinus lambertiana*), and western white (*Pinus monticola*) pines. Outbreaks frequently develop in lodgepole pine stands that contain well-distributed, large diameter trees or in dense stands of "pole-sized" ponderosa pine (Amman et al. 1997). The most common host in the Black Hills is the ponderosa pine (SDDA 2020b). Pine engraver beetles will attack almost any species of pine in the West, especially ponderosa, lodgepole, Scots (*Pinus sylvestris*), and Austrian (*Pinus nigra*) pines (SDDA 2007). The beetles maintain their populations in logging slash, wind or storm damaged trees, and the tops or limbs of weakened trees (Kegley et al. 1997). The most frequent damage by pine engraver beetles is in second growth ponderosa pine stands where overstocked poles (2 to 8-inch diameter at breast height) are attacked (Kegley et al. 1997).

There is no single predictor of what triggers a bark beetle population increase. Outbreaks are the result of one or more factors (biotic and abiotic) that determine the rate of increase and the number of bark beetles that will emerge at a specific time. Biotic factors include bark beetle population biology, type, and age and distribution of tree species (Samman and Logan 2000). Abiotic factors have to do with climate, geographic location, topographic features, weather conditions, recent history of the forest, and whether large scale disturbances (i.e., extreme wind, fire, snow and ice, or avalanches) have made the forest more or less susceptible to population increases (Samman and Logan 2000). For an outbreak to occur, large numbers of susceptible trees, a triggering mechanism (i.e., extended drought), and bark beetles must all come together at the same time and location. Bark beetle impacts can be significant in the urban and urban/wildland interface areas because of the effect on property values and the risk of wildfire (Samman and Logan 2000). When a large-scale outbreak occurs in an area, fuel loads will increase, leading to increased potential for large-scale crown fires and replacement of tree cover with grasses and shrubs (Samman and Logan 2000).

Treatment methods are not designed to eliminate bark beetles from the ecosystem, rather they are developed to minimize the damage in an infested tree stand and prevent the spread of an infestation into

uncontaminated tree stands. Tree stands with an increased risk for bark beetle attack are those stands that have older, larger diameter trees. These trees tend to grow less vigorously and have become weakened and senescent over the years (Samman and Logan 2000). Coupled with overcrowded forests, deficiency in moisture availability is also a large factor in tree and forest health decline (Fettig et al. 2006). Tree stands containing trees that were damaged by lightning, storms, or construction are also at risk. The prompt removal of these damaged trees significantly reduces the likelihood of successful bark beetle attacks (Douce et al. 2002).

Beetle infested trees were removed as part of INRMP implementation projects in 2015-2019. Proactive practices to monitor and combat pine engraver (*Ips spp*.) and mountain pine beetle outbreaks will continue. Section 4, Resources Management, provides further recommendations and information on forest pest management.

3.9 FAUNA

3.9.1 ATA

Several biological surveys have been conducted on ATA over the years, with the most recent surveys occurring in 2020 (Banner Associates 2020). The 2020 survey identified a total of 33 species of birds, 10 species of mammals, and 3 species of reptiles. ***Table 3-9a*** below presents a list of species, frequency of observance, and the habitat area where each species was observed on ATA. Total species documented on ATA from combined surveys consist of 146 species: 36 mammals, 98 birds, 8 amphibians, and 4 reptiles on the ATA (See ***Appendix D, Table D-1***). Anecdotal observations suggest the occasional presence of an additional two species not observed during this survey or previous surveys. These include the red-sided garter snake (*Thamnophis sirtalis parietalis*) and eastern hog-nosed snake (*Heterodon platirhinos*). The eastern hog-nosed snake is a state-listed species known to occupy habitats near and along the Missouri River in southeast South Dakota. Occurrences of the hog-nosed snake have been documented near Elk Point (SDGFP, 2021). The Cope's gray treefrog (*Dryophytes chrysoscelis*) was a newly detected amphibian species on the ATA. No additional mammals, birds, or reptiles were documented from the 2020 survey.

During the 2021 wetland delineation, bobwhite quail (*Colinu virginianus*) were heard vocalizing. Individuals were not visually observed. Bobwhites were last observed on the ATA during the 2005-2006 surveys.

Table 3-9a. List of Species Encountered, Frequency of Observation, and Habitat Types for the ATA 2020 Survey

Species (*Scientific Name*)	Number Observed	Habitat Area			
		AF	UF	OF	RF
Coyote (*Canis latrans*)	1			X	
Eastern cottontail rabbit ((*Sylvìlagus floridanus*)	1	X			
Cope's gray tree frog (*Dryophytes chrysoscelis*)	1	X			
Northern leopard frog *(Rana pipiens)*	1				X
Woodhouse toad (*Anaxyrus woodhousii*)	6	X			X
Deer mouse (*Peromyscus maniculatus*)	26	X		X	X
Meadow jumping mouse (*Zapus hudsonius)*	2			X	

Species (*Scientific Name*)	Number Observed	Habitat Area			
		AF	UF	OF	RF
White-footed mouse (*(Peromyscus leucopus)*	4	X		X	X
Meadow vole (*Microtus pennsylvanicus*)	1	X			
Pygmy shrew *(Sorex hoyi)*	3		X	X	
Fox squirrel (*Sciurus niger*)	2		X		
Racoon (*Procyon lotor*)	2		X		
White-tailed deer (*Odocoileus virginianus*)	52	X	X	X	X
American crow (*Corvus brachyrhynchos*)	3		X		
American goldfinch *(Spinus tristis)*	30	X	X	X	X
American robin (*Turdus migratorius*)	16	X	X	X	X
Barn swallow (*Hirundo rustica*)	8	X		X	X
Tree swallow (*Tachycineta bicolor*)	24	X	X	X	X
Black-capped chickadee (*Poecile atricapillus*)	4				X
Blue jay (*Cyanocitta cristata*)	8	X	X	X	X
Brewer's blackbird *(Euphagus cyanocephalus)*	8	X		X	X
Brown-headed cowbird (*Molothrus ater*)	10		X	X	X
Brown thrasher *(Toxostoma rufum)*	9			X	X
Common grackle (*Quiscalus quiscula*)	14			X	X
Eastern bluebird (*Sialis sialis)*	3			X	X
Eastern kingbird *(Tyrannus tyrannus)*	8	X		X	X
Eastern phoebe (*Sayornis phoebe*)	2			X	X
Downy woodpecker *(Picoides pubescens)*	3		X	X	X
Red-headed woodpecker *(Melanerpes erythrfocephalus)*	33	X	X	X	X
Northern cardinal *(Cardinalis cardinalis)*	5	X	X	X	
House finch (*Carpodacus mexicanus*)	3		X	X	
Mourning dove (*Zenaida macroura*)	18	X		X	X
Northern bobwhite (*Colinu virginianus*)	(audible)		X		X
Northern flicker (*Colaptes auratus*)	5	X		X	
Great crested flycatcher *(Myiarchus crinitus)*	3	X			X
Gray catbird (*Dumetella carolinensis)*	1	X			
Rose breasted grosbeak (Pheucticus ludovicianus)	1		X		
Red-tailed hawk (*Buteo jamaicensis*)	2	X		X	
Turkey vulture (*Cathartes aura*)	12		X	X	X
Western meadowlark (*Sturnella neglecta*)	1			X	
Baltimore oriole *(Icterus galbula)*	43	X	X	X	X
Orchard oriole (*Icterus spurius*)	11	X	X	X	X
House wren *(Troglodytes aedon)*	12	X		X	X
Hermit thrush *(Catharus guttatus)*	3	X			

Species (*Scientific Name*)	Number Observed	Habitat Area			
		AF	UF	OF	RF
Wild turkey (*Meleagris gallopavo*)	21	X	X	X	
Orange crowned warbler (*Vermivora celata*)	17		X	X	X
Yellow warbler (*Dendroica petechial*)	7	X			X

[1]AF- Alluvial Forest: RF- River Front; UF- Upland Forest; OF- Open Field

3.9.1.1 Birds

Bird counts were conducted in 2020 using standard avian point-based survey methods following the southeastern point count (SEPTCT) method. Twelve sampling points were randomly stratified among each of the habitat types using multiple sampling points in each major habitat type. Each count lasted approximately 8 minutes, and all bird species seen or heard (call) during that time were recorded. The primary objective was simply to develop, as best as possible, a comprehensive list of birds found in the training areas. Bird species identified (visual or call) during visual encounters or transect surveys were recorded on general data collection sheets for mammals, birds, reptiles, and amphibians by station.

A total of 33 species of birds were detected during point counts, transects, and incidental observations. In combination with previous surveys, 98 avian species have now been recorded in the ATA. The 11 most frequently observed species during this survey were the wild turkey (*Meleagris gallopavo*), mourning dove (*Zenaida macroura*)], tree swallow (*Tachycineta bicolor*), American robin (*Turdus migratorius*), turkey vulture (*Cathartes aura*), Baltimore oriole (*Icterus galbula*), orange crowned warbler (*Vermivora celata*), red-headed woodpecker (*Melanerpes erythrfocephalus*), common grackle (*Quiscalus quiscula*), American goldfinch (*Spinus tristis*), and the house wren (*Troglodytes aedon*). No birds observed during this survey are federally listed as threatened or endangered under the ESA.

The Northern bobwhite quail was vocally heard during the 2021 wetland delineation. The bobwhite is a Mission Sensitive Species (MSS), a species in a steep decline, that, if listed under the Endangered Species Act, could impact the military mission. The purpose of the MSS list is to help the DoD natural resource managers prioritize monitoring and management efforts of those species and their habitats to help reverse trends and/or prepare installations for potential listings. The bobwhite is found in a wide variety of semi-open habitats, including brushy meadows, overgrown fields, or where pastures or agricultural fields are next to hedgerows or wooded areas. Quality bobwhite quail habitat consists of native warm-season grasses, particularly broomsedge, Indiangrass, and little bluestem, interspersed with native legumes such as partridge pea and beggarticks. Quail require a minimum of nine-inches of overhead cover for nesting, which is easily supplied in stands of well-managed warm season grasses.

The ATA is at the northern edge of the species range and offers suitable habitat for the bobwhite. Prescribed burns on the ATA could be utilized as a management tool to enhance quail habitat.

3.9.1.2 Mammals

Surveyors detected 10 species of mammals through visual observation, drift fence pitfall traps, Sherman traps, and/or scent stations. Most species detected are common in the ATA, such as white-tailed deer (*Odocoileus virginianus*), deer mouse (*Peromyscus maniculatus*), raccoon (*Procyon lotor*), eastern cottontail (*Sylvilagus floridanus*), and fox squirrel (*Sciurus niger*). No mammals observed during the survey were federally listed as threatened or endangered under the ESA. Two mammal species observed, the meadow jumping mouse (*Zapus hudsonius)* and the pygmy shrew *(Sorex hoyi)*, are listed on the SDNHP species list as G-5. G5 indicates that on a global scale, the species is demonstrably secure though it may be quite rare in parts of its range, especially at the periphery. The pygmy shrew has a state ranking of S2,

imperiled because of rarity or because factors make it very vulnerable to extinction throughout its range. The meadow jumping mouse has a state ranking of S3. S3 indicates that the species is either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range, or vulnerable to extinction throughout its range because of other factors.

In addition to this survey, an acoustical survey for bats was conducted in 2019 (WSP 2020b). Of the 13 bat species present in South Dakota, nine are thought to occur on the training area (***Table 3-9b)***. The most recent survey did not document the occurrence of the northern long-eared bat (*Myotis septentrionalis*), which is listed as federally threatened, however they have been documented on previous occasions (WSP 2020a; Tigner 2014).

Table 3-9b. Bat Species thought to occur on ATA.

Common Name	*Scientific Name*	*Federal or State Status*
Big Brown Bat	*Eptesicus fuscus*	
Hoary Bat	*Lasiurus cinereus*	
Northern Long-eared Bat	*Myotis septentrionalis*	Federally Threatened, SGCN
Silver-haired Bat	*Lasionycteris noctivagans*	SGCN
Eastern Red Bat	*Lasiurus borealis*	
Western Small-footed Bat	*Myotis ciliolabrum*	
Evening Bat	*Nycticeius humeralis*	SGCN
Tri-color Bat (Eastern pipistrelle)	*Perimyotis subflavus*	
Little Brown Bat	*Myotis lucifugus*	

*SGCN – Species of Greatest Conservation Need. Species considered rare whose distributions are monitored by the South Dakota Natural Heritage Program (SDNHP).

The little brown bat and the tri-color bat are thought to occur on the ATA. These two bat species are currently undergoing a USFWS species status assessment (SSA) to assess and describe the current status and forecast each species' viability to sustain healthy populations into the future and evaluate the need for potential protection under the ESA. Key influences on the species included white-nose syndrome, mortality related to wind energy, winter and summer roost loss, hibernacula disturbance, and structure exclusions. The SSA report will likely be completed in 2021 with appropriate documents published in the Federal Register by August 2022.

3.9.1.3 Fish

Game fish known to exist in the Missouri River include walleye (*Stizostedion vitreum*), sunfish (*Lepomis spp.),* crappie (*Pomoxis spp.),* and pike (*Esox spp*.), and bass (*Micropterus spp*.). Fishing season is open year-round in the state of South Dakota. In accordance with SDARNG regulations, fishing is not allowed on the ATA. Refer to Section 4.4, Fish and Wildlife Management.

3.9.1.4 Reptiles and Amphibians

During this survey, three amphibians were documented, the Woodhouse toad *(Anaxyrus woodhousii*), northern leopard frog (*Rana pipiens*), and Cope's gray tree frog. No reptiles were documented. Previous surveys for reptiles and amphibians in the ATA documented the Blanchard's cricket frog (*Acris crepitans blanchardi*) and the false map turtle (*Graptemys pseudogeographica*) (Louis Berger 2017a). One species observed in 2020, Cope's gray tree frog, is listed on the SDNHP species list as G-5. G-5 indicates that on a global scale, the species is demonstrably secure though it may be quite rare in parts of its range, especially

at the periphery. Cope's gray tree frog has a state ranking of S2, imperiled because of rarity or because factors make it very vulnerable to extinction throughout its range.

3.9.2 WCRTA

Several biological surveys have been conducted on WCRTA, with the most recent occurring in 2020 (Banner Associates 2020). During the 2020 survey, a total of 35 species of birds, 8 species of mammals, and 1 species of reptile were observed (***Table 3-9c)***. Total species documented on WCRTA from combined surveys consist of 122 species: 20 mammals, 96 birds, 2 amphibians, and 4 reptiles on the WCRTA (See ***Appendix D, Table D-2***). Anecdotal observations suggest the occasional presence of an additional five species not observed during this survey or previous surveys. These include mountain lion (*Felis concolor*), bobcat (Felis rufus), bighorn sheep (*Ovis canadensis*), elk (*Cervus elaphus*), and prairie rattlesnake (*Crotalus viridis*). The Swainson's hawk (*Buteo swainsoni*) was a newly detected bird species on the WCRTA as was the prairie vole (*Microtus ochrogaster*) for mammal species. No additional amphibians or reptiles were documented from the 2020 survey.

Table 3-9c. List of Species Encountered, Frequency of Observation, and Habitat Types for the WCRTA 2020 Survey

Species (*Scientific Name*)	Number Observed	Habitat Area			
		DD	GP	PS	MP
Coyote (*Canis latrans*)	1	X			
Deer mouse (*Peromyscus maniculatus*)	16	X		X	X
Eastern cottontail (*Sylvilagus floridanus*)	1			X	
Least chipmunk (*Tamias minimus*)	1	X			
Prairie vole (*Microtus ochrogaster)*	3	X			X
Racoon (*Procyon lotor*)	2	X			
Red squirrel (*Tamiasciurus hudsonicus*)	6	X			X
White-tailed deer (*Odocoileus virginianus*)	50	X	X	X	X
American crow (*Corvus brachyrhynchos*)	3	X		X	X
American kestrel (*Falco sparverius*)	1				X
American robin (*Turdus migratorius*)	21	X	X	X	X
Barn swallow (*Hirundo rustica*)	2		X		
Black-billed magpie (*Pica hudsonia*)	18	X		X	X
Black-capped chickadee (*Poecile atricapillus*)	14	X	X	X	X
Blue jay (*Cyanocitta cristata*)	4	X		X	X
Brown-headed cowbird (*Molothrus ater*)	3				X
Common grackle (*Quiscalus quiscula*)	1		X		
Common nighthawk (*Chordeiles minor*)	4	X		X	
Dark-eyed junco (*Junco hyemalis*)	1	X			
Eastern bluebird (*Sialis sialis)*	3			X	X
Great horned owl (*Bubo virginianus*)	3	X			

Species (*Scientific Name*)	Number Observed	Habitat Area			
		DD	GP	PS	MP
Hairy woodpecker (*Picoides villosus*)	3	X		X	
House finch (*Carpodacus mexicanus*)	17	X	X	X	X
House sparrow (*Passer domesticus*)	1				X
Mountain bluebird (*Sialia currucoides*)	6		X	X	X
Mourning dove (*Zenaida macroura*)	21	X	X	X	X
Northern flicker (Colaptes auratus)	6	X			X
Osprey (Pandion haliaetus)	1		X		
Pine siskin (*Spinus pinus)*	1			X	
Pygmy nuthatch (*Sitta pygmaea*)	1		X		
Red-breasted nuthatch (*Sitta canadensis*)	6	X		X	X
Red-headed woodpecker (*Melanerpes erythrocephalus)*	4			X	X
Red-tailed hawk (*Buteo jamaicensis*)	6	X	X	X	X
Song sparrow (*Melospiza melodia*)	10		X	X	X
Spotted towhee *(Pipilo maculatus*)	10	X		X	X
Swainson's hawk (*Buteo swainsoni*)	1		X		
Tree swallow (*Tachycineta bicolor*)	8		X		X
Turkey vulture (*Cathartes aura*)	20	X	X	X	X
Western meadowlark (*Sturnella neglecta*)	7				X
Western wood-pewee (*Contopus sordidulus*)	2	X			
White-breasted nuthatch (*Sitta carolinensis*)	9	X		X	X
Wild turkey (*Meleagris gallopavo*)	8	X			
Yellow warbler (Dendroica petechial)	1		X		
Yellow-bellied racer (*Coluber constrictor flaviventris*)	1	X			

[1]GP- Gypsum Prairie; DD- Deciduous Drainage; MP- Mixed Prairie; PS- Pine Steppe

3.9.2.1 Birds

Bird counts were conducted using standard avian point-based survey methods following the southeastern point count (SEPTCT) method. Twelve sampling points were randomly stratified among each of the habitat types using multiple sampling points in each major habitat type. Each count lasted approximately 8 minutes, and all bird species seen or heard (call) during that time were recorded. The primary objective was simply to develop, as best as possible, a comprehensive list of birds found in the training areas. Bird species identified (visual or call) during visual encounters or transect surveys were recorded on general data collection sheets for mammals, birds, reptiles, and amphibians by station.

A total of 35 species of birds were detected during point counts, transects, and incidental observations. In combination with previous surveys, 96 avian species have now been recorded in the WCRTA. The 11 most frequently observed species observed during this 2020 survey were black-capped chickadee (*Poecile atricapillus*), wild turkey, American robin, mourning dove, black-billed magpie (*Pica hudsonia*), house finch (*Carpodacus mexicanus*), song sparrow (*Melospiza melodia*), spotted towhee *(Pipilo maculatus*), turkey

vulture, tree swallow, and white-breasted nuthatch (*Sitta carolinensis*). No birds observed during this survey are federally listed as threatened or endangered under the ESA.

3.9.2.2 Mammals

Surveyors detected eight species of mammals through visual observation, drift fence pitfall traps, Sherman traps, and/or scent stations. Most species detected are common in the WCRTA, such as white-tailed deer, deer mouse, prairie vole, raccoon, eastern cottontail, least chipmunk (*Tamias minimus*), and red squirrel *(Tamiasciurus hudsonicus*). No mammals observed are federally listed as threatened or endangered under the Endangered Species Act (ESA).

In addition to this survey, an acoustical survey for bats was conducted in 2019 (WSP 2020a). Of the 13 bat species present in South Dakota, all are thought to occur on the training area (***Table 3-9d)***. The most recent survey did not document the occurrence of the northern long-eared bat, which is listed as federally threatened. However, the species has been documented on previous occasions (WSP 2020a; Accipiter 2007; Tigner 2011).

Table 3-9d. Bat Species thought to occur on WCRTA.

Common Name	***Scientific Name***	***Federal or State Status***
Big Brown Bat	*Eptesicus fuscus*	
Hoary Bat	*Lasiurus cinereus*	
Northern Long-eared Bat	*Myotis septentrionalis*	Federally Threatened, SGCN
Silver-haired Bat	*Lasionycteris noctivagans*	SGCN
Eastern Red Bat	*Lasiurus borealis*	
Western Small-footed Bat	*Myotis ciliolabrum*	
Evening Bat	*Nycticeius humeralis*	SGCN
Tri-color Bat (Eastern pipistrelle)	*Perimyotis subflavus*	
Little Brown Bat	*Myotis lucifugus*	
Long-legged Myotis	*Myotis volans*	
Fringe-tailed Myotis	*Myotis thysanodes*	SGCN
Townsend's Big-eared Bat	*Corynorhinus townsendii*	SGCN
Long-eared myotis	*Myotis evotis*	SGCN

*SGCN – Species of Greatest Conservation Need. Species considered rare whose distributions are monitored by the South Dakota Natural Heritage Program (SDNHP).

The little brown bat and the tri-color bat are thought to occur on the WCRTA. These two bat species are currently undergoing a USFWS species status assessment (SSA) to assess and describe the current status and forecast each species' viability to sustain healthy populations into the future and evaluate the need for potential protection under the ESA. Key influences on the species included white-nose syndrome, mortality related to wind energy, winter and summer roost loss, hibernacula disturbance, and structure exclusions. The SSA report will likely be completed in 2021 with appropriate documents published in the Federal Register by August 2022.

3.9.2.3 Reptiles and Amphibians

During this survey, one reptile, the eastern yellow-bellied racer (*Coluber constrictor flaviventris*), was documented. However, other species of amphibians and reptiles have been observed in previous surveys. In 2007, the eastern yellow-bellied racer, smooth green snake (*Opheodrys vernalis*), and bull snake (*Pituophis catenifer sayi*) were documented (Accipiter 2007). In 2017 the eastern yellow-bellied racer and Boreal Chorus Frog (*Pseudacris maculate)* were observed (Louis Berger 2017b). In addition, evidence suggests the tiger salamander (*Ambystoma tigrinum*), plains garter snake (*Thamnophis radix*), and the prairie rattlesnake may also occur on the training area (SDARNG 2015b).

3.10 THREATENED AND ENDANGERED SPECIES

The ESA provides protection for listed species and their critical habitat. It requires special consultation and assessment of impacts on listed and proposed species for projects authorized, funded, or carried out by federal agencies. In addition, the state of South Dakota has a similar state-specific law, the Endangered Species Law (South Dakota Codified Law 34A-8) that protects species that are threatened or endangered within the state of South Dakota. Similarly, the SDNHP, a joint venture between the SDGFP and the Nature Conservancy lists species of concern within the state that are not necessarily covered in the two preceding laws.

The draft INRMP was sent to USFWS and SDGFP for their review and comment with regard to potential state or federal threatened or endangered species that may be present on the ATA or WCRTA.

3.10.1 Federally Listed Species

3.10.1.1 ATA

The USFWS lists several species as threatened (T) or endangered (E) for Union County, South Dakota (***Table 3-10a***).

Table 3-10a. Federally Listed Threatened or Endangered Species for Union County

GROUP	NAME	POPULATION	STATUS
Birds	Piping plover (*Charadrius melodus*)	Except Great Lakes watershed	FT
	Rufa red knot (*Calidris canutus rufa*)		FT
Bivalves	Scaleshell mussel (*Leptodea leptodon*)		FE
Fishes	Pallid sturgeon (*Scaphirhynchus albus)*	Entire	FE
Flowering Plants	Western prairie fringed orchid (*Platanthera praeclara*)		FT
Mammals	Northern long-eared bat (*Myotis septentrionalis)*		FT

Source: USFWS 2020

No federally listed threatened or endangered species were observed onsite during the 2020 survey. In addition, the most recent acoustic survey did not verify the occurrence of the northern long-eared bat on the training area. Nevertheless, it was suggested if the species is present, their numbers are low and use

of the area is minimal (WSP 2020b). The species have been documented on previous occasions (Accipiter 2007, Tigner 2014), suggesting the species could potentially be found in the training area.

> **Northern Long-eared Bat**—The current range of northern long-eared bat includes the entire state of South Dakota; however, the range for this species is expected to be adjusted as better scientific information becomes available. USFWS defines suitable summer habitat for the northern long-eared bat as a wide variety of forested/wooded habitats where they roost, forage, and travel. Their habitat may also include some adjacent and interspersed non-forested habitats, such as emergent wetlands and adjacent edges of agricultural fields, and pastures. The ATA has no man-made structures, and bat roosting habitat is limited to tree cavities or exfoliating bark on larger-diameter trees, which would not offer protection during the winter. No suitable winter habitat for northern long-eared bat was specifically identified at the ATA (SDARNG 2015a).

In accordance with Section 7 of the ESA, SDARNG made a determination that training actions may affect, but are not likely to adversely affect the continued existence of the northern long-eared bat. USFWS concurred with this determination for the 2015 INRMP (SDARNG 2015a). The 2021 draft INRMP was sent to USFWS for their review and comment. Comment letters, when received, will be placed in *Appendix B.* Management strategies/procedures to reduce or remove adverse effects to the threatened species or its habitats are incorporated within this INRMP in Section 4.12.1.

No federally listed threatened or endangered bird species have been observed on the ATA during previous surveys. Under low-flow river conditions, the ATA could potentially be adjacent to emergent sandbar habitats in the Missouri River, however suitable sandbar habitat for the piping plover (*Charadrius melodus*) was not found during the 2020 survey. Therefore, activities occurring on the ATA are unlikely to have any influence on bird species that may utilize sandbar habitats.

3.10.1.2 WCRTA

The USFWS lists several species as threatened (T), endangered (E), or candidate (C) for Pennington, South Dakota (***Table 3-10b***).

No federally listed threatened or endangered species were observed onsite during the 2020 survey or during the most recent bat survey conducted in 2019 (WSP 2020a). However, the northern long-eared bat was located during a previous wildlife survey (Accipiter 2007) and during an acoustic survey specifically for bats (Tigner 2011), suggesting that the species could potentially be found in the training area. No evidence of collective roosting was observed on any occasion. The fluctuation in call activity at sites surveyed on consecutive nights may indicate the property serves as a corridor for bats moving from lower elevations into the Black Hills where hibernacula are located. No suitable winter habitat for northern long-eared bat was specifically identified at the WCRTA (SDARNG 2015b).

Table 3-10b. Federally Listed Threatened or Endangered Species for Pennington County

GROUP	NAME	POPULATION	STATUS
Birds	Whooping crane (*Grus americana*)	except where EXPN	FE
	Rufa red knot (*Calidris canutus rufa*)		FT
Mammals	Northern long-eared bat (*Myotis septentrionalis)*		FT
	Black-footed ferret (*Mustela nigripes)*		FE

Source: USFWS 2020

Northern Long-eared Bat—The current range of northern long-eared bat includes the entire state of South Dakota; however, the range for this species is expected to be adjusted as better scientific information becomes available. USFWS defines suitable summer habitat for the northern long-eared bat as a wide variety of forested/wooded habitats where the species roost, forage, and travel. Their habitat may also include some adjacent and interspersed non-forested habitats, such as emergent wetlands and adjacent edges of agricultural fields, and pastures. While bat droppings were observed around structures in the WCRTA, no evidence of collective roosting was observed. The fluctuation in call activity at sites surveyed on consecutive nights may indicate the property serves as a corridor for bats moving from lower elevations into the Black Hills where hibernacula are located. No suitable winter habitat for northern long-eared bat was specifically identified at the WCRTA (SDARNG 2015b).

In accordance with Section 7 of the ESA, SDARNG made a determination that training actions may affect, but not likely to adversely affect the continued existence of the northern long-eared bat. USFWS concurred with this determination for the 2015 INRMP (SDARNG 2015a). The 2020 draft INRMP was sent to USFWS for their review and comment. Comment letters, when received, will be placed in *Appendix B.* Management strategies/procedures to reduce or remove adverse effects to the threatened species or its habitats are incorporated within this INRMP in Section 4.12.1.

No federally listed threatened or endangered bird species have been observed on the WCRTA during previous surveys. The Black Hills area is not a typical stopover area during migration for rufa red knot or whooping crane. Suitable wetland habitat that is required by these species does not exist on the WCRTA. In addition, black-footed ferrets rely almost exclusively on black-tailed prairie dogs for food and habitat. No black-tailed prairie dog habitat is found on WCRTA; therefore, the likelihood of their presence is not found on the WCRTA.

3.10.2 State Listed Species

3.10.2.1 ATA

SDGFP lists the following as state threatened (ST) or endangered (SE) for Union County, South Dakota (***Table 3-10c)***.

Table 3-10c. State Listed Threatened or Endangered Species in Union County

GROUP	COMMON NAME	SCIENTIFIC NAME	STATUS
Birds	Interior least tern	*Sternula antillarum athalassos*	SE
	Piping Plover	*Charadrius melodus*	ST
Fishes	Pallid Sturgeon	*Scaphirhynchus albus*	SE
	Finescale dace	*Chrosomus neogaeus*	SE
	Sturgeon chub	*Macrhybopsis gelida*	ST
	Sicklefin chub	*Macrhybopsis meeki*	SE
Reptiles and Amphibians	Eastern hog-nosed snake	*Heterodon platirhinos*	ST
	False map turtle	*Graptemys pseudogeographica*	ST
	Lined snake	*Tropidoclonion lineatum*	SE
Mammals	Northern river otter	*Lontra canadensis*	ST

Source: SDGFP 2020b

South Dakota has a state-specific Endangered and Threatened Species law (South Dakota Codified Law 34A-8). No state-listed species were observed during the 2020 survey.

One state-listed threatened species, the false map turtle, has been documented at the ATA during the 2017 survey (Louis Berger 2017a), but was not observed during the 2020 survey. During the 2017 survey, three false map turtles were identified basking on a log in a slow-moving water, shoreline eddy of the Missouri River at the former boat launch area. Observations have also been made directly across the Missouri River on the Nebraska side, as well as anecdotal accounts (SDARNG 2015a). Habitat for this species includes large rivers, backwaters, lakes, and flooded floodplains. Turtles need basking sites and aquatic vegetation. The backwater area near the former boat landing area along the Missouri River provides such habitat, which appears limited in the area. The stretch of river located on the training area compromises some of the most suitable remaining habitat for false map turtles in South Dakota. The impoundment of the Missouri River has greatly affected false map turtle distribution by altering their natural habitat on the river. The riverine habitat on the training area is part of a 59-mile stretch of the Missouri River downstream of Gavins Point Dam that is one of only two remaining parts of the river that are considered free-flowing and not channelized (Dieter et al. 2014). Nesting habitat (i.e. sandbar islands) is not found on the training area, however, it is known to occur within 5 to 45 miles upstream (Louis Berger 2017). Because the status of false map turtles is limited to suitable habitat on the Missouri River and its associated large tributaries, this species is listed as threatened in South Dakota.

Two state-listed bird species, the interior least tern and the piping plover, have potential ranges that overlap the ATA, but no individuals or signs of their nesting were observed during the current or previous surveys. Suitable emergent sandbar habitat was not present during the 2020 survey. In addition, two reptiles, the eastern hog-nosed snake (*Heterodon platirhinos*) and the lined snake (*Tropidoclonion lineatum*) have ranges and habitats that also overlap the ATA, however, no signs or verified presence was documented in the 2020 survey.

Although recent surveys have not identified the lined snake as occurring on the ATA, suitable habitat is present and historical evidence shows they once had a presence near the ATA. Lined snakes use a variety of habitats, however, in South Dakota they are typically found in open grasslands and lightly wooded areas, often found on hillsides near rocky areas (SDGFP 2015). Their distribution in South Dakota is limited to the southeastern portion of the state, primarily along the Big Sioux River and James River corridors. This species is listed as endangered in South Dakota due to its limited distribution.

Protections provided to the bald eagle under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act continue to remain in place. Suitable winter habitat exists along the Missouri River for bald eagles, and an individual was sighted on ATA during previous surveys. In addition, an individual and nest were sited during a recent site visit in May 2015. As the cottonwood trees mature, the ATA may have the potential to provide winter roost habitat for bald eagles. See Section 4.4.3 discussion on management actions.

3.10.2.2 WCRTA

SDGFP lists the following species as state threatened (ST), endangered (SE), and Candidate (C) for Pennington County, South Dakota (***Table 3-10d*).**

Table 3-10d. State-Listed Threatened or Endangered Species for the WCRTA (Pennington County)

COMMON NAME	SCIENTIFIC NAME	STATE (S) STATUS Endangered (E) or Threatened (T)
Birds		
American dipper	*Cinclus mexicanus*	ST
Interior least tern	*Sternula antillarum athalassos*	SE
Osprey	*Pandion haliaetus*	ST
Peregrine falcon	*Falco peregrinus*	SE
Whooping crane	*Grus americana*	SE
Mammals		
Black-footed ferret	*Mustela nigripes*	SE
Northern river otter	*Lontra canadensis*	ST
Swift fox	*Vulpes velox*	ST
Fishes		
Longnose sucker	*Catostomus catostomus*	ST
Sturgeon chub	*Macrhybopsis gelida*	ST

Source: SDGFP 2020b

South Dakota has a state-specific endangered and threatened species law (South Dakota Codified Law 34A-8). Only one state-listed species was observed during the survey, the osprey (*Pandion haliaetus*).

> **Osprey**—An individual was observed flying towards the south, presumably to Canyon Lake or to another foraging area close by. Like many large birds of prey that were once plentiful across the United States, osprey populations abruptly declined from the use of pesticide dichlorodiphenyltrichloroethane (DDT), as well as habitat loss to development, and illegal methods of take. These threats have been addressed in most regions, and osprey numbers have gradually recovered over the last four decades. In South Dakota, the osprey is listed as a threatened species, and wildlife officials are working to increase their abundance (SDGFP 2017).
>
> Training exercises and other activities in the WCRTA are unlikely to influence osprey behavior. However, it is important that environmental managers are aware that these large birds occasionally fly over the WCRTA and intensive management operations, such as timber harvest or construction activities, could affect osprey's use of the surrounding landscape. The nearest documented osprey nest occurs approximately 1.5-miles to the northeast of the WCRTA at the cement plant in Rapid City (Casey Heimerl, personal communication, 2020)

Two additional state-listed birds with potential ranges that overlap the WCRTA are the American dipper (*Cinclus mexicanus)* and peregrine falcon (*Falco peregrinus*), but no individuals or signs of their nesting were observed during the current or previous surveys. The American dipper, also known as water ouzel,

lives alongside swift, clear streams and is known to occupy only two creeks in the Black Hills (Bakker 2005; Drilling 2019). No creeks or suitable habitat for American dipper are found in the WCRTA.

Based on the availability of its prey consisting primarily medium-sized birds, the peregrine falcon could potentially use the WCRTA. For the past several years, SDGFP has led a program to reintroduce the peregrine falcon to the Rapid City area, but occupied territories or reproduction by reintroduced peregrine falcons has not been documented. The nearest documented peregrine falcon eyrie occurs approximately 2-miles southwest of the WCRTA boundary (Casey Heimerl, personal communication, 2020).

3.10.3 The South Dakota Natural Heritage Program

This program monitors a number of species within the state due to decreasing populations, limited ranges, or because there is not enough information on the species within the state to determine status accurately. A list of species can be found at http://gfp.sd.gov/wildlife/threatenedendangered/rare-animal.aspx. SDARNG will report any observations of SDNHP monitored species to SDNHP (SDGFP 2020a).

3.10.3.1 ATA

Three species, Cope's gray treefrog, pygmy shrew, and the meadow jumping mouse, were observed during the 2020 survey and are listed on the SDNHP watch list. These species are considered rare species whose distributions are monitored by SDNHP (SDGFP 2020a). Additional information about these species follows:

Cope's Gray Treefrog – This species is primarily nocturnal, forages on a wide variety of invertebrates, and occurs in southeastern and northeastern South Dakota. Dorsal coloration of adults can either be gray or bright green in color, and individuals can change colors within a few hours. Irregular dark green or black blotches are often present on the back and the underside is pale gray or cream in color. On the inside thighs of adults is a large patch of bright yellow that is often concealed when individuals are resting. The Cope's gray treefrog is highly arboreal, with adults having large toe pads at the ends of each of the digits that allow it to climb. These treefrogs can be found breeding in riparian wetlands, fishless ponds, or flooded fields near forests or shelterbelts. Adults move to these wetland areas to breed, but return to upland, forested habitats where they are difficult to detect (HerpMapper 2020). The SDNHP classifies the species as a G5 (Global definition: demonstrably secure, though it may be quite rare in parts of its range, especially at the periphery), S2 (State definition: imperiled because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range) (SDGFP 2020a). One Cope's gray treefrog was collected in a pitfall trap in the AF habitat.

Pygmy Shrew –Preferred habitats for the pygmy shrew in South Dakota are moist prairies and riparian woodlands. The pygmy shrew builds a network of burrows under fallen logs and beneath tree roots. Populations are presumed to have declined because of agricultural development, including draining, filling, and plowing of wet meadows and other mesic landcover types. It is designated as a rare species to monitor by SDNHP largely because of poor documentation of its distribution, abundance, trends, and conservation status (Beauvais and McCumber 2006). Management actions on the ATA that would encourage the persistence of the pygmy shrew include avoidance of training areas in wet meadows and maintenance of overstory cover which would promote retention of soil moisture in seasonally wet areas. The SDNHP classifies the species as a G5 (Global definition: demonstrably secure, though it may

be quite rare in parts of its range, especially at the periphery), S2 (State definition: imperiled because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range) (SDGFP 2020a). This species was documented three times, occurring in the UF and OF habitats.

Meadow Jumping Mouse —Previous surveys found this mouse in the RF habitat type, occurring in willow-cattail communities. The species is not abundant and has likely declined because of the widespread loss of riparian habitat across the region. As with the pygmy shrew, management activities that minimize disturbance or alterations to riparian areas would benefit the species. The SDNHP classifies the species as a G5 (Global definition: demonstrably secure, though it may be quite rare in parts of its range, especially at the periphery), S3 (State definition: either very rare and local throughout its range, found locally (even abundantly at some of its locations) in a restricted range, or vulnerable to extinction throughout its range because of other factors (21 to 100 occurrences)) (SDGFP 2020a). This species was documented on two occasions in the OF habitat during the 2020 survey.

The diversity of relatively intact forested habitat and the presence of water year-round on the Missouri River provides habitat to numerous wildlife species. Seven SGCN species, the American white pelican (*Pelecanus erythrorhynchos*), eastern whip-poor-will (*Antrostomus vociferous*), pileated woodpecker (*Dryocopus pileatus*), veery (*Catharus fuscescens*), scarlet tanager (*Piranga olivacea*), plains leopard frog (*Rana blairi*), and Blanchard's cricket frog, have been documented in the ATA during previous surveys but were not observed during the 2020 survey. Three additional bat species are listed as SGCN and have been reported from previous surveys but were not documented during this survey—northern long-eared bat, silver-haired bat, and evening bat.

3.10.3.2 WCRTA

Three species observed during the 2020 survey are listed on the SDNHP watch list and are considered rare species whose distributions are monitored by SDNHP (SDGFP 2020a). These species include the osprey, Swainson's hawk, and pygmy nuthatch (*Sitta pygmaea)*. Additional information about these species, except the osprey, which is discussed above, follows. The osprey is also listed as SGCN in the SDGFP's 2015 State Wildlife Action Plan.

Swainson's Hawk – The Swainson's hawk is well adapted to varying habitats, but prefers to forage in open areas, such as low-stature agricultural fields, grasslands, and shrublands (Dowd Stukel 2014). They may nest in scattered tress or on cliffs and are common throughout most of the region, however, are considered migrants in the Black Hills (Wassink 2006). The SDNHP classifies them as a G5 (Global definition: demonstrably secure, though it may be quite rare in parts of its range, especially at the periphery), S4B (State definition for breeding season: apparently secure, though it may be quite rare in parts of its range, especially at the periphery. Cause for long term concern), SZN (State definition for non-breeding season: no definable occurrences for conservation purposes, usually assigned to migrants) (SDGFP 2020a). During the 2020 survey, one Swainson's hawk was observed flying over the GP habitat. It is highly likely the hawk was foraging over the WCRTA and not a permanent resident due to its preference of more open areas, such as agricultural landscapes.

Pygmy Nuthatch—This species is found primarily in mature ponderosa pine forests throughout the western United States (SDOU 1991). It is a rare, permanent resident of pine forests in the lower elevations of the Black Hills (Bakker 2005), such as the WCRTA. The pygmy nuthatch is listed as a sensitive species in the Rocky Mountain Region (R2) of the U.S. Forest Service based on its close association with unmanaged mature ponderosa pine forests, a

habitat that has substantially declined in recent years (Ghalambor 2003). The SDNHP classifies the species as a G5 (Global definition: demonstrably secure, though it may be quite rare in parts of its range, especially at the periphery), S1B (State definition for breeding season: critically imperiled because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction), SZN (State definition for non-breeding season: no definable occurrences for conservation purposes, usually assigned to migrants) (SDGFP 2020a). During this survey, one pygmy nuthatch was observed within the GP habitat. This habitat was relatively open, thinned forest, but territory size is smaller and reproductive output is higher in undisturbed mature forests (Ghalambor 2003). The loss of available large-diameter snags for nesting and roosting is thought to be a limiting factor for the pygmy nuthatch (American Bird Conservancy Undated). Thus, this species could benefit by leaving snags or not thinning dead or dying, large-diameter ponderosa pine trees on the WCRTA. However, it would be difficult to make inferences about the effects of management actions on this species because of its scarcity and localized distribution (SAIC 2005).

Seven SGCN species, the northern goshawk (*Accipiter gentilis*), great blue heron (*Ardea Herodias*), sharp-shinned hawk (*Accipiter striatus*), common poorwill (*Phalaenoptilus nuttallii*), Cassin's finch (*Haemorhous cassiniil)*, lark bunting *(Calamospiza melanocorys)* and black-backed woodpecker (*Picoides arcticus)*, have been documented in the WCRTA during previous surveys but were not observed during the current survey. Six additional bat species are listed as SGCN and have been reported from previous surveys but were not documented during this survey—Townsend's big-eared bat (*Corynorhinus townsendii*), silver-haired bat (*Lasionycteris noctivagans*), fringe-tailed myotis (*Myotis thysanodes pahasapensis*), long-eared myotis (*Myotis evotis*), northern long-eared bat, and the evening bat (*Nycticeius humeralis*).

3.10.4 Partners in Flight (PIF)

Partners in Flight is a cooperative network of federal, state, local, tribal, and private agencies. The primary mission is keeping common birds common and helping species at risk through voluntary partnerships.

3.10.4.1 ATA

Partners in Flight lists four species that occur in southeastern South Dakota as worthy of monitoring, including Bell's vireo (*Vireo bellii*), red-headed woodpecker (*Melanerpes erythrocephalus*), blackbilled cuckoo (*Coccyzus erythropthalmus*), and warbling vireo (*Vireo gilvus*) (Fitzgerald et al. 1999).

Species are considered of conservation priority for PIF's physiographic area bird conservation plans if they meet one of six criteria. These criteria variously emphasize the species' vulnerability to extinction range-wide, the species population trend in the physiographic area, and the degree to which the planning unit in question is a center of abundance for that species (Fitzgerald et al. 1999).

Bell's vireo, warbling vireo, and red-headed woodpecker were located on the ATA during previous surveys. Red-headed woodpeckers were common in the upland forest habitat of the ATA on all occasions (Accipiter 2007, Louis Berger 2017a, Banner Associates 2020a). According to PIF, three woodland species, red-headed woodpecker, blackbilled cuckoo, and warbling vireo, all have stable or increasing trends in this physiographic area. This may be in response to the general increase in woody vegetation in the region. The occurrence of three of the four species on the ATA supports the high value of forestland occurring on the training area.

3.10.4.2 WCRTA

Partners in Flight lists six species worthy of monitoring that occur in western South Dakota. These species include long-billed curlew (*Numenius americanus*), Baird's sparrow (*Ammodramus bairdii*), thick-billed longspur (*Rhynchophanes mccownii),* chestnut-collared longspur (*Calcarius ornatus*), and lark bunting (*Calamospiza melanocorys)* (Fitzgerald et al. 1999). Of these species, the lark bunting was the only one located on the training area during the previous inventories (Accipiter 2007). Lark bunting observations were probably transient because suitable habitat for this species is very rare on WCRTA.

Partners in Flight considers species a conservation priority for physiographic area bird conservation plans if they meet one of six criteria. These criteria variously emphasize the species' vulnerability to extinction range-wide, the species population trend in the physiographic area, and the degree to which the planning unit in question is a center of abundance for that species (Fitzgerald et al. 1999).

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4.0 RESOURCE MANAGEMENT

This section outlines natural resource management actions that will support and be consistent with the military mission and protect and enhance such resources in accordance with accepted stewardship principles. Natural resource management issues on the ATA and WCRTA include:

- Climate Change
- Forest and Fire Management
- Fish and Wildlife Management
- Stormwater and Water Quality Control
- Floodplain and Riparian Zone Management
- Wetland and Aquatic Habitat Management
- Invasive and Exotic Species and Noxious Weeds
- Integrated Pest Management
- Erosion Control and Soil Conservation
- Outdoor Recreation Management
- Recreation and Ecosystem Management
- Threatened and Endangered Species Management

***ATA and WCRTA Implementation Project No. 1 – GIS**:* Continue to develop and update GIS layers for use in natural resources management and scheduling training activities. This allows SDARNG to review land use and land disturbance in relation to natural resources and conservation planning throughout the ATA and WCRTA.

For each of the above-mentioned issues, the following subsections are provided: Overview, Compliance, Goals and Objectives, Management Strategies, Inventory and Monitoring, Projects, Relationship to Other Natural Resources Issues, Military Mission Considerations, and Additional Information. Summary tables of potential projects and management strategies/restrictions by resource are provided in ***Appendix A.***

Questions regarding information in this section should be directed to SDARNG Natural Resources personnel. Contacts, including internet addresses are listed in Section 8. Contacts are provided for general information only and are not necessarily familiar with the natural resources at the WCRTA or this INRMP.

The Master Update List and INRMP Update INRMP Report Checklist (***Appendix C***) will assist the Natural Resource Manager in documenting projects, surveys, and annual reviews for compliance with the SAIA and future INRMP revisions or updates.

4.1 CLIMATE CHANGE

SDARNG understands that there is a potential for climate change, on a local level, to impact the ability of the military to sustain the training of soldiers. Any adverse change to the vegetation of the training area could impact the training areas, promoting noxious weed infestations or compromise wildlife habitat, such as loss riparian habitat. The abundance and distribution of species and habitats on SDARNG properties is too small in scale to address comprehensive climate change vulnerabilities. Therefore, SDARNG will look at existing regional plans, partnerships, or other reports that other agencies, universities, or non-profits are conducting in South Dakota on assessing, developing, and implementing climate change adaptation strategies. In general, SDARNG will identify and implement sound natural

resources strategies that provide benefits to the ecosystem, regardless of whether or how climate changes occur.

4.2 FOREST AND FIRE MANAGEMENT

Laws and regulations pertaining to forest management on the ATA and WCRTA include:

- S.D. Codified Laws §34A-1-18
- S.D. Codified Laws §34-35-18
- Federal Insecticide, Fungicide, and Rodenticide Act (7 USC §136)
- Forest and Rangeland Renewable Resources Planning Act (16 USC §1601 et seq.)
- NEPA (42 USC §4321)
- Sikes Act (16 USC 670 et seq.)
- Sale of Certain Interests in Land, Logs (10 USC §2665)

4.2.1 ATA

4.2.1.1 Overview

Approximately 140 acres of forest are present at the ATA. However, due to its proximity to the Missouri River the forest is not managed for timber production. The 2011 flooding and extended inundation of the Missouri River (5–6 months) impacted the types and composition of woody vegetation observed at the ATA. Eastern red cedar, dogwood, juvenile cottonwoods, and willow experienced high die-off rates. In 2014, SDARNG conducted thinning/chipping on the perimeter road/trail that surrounds the training facility of undesirable noxious weeds (Canada thistle [*Cirsium arvense*] and poision ivy [*Rhus toxicodendron*), and woody deciduous vegetation from the 2011 flood that was adversely impacting both foot and vehicle traffic critical to mission sustainability.

4.2.1.2 Goals, Objectives, and Management Actions

The SDARNG currently does not maintain or have plans to implement a Forest Management Program; however, maintaining and improving the usability of the training sites for military training while maintaining quality habitat and diversity is a key goal. A draft Integrated Wildland Fire Management Plan was completed in February 2021 to assist in fire management guidance on ATA, while supporting the installation's mission. General goals and objectives of forestry and fire management are based on current stand structure, forest inventory, and training needs, and can be found in ***Table 4-2a***.

Table 4-2a. Goals, Objectives, and Strategies for Forest Management on the ATA

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
Manage forest ecosystem to support military mission and maintain ecosystem integrity.	Maintain and improve usability of the training area while maintaining quality habitat and biodiversity.	Design management strategies to enhance training and not interfere with training activities.
	Improve vigor and promote growth and resistance to disease of forest stands while removing undesirable noxious weeds and woody vegetation that adversely impacts both foot and vehicle traffic critical to mission sustainability.	Continue forestry activity (thinning [dogwood] and chipping [dead and damaged trees] and stump treatment (cedar). Preserve snags and trees (4 to 6 per acre) with natural cavities to increase wildlife habitat (birds, bats).
	Reduce the impact on the property in the event of a wildland fire through proactive fuels management.	Complete fuels reduction through appropriate management practices, such as mastication and harvesting.
	Monitor the ATA for emerald ash borer infestations.	Regularly monitor the forest health for insect infestation and disease. If emerald ash borer populations are found, remove or treat infested trees.

4.2.1.3 Relationship to other Natural Resources

Forest management is inherently linked to the following other natural resources management issues:

- Habitat management—Tree and shrub thinning plays an important role in habitat development and management.
- Threatened and endangered species management—Prescribed fire may be used to improve and/or sustain appropriate habitat for threatened and endangered species, but highly unlikely at this location.
- Wetlands management—Forestry activities are restricted within forested wetlands.
- Floodplains and riparian zone management—Forestry activities are restricted on floodplains and in riparian zones.
- Erosion control and water quality protection—Potential for soil erosion is associated with forestry activities. The implementation of BMPs will promote watershed protection and help prevent erosion and increased turbidity of surface waters.

4.2.1.4 Military Mission Considerations

Active forest management generally does not threaten the military mission because thinning activities are scheduled around training activities and mission requirements. Wildfires could negatively impact the

military mission by creating smoke that interferes with visibility and consequently training activities and limits areas available for training. Thinning dead and damaged trees from the 2011 flood could positively impact the military mission by opening up corridors for bivouac and land navigation training, thereby increasing training opportunities and improving safety conditions at the site.

4.2.1.5 Inventory and Monitoring

A Fire Management Plan/Risk Assessment conducted in 2011 (Mattox) provides an inundation map that correlates to the potential for heavy fuel loading.

4.2.1.6 Forest and Fire Management Projects

ATA Implementation Project No. 2 – Perimeter Road Clearing. Maintain clearance of the 3.1-mile perimeter road surrounding the ATA for sustainability, including soil stabilization, silt removal, and downed and damaged tree/vegetation removal.

ATA Implementation Project No. 3 – Forest Ecosystem Health. Promote forest ecosystem health through use of fuel reduction methods such as thinning, mastication (average of 15 acres per year). Potentially allow bison grazing in the inner ATA area to knock down cedar trees and stumps remaining after mastication.

ATA Implementation Project No. 4 – Integrated Wildland Fire Management Plan: The goal of the Integrated Wildland Fire Management Plan (IWFMP) is to support the military mission of the ATA and WCRTA, provide for public and firefighter safety, and protect the surrounding community from wildland fire, while promoting the sustainable management of native biological systems by developing sound fire management planning, policy, and procedures. A draft document was completed in February 2021.

4.2.1.7 Agricultural Lease Management

SDARNG leases the use of 384 acres of ATA (Tract 1) for agricultural purposes, including 31 acres of productive crop land and 353 acres of low productivity range land. In 2021, the grazing window was revised from a five-month to a three-month timeframe for 2022, extending from January 1 to March 31. The current hay production lease extends from May 20, 2021 to February 28, 2022 and requires one haying prior to August 15th.

The primary goal for leasing acreage is to maximize the use of the ATA for present and anticipated military training needs, forestry, wildlife, and agricultural purposes. A secondary goal is to provide an economic resource to the SDARNG. The lease for haying helps maintain the training grounds and restores the area with native vegetation that provides a both a food source and shelter for wildlife and bison grazing.

4.2.2 WCRTA

4.2.2.1 Overview

Approximately 345 acres of pine forest are present at the WCRTA. The stands are composed largely of ponderosa pine and are currently managed to provide adequate training lands, fuel reduction, insect damage control, and wildland fire prevention. Management methods used include fuel wood harvesting, timber sales when appropriate, thinning, and infested tree removal.

4.2.2.2 Goals, Objectives, and Management Strategies

General goals and objectives of forestry management are based on current stand structure, forest inventory, and training needs. SDARNG goals, objectives, and management strategies for forest management are provided in ***Table 4-2b*****.**

4.2.2.3 Relationship to Other Natural Resources

Forest management is inherently linked to the following other natural resources management issues:

- Habitat Management—Tree and shrub thinning plays an important role in habitat development and management.
- Wetlands Management—Forestry activities are restricted within forested wetlands.
- Floodplains and Riparian Zone Management—Forestry activities are restricted on floodplains and in riparian zones.
- Erosion Control and Water Quality Protection—Potential for soil erosion is associated with forestry activities. The implementation of BMPs will promote watershed protection and help prevent erosion and increased turbidity of surface waters.

4.2.2.4 Military Missions Considerations

Active forest management generally does not threaten the military mission because thinning activities are scheduled around training activities and mission requirements. Wildfires could negatively impact the military mission by creating smoke that interferes with visibility and consequently training activities and limits areas available for training. Thinning could positively impact the military mission by increasing training opportunities and improving safety conditions at the site by removing dead trees or trees damaged by storms and insect infestation.

Table 4-2b. Goals, Objectives, and Strategies for Forest Management on the WCRTA

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
Manage forest ecosystem to support military mission and maintain ecosystem integrity.	Maintain and improve usability of the training area while maintaining quality habitat and biodiversity.	Design management strategies to enhance training and not interfere with training activities.
	Improve vigor and promote growth and resistance to disease of forest stands.	Continue forestry activity such as thinning (excess pine buildup, dog hair stands) in designated bivouac areas.
	Reduce potential for damage to pine forest on WCRTA.	Regularly monitor the forest health for insect infestation and disease. If mountain pine beetle populations are found, remove or treat green infested trees prior to emergence.

		Maintain stand vigor to limit pine engraver outbreaks. Remove slash, windthrow, and stressed trees.
	Complete proactive fuel reduction through appropriate management practices.	Continue fuel wood harvesting, commercial harvesting, maintain a 50-percent canopy with well-spaced trees. Increase fire resistive vegetation to reduce fire intensities (hardwoods and deciduous types of vegetation). Inspect all power line corridors for adequate spacing. Fuels should be reduced around the base of power poles to reduce the risk of infrastructure damage during a wildland fire event.
	Maintain water supply for fire suppression.	Maintain existing wells and storage tanks.
	Evaluate burned areas for mitigative needs.	Evaluate burned areas for re-vegetation or sediment and/or erosion control methods and implement mitigation methods where needed.
	Evaluate WCRTA for additional firebreak areas	Evaluate the need for additional firebreak areas on WCRTA

4.2.2.5 Inventory and Monitoring

- A Fire Management Risk Assessment (Mattox 2011) identified and quantified existing conditions of fuel loads located within WCRTA using GIS. Understory, midstory, and overstory maps were developed to guide forest management practices.

- A Forest Pest Management Plan (AMEC 2007) reviewed current research on bark beetle control and described a detailed plan for the control of pine engraver and mountain pine beetle outbreaks in the pine forest community at WCRTA. Forest pest management activities should be coordinated with all other projects occurring at the training site to minimize impacts on natural resources at WCRTA.

- The Master Plan (42nd Street Design Studio et al. 2014) provides information on future well development and storage for fire suppression and recommends that the SDARNG test the existing wells to determine a 100 gallons per minute (GPM) source. Preference is given to the

well located adjacent to the 300-meter range. If a well can supply water at 100 GPM, the Master Plan recommends that the SDARNG amend the well permit to allow for an appropriation of 100 GPM in lieu of the existing 0.16 or 0.17 cubic feet per second. If an existing well is unable to supply 100 GPM, drilling a new well that would supply 100 GPM is recommended. In addition to either expanding one of the existing well's supply or drilling a new well, the Master Plan recommends the installation of a 5,000-gallon storage tank located near the supplying well for fire protection and first response.

4.2.2.6 Forest and Fire Management Projects

WCRTA Implementation Project No. 2 – Beetle Monitoring and Control: Annually remove beetle infested trees marked by the State Forester and South Dakota Wildland Fire and continue forestry practices to reduce future outbreaks, including annual monitoring of beetle activity. Pine Beetle control will include thinning to reduce stand density and remove of infested trees. Pine Engraver Beetle control will include thinning and slash disposal; minimizing impacts to green slash; and removing infested trees, while maintaining the presence of successional snags.

WCRTA Implementation Project No. 3 – Bivouac Site Clearing. Remove excessive underbrush from designated bivouac sites and continue thinning of pine stands as necessary based on understory, midstory, and overstory conditions maps (Mattox 2011).

WCRTA Implementation Project No. 4 – Forest Ecosystem Health. Thin an average of 20 acres per year of dog hair stands while maintaining sufficient canopy to protect soils and enhance wildlife habitat.

WCRTA Implementation Project No. 5 – Integrated Wildland Fire Management Plan. A draft Integrated Wildland Fire Management Plan was completed in February 2021.

WCRTA Implementation Project No. 17 – Evaluation of Burned Areas for Mitigative Needs. Evaluation of burned areas for re-vegetation and/or sediment and/or erosion control methods to occur as needed. Implementation of mitigation methods to re-vegetate areas or prevent erosion would be incorporated as needed.

WCRTA Implementation Project No. 18 – Evaluation of Additional Firebreak Areas. The need and location of additional firebreak areas would be evaluated as funding allows.

4.3 FISH AND WILDLIFE MANAGEMENT

4.3.1 Overview

This section discusses fish and wildlife management at the ATA and WCRTA with respect to habitat and wildlife management. Wetland habitat management and threatened or endangered species management are discussed in Sections 4.6.3 and 4.12.3 respectively.

4.3.2 Compliance

Protection and management of fish and wildlife resources on the ATA and WCRTA will be conducted in accordance with federal laws and regulations, Executive Orders DoDI 4715.03 (Natural Resources Conservation Program), DoDM 4715.03 (INRMP Implementation Manual) and AR 200-1 (Environmental

Protection and Enhancement), USFWS regulations and agreements, and other applicable laws and guidance. Laws and regulations pertaining to fish and wildlife management include:

- Bald and Golden Eagle Protection Act (16 USC §668a–d)
- ESA (16 USC 1531 et seq.)
- Clean Water Act (CWA): Section 401 Water Quality Certification, 1986 (33 USC §1341)
- EO 11990, Protection of Wetlands
- Federal Water Pollution Control Act: Section 404, as amended by the CWA of 1977 (33 USC §1251)
- Fish and Wildlife Conservation Act (16 USC §2901 et seq.)
- Fish and Wildlife Coordination Act, as amended (16 USC §661 et seq.)
- Migratory Bird Treaty Act, as amended (16 USC §703-712)
- NEPA (42 USC §4321 et seq.)
- Oil Pollution Prevention Act of 1990, PL 101-380
- SAIA (16 USC §670a-o)

4.3.3 Goals, Objectives, and Management Strategies

The SDARNG does not administer a specific wildlife program at the ATA or WCRTA. Hunting and fishing are not allowed at the ATA or WCRTA in accordance with SDARNG regulations. Management of wildlife on the property has largely been part of the overall natural resource management efforts of the training area (SDARNG 2001). Goals, objectives, and management strategies for wildlife management on the ATA and WCRTA can be seen in ***Table 4-3a*** and ***Table 4-3b*****.** Currently, no nuisance wildlife or wildlife diseases are identified on the ATA or WCRTA. Diseases affecting fish and wildlife may occur on the installation. As outlined in AR 200-1, SDARNG Natural Resources personnel will consult with appropriate Army Veterinary Corps personnel regarding large-scale fish and wildlife deaths and wasting disease.

SDARNG's goal is to avoid adverse impacts to threatened and endangered species and special interest areas, as required by law and the ethics of good environmental stewardship. It is the intent of the SDARNG to proactively manage for these resources during the environmental planning process, thereby mitigating potential impacts by avoidance.

The ESA requires all federal agencies to conserve listed species. Army policy on listed species includes the following elements: balancing mission requirements with endangered species protection, cooperating with regulatory agencies, and conserving biological diversity within the context of the military mission. As required by AR 200-1, the Army must ensure that it carries out mission requirements in harmony with the requirements of the ESA. The SDARNG consulted with the USFWS and SDGFP during preparation of the INRMP and during annual reviews to ensure ESA compliance. The overall conservation goal for ATA is to maintain current habitat for the northern long-eared bat and bald eagles. Bat habitat at ATA is limited to tree cavities (snags) or exfoliating bark on larger diameter trees. Suitable bat habitat at WCRTA consists of tree cavities (snags) or exfoliating bark on large diameter trees, rock crevices, and existing structures. For both training areas, avoidance of habitat disruptions during the pupping season (June 1 to July 31) and avoidance of disturbance to suitable roosting habitat during the pupping season are recommended. Bats have not been observed inside structures found on WCRTA, however, should use be observed, best management practices to minimize impacts to bats are further discussed in Section 4.3.7.2. Habitat for bald eagles on the training areas includes nests and nest trees (ATA only), foraging habitats, flight paths from nesting areas to foraging areas, and appropriate buffers around these areas.

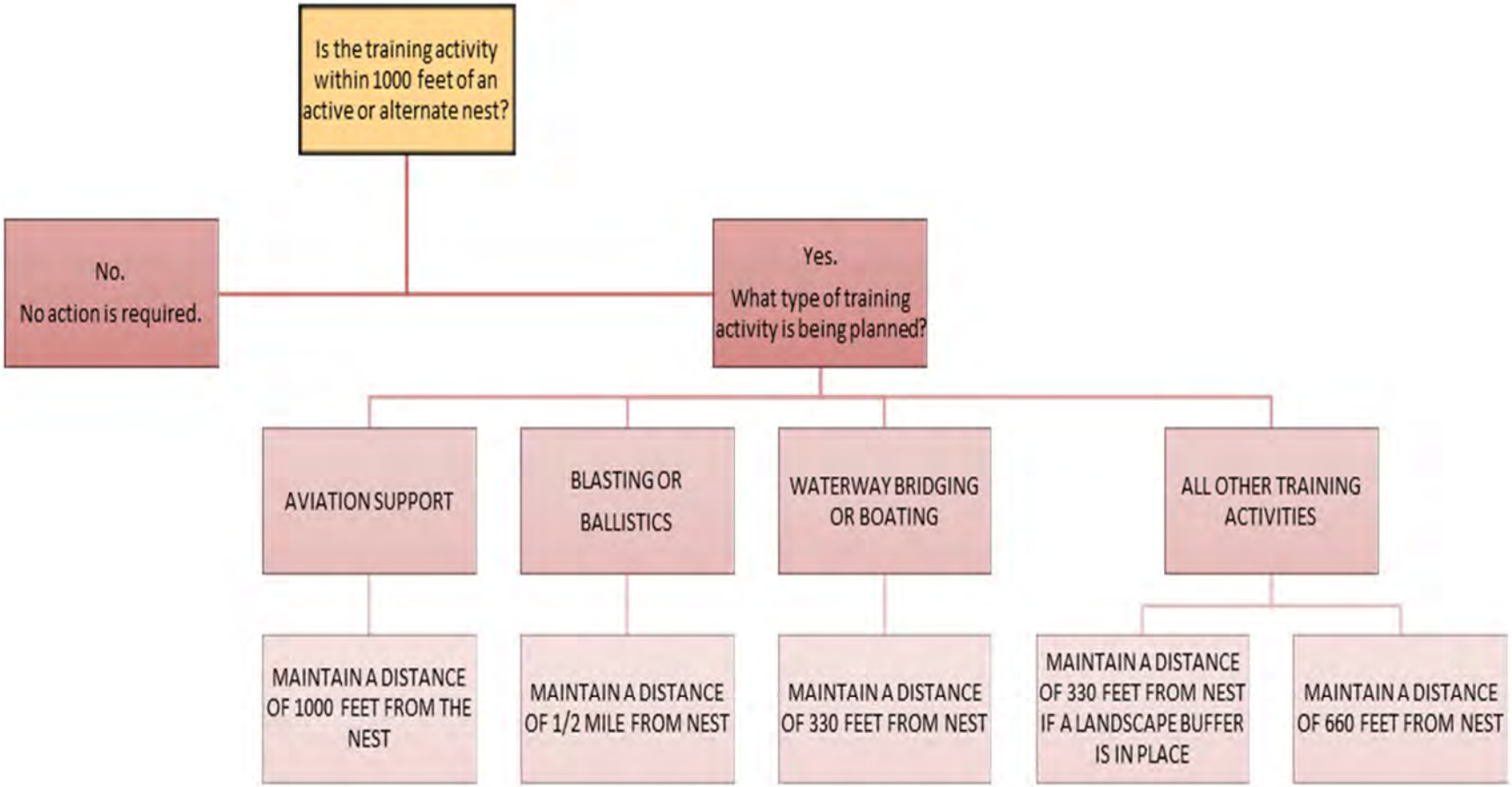
Table 4-3a. Goals, Objectives, and Strategies for Wildlife Management on the ATA

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
Terrestrial Habitat Management	Maintain current habitat	• Preserve portions of stands with snags and large trees for cavity-nesting species (one den tree and one snag per 4–6 acres). Allow for successional replacement of these trees to maintain the wildlife habitat. Conduct a survey once a year in April or May to verify the density of the cavities. • Encourage training personnel to leave microhabitats intact or replace when disturbed. This includes debris piles, rocks, logs, boards, fallen trees, and other ground debris. • If areas must be cleared or developed for new roads or infrastructure, concentrate development in one area and preferably locations already disturbed by human activity to minimize habitat fragmentation and reduce any disruption to ecosystem processes (such as soil erosion and introduction of noxious weeds). Any disturbed areas should be monitored for erosion and invasive species growth following the event. Areas should be avoided to allow for native species to revegetate the disturbed area. • White-tailed deer habitat management should focus on reducing the impacts from deer browsing on key forage shrubs. Typically, 40% utilization is accepted as an appropriate level that does not stunt plant growth or limit the trees from growing tall enough to escape persistent browsing (Keigley and Frisina 2011). Thinning or tree removal to increase understory shrub and forb production can effectively improve overall wildlife habitat, so long as deer browsing is minimized. Surveys to establish baseline information on deer browsing should be conducted in the spring of the year by biologist or qualified personnel. In addition, staff should monitor the training area to obtain baseline information to assess the current abundance of deer within ATA. This may be accomplished by conducting a spotlight survey twice a year, in the spring and fall. • Install bird boxes and/or artificial bat roosting houses. • Re-establish native communities where appropriate and practicable. • Avoid driving through water filled ruts and borrow pits during April 15 to August 31 to preserve breeding habitats and potential food sources for reptiles and amphibians. • Provide or maintain vegetative corridors between wetlands and surrounding upland areas.
	Wildlife Habitat Monitoring	Utilize management indicator species to assess ecosystem health. The following management indicator species for ATA are bald eagles, white-tailed deer and primary cavity nesters.
Threatened and endangered species management	Minimize or eliminate impacts to the northern long-eared bat.	• Avoid known and suitable roosting habitat areas during training activities. Training activities near known roosting areas should be limited to daylight hours only. • No suitable summer habitat will be removed during the active season (May 1 to September 30) for the northern long-eared bat. • No known hibernaculum or maternity roosts will be removed/destroyed at any time. • No known hibernaculum will be disturbed October 1 to April 30. • No known maternity roost will be disturbed June 1 to July 30. • Further coordination with the USFWS will be conducted within 2 weeks before or after noted time frame if scheduled training or management projects are likely to cause disturbance.

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
		• Cottonwood regeneration is encouraged in areas subject to the removal of mature cottonwood trees. A 4:1 replacement ratio of 4 cottonwood seedlings to one mature tree removed along the Missouri River is recommended (Aron 2005).
	Minimize or eliminate impacts to the bald eagle.	• Management in areas around nests should focus on reducing human disturbance (**Figure 4.3)**. Because bald eagles can be sensitive to human disturbance during the nesting season, any confirmed nesting sites should be approached with the guidelines of **Figure 4.3.** • SDARNG personnel will monitor the ATA annually for the continued presence of bald eagle nesting to determine occupancy and productivity. Optimum monitoring is during the breeding season (January – August). All observations should be recorded and reported to SDGFP. • Ground surveys may also be conducted in May and June to count fledglings and to reconfirm nest sites. • A minimum buffer zone of one-quarter mile should be protected around an active nest and potentially disturbing activities restricted. In addition, specific management activities, such as installing a landscape buffer to reduce stress to active nest sites during training activities is encouraged. • Cottonwood regeneration is encouraged in areas subject to the removal of mature cottonwood trees. A 4:1 replacement ratio of 4 cottonwood seedlings to one mature tree removed along the Missouri River is recommended.
	Minimize or eliminate impacts to red-headed woodpecker.	• Preserve deciduous woodlands and associated snags across the ATA. Future management of timber on the ATA should allow for successional replacement within thinned stands to maintain future snag habitat. This may require leaving some of the existing larger diameter trees, even if dead or dying. A recommendation of four to six snags per acre, again including management for successional ages for snag replacement, is currently considered to be an acceptable standard. • Take steps to reduce the spatial extent and timeframe of such activities so woodpeckers will only temporarily be displaced and/or habituate to the situation. • Conduct training activities outside the general bird nesting season from March through August, or that areas proposed for activity during the nesting season be surveyed, and when occupied, avoided until the young have fledged.
	Minimize or eliminate impacts to reptiles and amphibians	• Leave in place any snags or logs that are caught in the river shoreline to promote reptile and amphibian habitat. • Avoid the removal of suitable summer habitat during species' active season (typically April – October). If modification to habitat is necessary, conduct activities outside of active season. Take steps to reduce spatial extent and timeframe of such activities. • Do not destroy/remove nests (depressions in sandy areas) at any time and take time to avoid these areas during training activities.
Migratory bird protections	Measures to minimize, reduce, or avoid unintentional take of migratory birds will be applied to all actions	• Minimize/avoid impacts to nesting migratory birds by imposing a timing limitation to mitigate disturbing and disruptive activities during the primary portion of the nesting season. Most migratory birds in South Dakota nest from April 15 to July 15. Timing limitations may be modified based on the species and habitats involved, current environmental conditions, and the timing of breeding activity of the migratory bird species found in the planning area (i.e., higher elevation habitats may start and end later).

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
	and projects where there is potential to impact migratory birds. Specific conservation actions will vary based on which priority migratory bird species, priority habitats, critical areas, and key risk factors are involved.	• Where disturbance cannot be avoided during the nesting season, the scale and duration of disturbance may be considered mitigating circumstances. Actions or projects that have intense impacts during one season, but do not reoccur should be preferable to lower intensity actions that occur over multiple breeding seasons. Removal of nesting habitat prior to migratory bird primary nesting season for some actions may also mitigate impacts of surface disturbing activities allowed during the primary nesting season; however, surface disturbance will be restricted to the amount that would have been disturbed during the breeding period. • Inventory project areas for migratory bird nests for actions occurring during the primary nesting season. These inventories should be performed by qualified personnel (wildlife biologists or trained resource specialists with experience conducting bird surveys). If any active migratory bird nests are found within the project area and a 300-foot buffer, the activity or project will not continue until nesting activities have been completed. The project or activity may proceed if no nests are found. Require a second nest-search survey if surface disturbing activities begin more than 5 days after completion of surveys. Activities may begin at the end of the primary breeding season. The intent of the inventories is to locate migratory bird nests in the project area and avoid impacts to identified nests and birds. The methodology, extent of the area surveyed, and mitigation measures, will be designed to ensure this intent is met.

*All management activities identified above can also be found in SDARNG Biological Survey Report (Banner Associates 2020a) and Threatened & Endangered Species Management Plan (Banner Associates 2020b).



Source: South Dakota Bald Eagle Management Plan (Aron 2005), National Bald Eagle Management Guidelines (USFWS 2007)

Figure 4.3. Bald Eagle Management Guidelines for ATA.

Table 4-3b. Goals, Objectives, and Strategies for Wildlife Management on the WCRTA

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
Restore and maintain wildlife habitat while accommodating military training needs.	Increase growth and density of vegetation in open-area habitats to enhance training.	• Preserve portions of stands with snags and large trees for cavity-nesting species (one den tree and one snag per 4–6 acres). Allow for successional replacement of these trees to maintain the wildlife habitat. Snags should be distributed across the area, but focal areas may be those areas adjacent to or in DD habitat, where habitat diversity is greatest. Conduct a survey once a year in April or May to verify the density of the cavities. • Re-establish native communities where appropriate and practicable. • Construct and place nest boxes, bird boxes, and bat boxes.
	Maintain current habitat.	• Encourage training personnel to leave microhabitats intact or replace when disturbed. This includes debris piles, rocks, logs, boards, fallen trees, and other ground debris. • If areas must be cleared or developed for new roads or infrastructure, concentrate development in one area and preferably locations already disturbed by human activity to minimize habitat fragmentation and reduce any disruption to ecosystem processes (such as soil erosion and introduction of noxious weeds). Any disturbed areas should be monitored for erosion and invasive species growth following the event. Areas should be avoided to allow for native species to revegetate the disturbed area. • Forest management for raptor nests should focus on maintaining large trees and high canopy closure for nesting (Beier et al. 2008). Management activities, such as thinning trees to create small openings in the forest, while leaving abundant snags, large-downed logs, woody debris and shrubs, would encourage foraging. Because many forest raptors are especially sensitive to human disturbance during the nesting season, any known or suspected nesting sites should be avoided (January – August). A minimum 300-foot-radius buffer zone should be protected around nest sites to restrict potentially disturbing activities. • White-tailed deer habitat management should focus on reducing the impacts from deer browsing on key forage shrubs. Typically, 40% utilization is accepted as an appropriate level that does not stunt plant growth or limit the trees from growing tall enough to escape persistent browsing (Keigley and Frisina 2011). Thinning or tree removal to increase understory shrub and forb production can effectively improve overall wildlife habitat, so long as deer browsing is minimized. Surveys to establish baseline information on deer browsing should be conducted in the spring of the year by a biologist or qualified personnel. In addition, staff should monitor the training area to obtain baseline information to assess the current abundance of deer within WCRTA. This may be accomplished by conducting a spotlight survey twice a year, in the spring and fall. • Manage unwanted bats roosts in buildings. Exclusion of bats from structures is the best method for dealing with unwanted roosts but must be timed appropriately to be successful. Exclusion is best undertaken after the bats have left for the winter to avoid maternity roosting. The maternity season in South Dakota occurs between May 15 and September 1 (Tigner 2002).

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
		• Avoid GP and DD habitats, as these areas are highly susceptible to environmental degradation.
	Monitor land use, habitat and populations of animals listed as rare, threatened, and endangered.	• Avoid rotary wing landing areas if wildlife is present. • Create a viable source of surface water to enhance the property for use by all wildlife, including bats. There are several locations where water naturally accumulates below drainages on the property. • Enhancing these small catchment basins (e.g. stock ponds) so that they store runoff for longer periods would be the easiest and most cost-effective method of creating a viable source of surface water.
	Wildlife habitat monitoring	Utilize management indicator species to assess ecosystem health. The following management indicator species for WCRTA are forest raptors, white-tailed deer, primary cavity nesters, and bats.
Threatened and endangered species management.	Minimize or eliminate impacts to the northern long-eared bat.	• Avoid known and suitable roosting areas during training activities. Training activities are limited to daylight hours only. • No suitable summer habitat will be removed during the active season (May 1 to September 30) for the northern long-eared bat. • No known hibernaculum or maternity roosts will be removed/destroyed at any time. • No known hibernaculum will be disturbed October 1 to April 30. • No known maternity roost will be disturbed June 1 to July 30. If evidence of roosting is observed, install bat exclusion devices, and inspect annually to avoid conflicts with training activities. Further coordination with the USFWS will be conducted within 2 weeks before or after noted timeframe if scheduled training or management projects are likely to cause disturbance.
	Minimize or eliminate impacts to the osprey.	The Conservation Manager should be notified, and the activity of the osprey should be monitored during training activities. If disturbance occurs, activities should be suspended in areas close to the osprey, until the raptor has left the area.
	Minimize or eliminate impacts to the peregrine falcon	The Conservation Manager should be notified, and the activity of the falcon should be monitored during training activities. If disturbance occurs, activities should be suspended in areas close to the falcon until they have departed the area.
	Minimize or eliminate the impacts to the red-headed woodpecker.	• Preserve deciduous woodlands and associated snags across the WCRTA, especially within the DD and MP habitats where species diversity is high. Future management of timber on the WCRTA should allow for successional replacement within thinned stands to maintain future snag habitat. This may require leaving some of the existing larger diameter trees, even if dead or dying. A recommendation of four to six snags per acre, again including management for successional ages for snag replacement, is currently considered to be an acceptable standard. • Take steps to reduce the spatial extent and timeframe of such activities so woodpeckers will only temporarily be displaced and/or habituate to the situation.

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
		• Conduct training activities outside the general bird nesting season from March through August, or that areas proposed for activity during the nesting season be surveyed, and when occupied, avoided until the young have fledged.
Migratory bird protections	Measures to minimize, reduce, or avoid unintentional take of migratory birds will be applied to all actions and projects where there is potential to impact migratory birds. Specific conservation actions will vary based on which priority migratory bird species, priority habitats, critical areas, and key risk factors are involved.	• Minimize/avoid impacts to nesting migratory birds by imposing a timing limitation to mitigate disturbing and disruptive activities during the primary portion of the nesting season. Most migratory birds in South Dakota nest from April 15 to July 15. Timing limitations may be modified based on the species and habitats involved, current environmental conditions, and the timing of breeding activity of the migratory bird species found in the planning area (i.e., higher elevation habitats may start and end later). • Where disturbance cannot be avoided during the nesting season, the scale and duration of disturbance may be considered mitigating circumstances. Actions or projects that have intense impacts during one season, but do not reoccur should be preferable to lower intensity actions that occur over multiple breeding seasons. Removal of nesting habitat prior to migratory bird primary nesting season for some actions may also mitigate impacts of surface disturbing activities allowed during the primary nesting season; however, surface disturbance will be restricted to the amount that would have been disturbed during the breeding period. • Inventory project areas for migratory bird nests for actions occurring during the primary nesting season. These inventories should be performed by qualified personnel (wildlife biologists or trained resource specialists with experience conducting bird surveys). If any active migratory bird nests are found within the project area and a 300-foot buffer, the activity or project will not continue until nesting activities have been completed. The project or activity may proceed if no nests are found. Require a second nest-search survey if surface disturbing activities begin more than 5 days after completion of surveys. Activities may begin at the end of the primary breeding season. The intent of the inventories is to locate migratory bird nests in the project area and avoid impacts to identified nests and birds. The methodology, extent of the area surveyed, and mitigation measures, will be designed to ensure this intent is met.

*All management activities identified above can also be found in SDARNG Biological Survey Report (Banner Associates 2020a) and Threatened & Endangered Species Management Plan (Banner Associates 2020b).

4.3.4 Inventory and Monitoring

4.3.4.1 ATA

- Previous bat surveys (Tigner 2014, WSP 2020b) identified nine bat species known to be found in this region of the country during the survey, including the northern long-eared bat. Bat diversity at ATA was considered high due to the diversity and density of the vegetation.
- Biological surveys (Accipiter 2006, Louis Berger 2017a, Banner Associates 2020a) conducted at ATA confirmed 146 species present: 36 mammals, 98 birds, 8 amphibians, and 4 reptiles. Federal and state listed threatened and endangered species were identified in conjunction with these inventories and bat surveys (Tigner 2014, WSP 2020b).
- The Vegetation Community Mapping Report (RESPEC 2013b) established a baseline for observing the recovery of the training area after the 2011 Missouri River flooding.

4.3.4.2 WCRTA

- Biological surveys (Accipiter 2007, Louis Berger 2017b, Banner Associates 2020a) conducted at WCRTA confirmed 122 species present: 20 mammals, 96 birds, 2 amphibians, and 4 reptiles on the WCRTA. The inventory includes a discussion of federal and state listed threatened and endangered species, including the northern long-eared bat.
- Bat surveys were completed in previous years (Tigner 2011, WSP 2020a) indicating that species diversity was high with 13 of 13 known species being identified during the surveys, including the northern long-eared bat.
- A vascular plant survey (Accipiter 2015) covering 200 acres not previously inventoried, was conducted in 2008. During the course of this inventory 150 plant species consisting of 9 tree species; 25 shrub, subshrub and woody vine species; 23 grass species; and 93 forb species were located.

4.3.5 Wildlife Management Projects

The SDARNG will implement the following projects as part of their wildlife management program:

4.3.5.1 ATA

ATA Implementation Project No. 5 – Update the Biological Surveys (Herpetofauna, Bird, Mammal, and Bat): Update biological surveys at least once every 2 years if funding and resources are available.

ATA Implementation Project No. 6 – Wildlife Habitat Enhancement: Based on available funding, this project includes:

1) Construct artificial bat roosting houses. Supplementing roosting habitat through artificial methods to enhance and perpetuate this site's use by bat and other wildlife. Such artificial habitat would provide a supplement to the existing roosting habitat found at the site. Recommendations and specific designs can be obtained through SDGFP in Pierre, South Dakota.
2) Construct nesting boxes.

4) Plant native grasses and/or forbs in the interior area of ATA where invasive species dominate the landscape and in areas where flooding caused significant erosion (erosion control measures).

5) Explore opportunities for the implementation of pollinator plots on the ATA.

ATA Implementation Project No. 7 – Maintain Terrestrial Habitat: If funding and resources are available, monitor annual photo points established in the 2020 Biological Survey Report (Banner Associates 2020a), encourage/promote snags, promote corridors between habitats, leave microhabitats, minimize habitat fragmentation and disturbance.

ATA Implementation Project No. 8 – Wildlife Habitat Monitoring: Utilize management indicator species to assess overall ecosystem health at ATA. The following species were identified in the 2020 Biological Survey Report (Banner Associates 2020a) as management indicator species: bald eagles, white-tailed deer, and primary cavity nesters.

ATA Implementation Project No. 9 – Threatened and Endangered Species Management: See section 4.12.3.

ATA Implementation Project No. 10 – Deer Harvest through Disabled Veteran Hunting Event: Explore opportunities for white-tailed deer population management through harvest of deer by disabled veterans.

4.3.5.2 WCRTA

WCRTA Implementation Project No. 6 – Revegetation: Monitor and manage for erosion after all training events and revegetate with native grasses and forbs to enhance wildlife habitat and training.

WCRTA Implementation Project No. 7 – Botanical Survey: Complete a flora survey targeting sensitive species and aquatic and wetland plants.

WCRTA Implementation Project No. 8 – Update the Biological Surveys (Herpetofauna, Bird, Mammal, and Bat): Update biological surveys at least once every 2 years.

WCRTA Implementation Project No. 9 – Maintain Terrestrial Habitat: Monitor annual photo points established in the 2020 Biological Survey Report (Banner Associates 2020a), encourage/promote snags, promote corridors between habitats, leave microhabitats, minimize habitat fragmentation and disturbance. Evaluate opportunities for the creation of pollinator plots within WCRTA.

WCRTA Implementation Project No. 10 – Wildlife Habitat Monitoring: Utilize management indicator species to assess overall ecosystem health at WCRTA. The following species were identified in the 2020 Biological Survey Report (Banner Associates 2020a) as management indicator species: forest raptors, white-tailed deer, primary cavity nesters, and bats.

WCRTA Implementation Project No. 11 – Threatened and Endangered Species Management: See section 4.12.3.

WCRTA Implementation Project No. 12 – Deer Harvest through Disabled Veteran Hunting Event: Explore opportunities for white-tailed deer population management through harvest of deer by disabled veterans.

4.3.6 Relationship to Other Natural Resources Issues

Wildlife management is related to the following natural resources management issues on the ATA and WCRTA:

- Forest Management—Silvicultural activities (i.e., prescribed burning, thinning) play an important role in habitat development and management.
- Stormwater and Water Quality Management—Adverse effects to rivers, streams, and water quality may adversely affect aquatic resources and wildlife.
- Threatened and Endangered Species Management—The management of threatened and endangered species is linked closely with general fish and wildlife habitat management.
- Riparian Management—Riparian zones provide quality habitat and corridors between other habitat types.
- Wetland and Aquatic Habitat Management – Wetland areas tend to have high species diversity.
- Outdoor Recreation Management—Programs, such as creating wildlife food plots, allow for healthier and larger game populations.

4.3.7 Military Mission Considerations

4.3.7.1 ATA

General wildlife management is accomplished in conjunction with the military mission and training activities and does not generally interfere with the military mission. Bison grazing does not generally interfere with the military mission. In cases where endangered species management in accordance with the appropriate guidance would conflict with mission activities, consultation with the USFWS and the SDGFP will be initiated to avoid jeopardizing any listed species or its critical habitat, if applicable.

4.3.7.2 WCRTA

General wildlife management is accomplished in conjunction with the military mission and training activities and does not generally interfere. The presence of threatened and endangered species may minimize or prohibit the use of some areas on the WCRTA for some training activities. In cases where endangered species management in accordance with the appropriate guidance would conflict with mission activities, consultation with the USFWS and SDGFP will be initiated to avoid jeopardizing any listed species or its critical habitat, if applicable.

Best management practices for bat presence in structures on WCRTA should be taken into consideration prior to training activities. Best management practices include:

1. During the spring biologic surveys, a visual survey of structure to determine likelihood of bat usage. Natural resource manager should inspect building for roosting bats or evidence of bat

usage (guano, staining, etc.). If bats or evidence of bat usage are not observed during the visual inspection, no further action is warranted.

2. If bats or evidence of bat usage is observed, coordination will occur with USFWS to determine options (i.e. relocation) to allow military missions to continue.

4.4 STORMWATER AND WATER QUALITY CONTROL

4.4.1 Overview

Water quality of surface waters and groundwater is directly related to natural resources management practices that affect stormwater runoff. Stormwater runoff is produced when rainfall at any time during a storm exceeds the infiltration capacity of the soil. When this happens, water will accumulate in small depressions and run downslope as overland flow. Stormwater runoff can be a significant source of pollutants and sediment into surface waters, especially in areas where groundcover has been disturbed. Water quality also may be negatively impacted by disturbances causing increased sedimentation to wetlands and stream channels.

4.4.2 Compliance

Laws and regulations that are associated with control and abatement of pollution in U.S. waters include:

- Federal Water Pollution Control Act as amended by the CWA of 1977 (33 USC §1251)
- U.S. Fish and Wildlife Coordination Act (16 USC §661)
- NEPA (42 USC §4321)
- EO 11990, Protection of Wetlands
- EO 11752, Prevention, Control, and Abatement of Environmental Pollution
- EO 12088, Federal Compliance with Pollution

Physical disturbances to wetlands and disturbances to both perennial and intermittent streams (i.e., stream crossings) are regulated by the CWA under Sections 404 and 401. Section 404 gives the U.S. Army Corps of Engineers (USACE) primary regulatory responsibility for permitting issues. Most proposed activities within streams or wetlands (such as filling, dredging, or clearing of ditches) require either a general or individual permit. The USACE should be consulted prior to any activities that could potentially affect wetlands or waterbodies to determine permitting requirements. General or individual permits may be required for such activities.

General permits issued by the USACE authorize various types of development projects in wetlands and other waters of the U.S. Activities authorized under general permits are considered similar in nature, causing minimal waters of the U.S. Activities authorized under general permits are considered similar in nature, causing minimal adverse effects on the environment. The USACE uses general permits for certain activities to minimize regulatory burdens and administrative costs by allowing landowners to proceed without having to obtain individual permits in advance. One type of general permit is known as a nationwide permit. There are 44 nationwide permits covering a variety of issues. Nationwide permits authorize certain activities and are valid only if the conditions applicable to the permit are met.

In general, individual permits are required for disturbances that exceed thresholds for disturbances covered by general permits. Permitting requirements vary depending on type, location, and extent of disturbance. A Section 404 individual permit, issued by the USACE, is often required prior to impacting streams or jurisdictional wetlands. Generally, whenever a Section 404 permit is required, a Section 401 Water Quality Certification issued by the state of South Dakota, in accordance with South Dakota Codified Law 34A-2-33 and 34, and Administrative Rules of South Dakota 74:51:02:63-65, is also required (SDDANR 2020b).

Under the Federal Water Pollution Control Act, as amended in 1987, Section 319 requires each state to prepare a Nonpoint Source Management Program. BMPs are described in the South Dakota Nonpoint Source Program Management Plan for a variety of categories, including forestry, development, and construction activities (SDDANR 2014).

In South Dakota, when construction or other land-disturbing activity creates a minimum of 1 acre of soil disturbance or disturbance activities less than 1 acre that are part of, adjacent to, or associated with a larger common plan of disturbance development or sale that may eventually exceed 1 acre of total disturbance, the activity must be permitted by the SDDANR with a Stormwater Permit for Construction Activities. The National Pollutant Discharge Elimination System (NPDES) permit establishes the required erosion control and revegetation standards (SDDANR 2020b).

4.4.3 Goals, Objectives, and Management Strategies

It is a goal of the SDARNG to minimize pollutants entering surface waters. Stormwater runoff from impervious surfaces has a high potential to carry pollutants into wetlands, surface waters, and groundwater. Impervious surfaces at the WCRTA include hard packed entry and exit roads. The SDARNG will initiate plans to protect water quality as defined in the following goals, objectives, and management strategies. ***Table 4-4*** outlines the goals, objectives, and strategies for managing pollutants entering surface waters at the ATA and WCRTA.

Table 4-4. Goals, Objectives, and Management Strategies for Surface Water at the ATA and WCRTA

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
Reduce or minimize pollutants entering surface waters	Control or eliminate sources of pollution to groundwater and surface waters through conventional or innovative systems.	As needed, stabilize erodible soils through revegetation of barren ground within 2 weeks following training activities.
	Cooperate with Federal, state, and local regulatory authorities in forming and implementing water pollution control plans.	Adhere to BMPs for construction activities, such as the use of geotextiles, riprap, seeding, grass-lined channels, filter berms/socks/rolls, silt fences, straw/hay bales, and vegetated buffers.
	Control or eliminate runoff and erosion through sound vegetative and land management practices (i.e., erosion control).	Minimize impervious surfaces.

		Revegetate barren ground as soon as possible following training activities.
	Consider non-point source pollution abatement in all construction, installation operations, and land management plans and activities.	Manage the use of pesticides and herbicides in accordance with the Integrated Management Plan (IPMP).

4.4.4 Inventory and Monitoring

4.4.4.1 ATA

Water quality monitoring is important to measuring ecosystem health at the ATA. Land-based environmental degradation eventually affects water quality and aquatic ecosystems. Ground and surface waters are generally of good quality. The SDARNG obtains potable water for training activities at the ATA from locations within the city of Elk Point and transports the water to the ATA in water buffaloes, as necessary.

4.4.4.2 WCRTA

A drainage analysis was conducted as part of the Master Plan for WCRTA in 2014 (42nd Street Design Studio et al. 2014). The WCRTA contains a variety of drainages, ranging from shallow draws to deep gulches. Most drainage ways flow west to east, transporting water from the higher elevation of the western side to the lower eastern side. The drainage ways supply the two detention dams, element no. 252 and 294 (Cedar Canyon Dam) described below.

- The Cedar Canyon Dam Detention Facility 294 is located on the WCRTA, along National Guard Road. This flood control facility collects stormwater from a 270-acre drainage basin and protects the Red Dale Drive and Canyon Lake Drive neighborhoods from the damaging effects of swift, short duration floods. The future land use plan for this detention facility's basin is "Open Space" 2. This detention facility was designed using an impervious surface of 3 percent. If the future land use plan is revised and/or changed, or if the impervious surface increases beyond 3 percent, the detention facility will need to be re-evaluated to determine the effects on the downstream systems.

- Detention Facility No. 252 is located on the WCRTA directly west of Steven High School. This metering facility collects stormwater from approximately the north half of Camp Rapid. The future land use plan for this detention facilities basin is "Open Space" 3. This detention facility was designed by using an impervious surface of 3 percent. If the future land use plan is revised and/or changed, or if the impervious surface increases beyond 3 percent, the detention facility will need to be re-evaluated to determine the effects on the downstream systems.
- Two unmetered stormwater meadow locations drain into residential neighborhoods. The two residential neighborhoods that are receiving this stormwater runoff are West Berry Trails and Red Dale Drive. Any development or impervious surface added in these meadows will result in needed on-site detention.

4.4.5 Stormwater and Water Quality Projects

4.4.5.1 ATA

There are no specific natural resources management projects pertaining to stormwater and water quality control scheduled at this time. Water quality monitoring is implemented on a case-by-case basis when required for construction, training, or other event that may impact surface water quality.

4.4.5.2 WCRTA

See ***WCRTA Implementation Project No. 6 – Revegetation:*** Reestablish native grasses and forbs in disturbed areas following training activities to reduce runoff into wetlands and streams.

4.4.6 Relationship to Other Natural Resources Management

Stormwater management and water quality control are related to the following other natural resources issues on the ATA and WCRTA.

- Fish and Wildlife Management—Adverse effects to rivers, streams and water quality may adversely affect aquatic resources and wildlife.
- Wetlands Management—Wetlands and aquatic habitats may be adversely impacted by sedimentation and other pollutants resulting from poor stormwater management.

4.4.7 Military Mission Considerations

Improper stormwater control can potentially lead to CWA violations, thus potentially resulting in fines and other penalties, which may ultimately compromise the integrity of the ATA and WCRTA as a viable training installation.

4.5 FLOODPLAIN AND RIPARIAN ZONE MANAGEMENT

4.5.1 Overview

Floodplains are low areas adjacent to streams, rivers, or lakes prone to flooding. Riparian zones are vegetated communities along waterbodies and may include both uplands and wetlands. Floodplains and/or riparian zones provide the following benefits:

- Store excess water during flood events
- Provide shade for fish and other aquatic species
- Improve water quality by reducing sedimentation
- Stabilize stream banks
- Provide quality habitat and wildlife corridors

4.5.1.1 ATA

Due to its proximity to the Missouri River, the entire ATA is a flood prone area (floodplain).

4.5.1.2 WCRTA

The entire WCRTA lies outside of designated floodplains. Intermittent drainages crossing the site contain deciduous drainage vegetation, which serves as a natural buffer that dissipates runoff and enhances infiltration. These riparian corridors must be protected to limit pollution (in the form of sediment loading) and to provide habitat for wildlife. At least one bivouac area and one shooting range currently encroach on riparian vegetation along the northernmost gulch on the WCRTA. The previous INRMP indicated that a portion of the drainage (Deadman Gulch) in the southwestern area of WCRTA was burned around 1988 (SDARNG 2001). This area is currently vegetated with predominantly herbaceous vegetation, including native and non-native grasses and forbs with scattered ponderosa pine saplings, and appears to be stabilized.

4.5.2 Compliance

Riparian and floodplain protection is required by the SAIA, as amended. In addition, required floodplain management is outlined in EO 11988, Floodplain Management. Requirements of this EO include:

- All proposed actions must be evaluated to assess potential adverse effects to the floodplain
- Alternatives must be considered to avoid adverse effects and incompatible development of the floodplain
- Agencies or proponents must provide opportunity for early public review of any plans or proposals for actions in floodplains

4.5.3 Goals, Objectives, and Management Strategies

It is the goal of the SDARNG to avoid adverse impacts to floodplains and riparian zones to the extent possible. ***Table 4-5*** outlines the goals, objectives, and strategies for floodplain management.

Table 4-5. Goals, Objectives, and Strategies for Floodplain Management on the ATA and WCRTA

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
Protect floodplains and riparian zones.	Avoid adverse impacts on floodplains.	Avoid development or management practices that affect the attenuation capacity of floodplains. Adhere to forestry BMPs for South Dakota in riparian zones and in floodplains. Maintain a 100-foot vegetated buffer along waterways, wetlands, and intermittent creeks.

	Avoid adverse impacts to wetlands.	Maintain a 50-foot buffer around wetland areas.

4.5.4 Inventory and Monitoring

Monitoring of riparian zones occurs in conjunction with other natural resources monitoring projects, as appropriate (i.e., wetlands and forest inventories).

4.5.5 Floodplain and Riparian Zone Projects

No riparian projects exist on the ATA or WCRTA at this time. Monitoring of riparian zones occurs in conjunction with other natural resources monitoring projects, as appropriate (i.e., wetlands and forest inventories).

4.5.6 Relationship to Other Natural Resource Issues

Riparian zone management is related to the following natural resources management issues on the ATA and WCRTA:

- Forest Management—As outlined in forestry BMPs for South Dakota (SDDA 2003), forest management is restricted in riparian zones.
- Fish and Wildlife Management—Riparian zones provide quality habitat and corridors between other habitat types.

4.5.7 Military Mission Considerations

Protection of riparian zones and floodplains limits land area for training exercises.

4.6 WETLANDS AND AQUATIC HABITAT MANAGEMENT

4.6.1 Overview

The USACE and the USEPA jointly define wetlands as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (USACE 1987).

4.6.2 Compliance

Wetlands are among the most productive and ecologically important vegetative communities. The primary threat to wetlands and aquatic habitats is siltation associated with erosion. Laws, regulations, and EOs pertaining to wetlands protection and policies include:

- Rivers and Harbors Act of 1899 (33 USC §403)
- Fish and Wildlife Coordination Act of 1967 (16 USC §661)
- Land and Water Conservation Fund Act of 1968 (PL 88-578, as amended)
- Federal Water Pollution Control Act as amended by the CWA of 1977 (33 USC §1251)
- EO11988, Floodplain Management
- EO 11990, Protection of Wetlands
- NEPA (42 USC §4321)
- SAIA (16 USC §670 et seq.)

The primary vehicle of wetlands protection and regulation is Section 404 of the CWA, which allowed the USACE to establish a permit system to regulate the dredging and filling of materials in "waters of the U.S" (Mitch and Gosselink 1993). The USACE prohibits the discharge of dredged or fill material into "waters of the U.S.," which includes jurisdictional wetlands, without a permit. The type of permit required depends on the extent of disturbance to the subject wetland or waterbody.

Wetland protection is also required by the SAIA, as well as EO 11990, which "requires agencies to take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the beneficial values of wetlands." In addition, appropriate wetland management and inventory is outlined in AR 200-3, and potential wetland impacts are a consideration of 32 CFR Part 651 when considering projects for analysis under NEPA.

4.6.3 Goals, Objectives, and Management Strategies

It is the goal of the SDARNG to avoid adverse impacts to wetlands and aquatic habitats as these areas are some of the most productive ecosystems available. ***Table 4-6*** lists the goals, objectives, and management strategies established for protection of wetlands and aquatic habitats on the ATA and WCRTA.

Table 4-6. Goals, Objectives, and Strategies for Aquatic Habitats on the ATA and WCRTA

GOAL	OBJECTIVE	MANAGEMENT STRATEGIES
Protect and manage wetlands and aquatic habitats.	Avoid adverse impacts to wetlands and strive to achieve the goal of "no net loss" of values and functions of wetlands.	Maintain 50-foot buffers around wetlands to avoid disturbance to wetlands and aquatic habitats where practicable. Prohibit both vehicular and pedestrian maneuvers near wetlands and post signs prohibiting vehicle access around wetlands and aquatic habitats that are experiencing training encroachment.

		Avoid use of chemical pesticides and non-biodegradable herbicides within 300 feet of any wetland. Prevent erosion and sedimentation into wetlands and aquatic habitats Provide or maintain vegetative corridors between wetlands and surrounding upland areas. Protect the intermittent riparian zone through good forest, land, and wetlands management.

4.6.4 Inventory and Monitoring

4.6.4.1 ATA

A wetland delineation and survey report was completed in July 2013 (RESPEC 2013a) for ATA to establish baseline data. It was observed that wetlands encompassed 254.4 acres (63 percent) of the ATA ranging in type and dominant vegetation. Plant composition in the wetland area is a mix of native grasses, grass-like species, forbs, shrubs, trees, and nonnative species. The 2011 flooding and extended inundation (5–6 months) impacted the types and composition of vegetation observed at the ATA. Eastern red cedar, dogwood, juvenile cottonwoods, and willow experienced high die-off rates. During the 2020 biological survey, a formal wetland delineation was not conducted. However, it was observed that the ATA was currently functioning as a riparian upland area adjacent to the Missouri River.

4.6.4.2 WCRTA

No permanent water is known to exist on the WCRTA property. The National Wetlands Inventory (NWI) database identifies four palustrine wetland environments on the WCRTA. The Cedar Canyon Dam impoundment in the southeast portion of the site is designated primarily as unconsolidated shore and lesser freshwater pond. A second impoundment, adjacent to the pistol range in the east-central portion of the site, is also designated as freshwater pond. During the 2020 biological surveys, areas previously identified as wetlands were inspected and were determined not to display one or more of the three characteristics, hydric soil, hydric vegetation, and hydrology, needed to qualify as a wetland. Previous surveys had noted three intermittent streams within the WCRTA. One area of intermittent stream, approximately 1,766 feet in length, with fringe wetland was observed within the WCRTA during the 2020 survey (**Figure 3-5c**). Previous reports also indicated that a freshwater emergent wetland existed in the northwest corner of the site as well; however, upon inspection during the 2020 survey, a wetland in this location was not observed.

4.6.5 Wetland and Aquatic Habitat Management Projects

4.6.5.1 ATA

ATA Implementation Project No. 11 – Land Use Considerations: Define land use considerations within these areas and incorporate into the SDARNG's GIS database (***Project No. 1***).

4.6.5.2 WCRTA

WCRTA Implementation Project No. 13 – Wetland and Aquatic Habitat Management: Perform a wetland delineation and create and maintain a 50-foot wetland vegetative buffer area around all wetlands to reduce runoff, improve water quality and minimize invasion of weed species.

4.6.6 Relationship to Other Natural Resource Issues

Wetland management is related to the following natural resources management issues:

- Fish and Wildlife Management—Wetlands and aquatic areas provide high-quality, productive habitat.
- Water Quality—Wetlands can improve water quality by causing sediments to drop out of the water column and promoting chemical reactions that remove certain chemicals from the water.

4.6.7 Military Mission Considerations

Protection and avoidance of wetlands limit lands available for training. However, the protection of wetlands is important to the ecological integrity of ecosystems on the ATA and WCRTA. Responsible stewardship of fish and wildlife resources is imperative to good public relations. Non-permitted impacts to wetlands may result in CWA violations, potentially resulting in fines and other penalties, which may ultimately compromise the integrity of the WCRTA as a viable training installation.

4.7 INVASIVE AND EXOTIC SPECIES AND NOXIOUS WEEDS

4.7.1 Overview

An invasive species is defined as "an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health." An alien species is defined as a "species including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem" (EO 13112).

Noxious weeds are defined as "any living stage (including but not limited to, seeds and reproductive parts) of any parasitic or other plant of a kind, or subdivision of a kind, which is of foreign origin, is new to or not widely prevalent in the United States, and can directly or indirectly injure crops, other useful plants,

livestock, or poultry or other interests of agriculture, including irrigation, or navigation or the fish and wildlife resources of the United States or the public health" (Federal Noxious Weed Act of 1974).

Exotic species can often spread rapidly through ecosystems because their natural predators often are not present. These species have the ability to retard natural succession and reforestation and generally cause a reduction of biological diversity in forests. There have been no invasive and exotic species inventories or monitoring programs at the WCRTA to date. However, multiple species were detected as part of the 1992 plant survey on site, or regionally by the Pennington County Weed and Pest Department. An invasive and exotic species monitoring and control program will be implemented to achieve SDARNG goals.

4.7.2 Compliance

Laws and regulations pertaining to invasive and exotic species and pest control include the following:

- Federal Noxious Weed Act of 1974 (7 USC §2801 et seq.)
- Federal Insecticide, Fungicide, and Rodenticide Act (7 USC §136)
- Federal Pest Plant Act (7 USC §150a et seq.)
- EO 13112, Invasive Species

In South Dakota, having land infested with state or local declared noxious weeds or pests is considered a class-2 misdemeanor.

4.7.2.1 ATA

USDA (2020) lists the following as invasive and noxious plants in South Dakota and Union County: field bindweed (Convolvulus arvensis), leafy spurge (*Euphorbia esula*), Canada thistle (*Cirsium arvense*), perennial sow thistle (Sonchus arvensis), hoary cress (*Cardaria draba*), Russian knapweed (*Centaurea repens*), purple loosestrife (*Lythrum salicaria*), musk thistle (*Carduus nutans*), plumeless thistle (*Carduus acanthoides*), salt cedar (*Tamarix aphylla, T. chinensis, T. gallica, T. parviflora and T. ramosissima*), St. Johnswort (*Hypericum perforatum*), spotted knapweed (*Centaurea maculosa*), common crupina (*Crupina* i), Dalmatian toadflax (i), yellow toadflax (*Linaria vulgaris*), diffuse knapweed (*Centaurea diffusa*), yellow starthistle (*Centaurea solstitalis*), rush skeletonda liweed (*Chondrilla juncea*), dodder (*Cuscuta*), perennial pepperweed (*Lepidium latifolium*), Eurasian water milfoil (*Myriophyllum spicatum*), multiflora rose (*Rosa multiflora*), and johnsongrass (*Sorghum halepense*).

Union County (2020) lists 14 of the USDA listed species. The South Dakota Department of Agriculture's (SDDA) (2018) distribution maps for State Noxious Weeds indicate that Leafy spurge, Purple loosestrife, Russian knapweed, and Canada thistle have been reported in Union County. These species along with purple loosestrife, sow thistle, musk thistle, and cannabis (*Cannabis sativa*) were identified during the vegetation mapping project. Leafy spurge was dominant during the site visit in June 2020.

In addition, an exotic and invasive plant survey was conducted at ATA in 2017 (Louis Berger 2017c). Five species were documented as occurring within the training area: bull thistle (*Cirsium vulgare*), Canada thistle, common mullein (*Verbascum thapsus*), leafy spurge, and poison ivy (*Toxicodendron radicans*).

4.7.2.2 WCRTA

The Pennington County Weed and Pest Department (2020) lists the following state and local declared weeds: Canada thistle, hoary cress (*Lepidium draba*), leafy spurge, perennial sow thistle, purple loosestrife, Russian knapweed, salt cedar (*Tamarix spp*.), common tansy (*Tanacetum vulgare*), Sulphur cinquefoil (*Potentilla recta*), houndstongue (*Cynoglossum officinale*), puncturevine (*Tribulus terrestris*), and spotted knapweed.

4.7.3 Goals, Objectives, and Management Strategies

It is a goal of the SDARNG to restore and support natural ecosystems at the ATA and WCRTA where such efforts do not conflict with the military mission. The task of controlling invasive and exotic species is often expensive, lengthy, and risky because total eradication is required to prevent reestablishment. In accordance with laws and regulations pertaining to the management of invasive and exotic species, ***Table 4-7*** outlines the goals, objectives, and strategies for the management of exotic and invasive weeds on the ATA and WCRTA.

Table 4-7. Goals, Objectives, and Strategies for Management of Invasive and Noxious Weed Species on the ATA and WCRTA

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
Restore and support natural ecosystems.	Prevent the introduction of invasive species and take measures to control invasive and exotic species.	Implement management of invasive and exotic species in accordance with the Integrated Pest Management Plan. All herbicides will be used in compliance with Federal regulations and U.S. Army standards. Do not apply pesticides directly to wetlands or waterbodies unless such application is specifically approved on the label. CWA, Section 402: NPDES permits may also be required for some pesticide applications that involve wetlands and bodies of water. Additionally, all pesticides must be on the current SDARNG Pesticide Use Proposal.

4.7.4 Inventory and Monitoring

4.7.4.1 ATA

A desktop review of USDA, SDDA, and Union County Pest Management materials provide information on state listed noxious weeds occurring in South Dakota and specifically in Union County. The Vegetation Mapping Project (RESPEC 2013b) identified several listed noxious weeds as well as poison ivy in its sampling plots. An exotic and invasive species survey conducted in 2017 (Louis Berger 2017c) identified

five exotic and invasive species occurring at ATA. Leafy spurge was dominant during the June 2020 site visit.

4.7.4.2 WCRTA

The vascular plant survey (Accipiter 2015) and wetland survey (RESPEC 2013) both identified flora species information, which included invasive and exotic species identified at the WCRTA and several that are listed on the state and locally declared list. The 1992 survey documented seven of the state and locally declared species (SDARNG 2001). During the site visit in June 2020, several noxious weeds were noted on the WCRTA, including houndstongue, leafy spurge, Canada thistle, and common tansy. The majority of the occurrences did not appear to be widespread or to cover a large area.

4.7.5 Invasive and Exotic Species Management Projects

4.7.5.1 ATA

ATA Implementation Project No. 12 – Invasive and Exotic Species Management: Conduct annual surveys (funding permitting) in April or May to identify the invasive or exotic species present and determine the location; then plan to treat throughout the year.

4.7.5.2 WCRTA

WCRTA Implementation Project No. 14 – Invasive and Exotic Species Management: Conduct annual surveys (funding permitting) in April or May to identify the invasive or exotic species present and determine the location; then plan to treat throughout the year. Treat an average of 10 acres annually for invasive species. Continued use and disturbance on the WCRTA has created conditions conducive to the establishment and spread of introduced weeds such as Canada thistle. In accordance with Executive Order 13112, every effort should be made to control these species on the training site as they may spread onto adjacent properties. Nonbiodegradable herbicides should be avoided. Herbicides should be used in conjunction with the established Integrated Pest Management Plan (IPMP).

4.7.6 Relationship to Other Natural Resource Management

Invasive and exotic species control is related to the following natural resources management issues on the ATA and WCRTA:

- Forest Management—Prescribed burning may be used to control invasive species.
- Fish and Wildlife Management—Herbicides and pesticides could impact non-target species, including threatened and endangered species.
- Water Quality—Herbicides and pesticides could impact water quality, with subsequent aquatic habitat implications.

4.7.7 Military Mission Considerations

Invasive and exotic species have the capability to form dense strata within the forest that could interfere with on-the-ground training activities and be dangerous to both animal and human health.

4.8 INTEGRATED PEST MANAGEMENT

4.8.1 Overview

Integrated Pest Management (IPM) is the use of multiple techniques in a compatible manner to avoid damage and minimize adverse environmental affects while obtaining control of target pests. The goal of IPM is to utilize non-chemical procedures to control pests, including both invasive and exotic plant and animal species. IPM techniques for pest control include:

- Mechanical control, which alters environments in which pests live, traps or removes pests (i.e., glue boards and live-traps) from where they are not wanted, or excludes pests from where they are not wanted (i.e., screening)
- Cultural control, which manipulates environmental conditions to suppress or eliminate pests (i.e., removal of food scraps or spreading manure on fields)
- Biological control, which uses predators, parasites, or disease organisms to control pests
- Chemical control, which relies on pesticides and/or herbicides to kill pest and/or undesirable species of plants

4.8.2 Compliance

Laws and regulations pertaining to pest management include the following:

- Federal Noxious Weed Act of 1974 (7 USC §2801 et seq.)
- Federal Insecticide, Fungicide, and Rodenticide Act (7 USC §136)
- Federal Pest Plant Act (7 USC §150a et seq.)
- EO 12865, Reduction of Pesticide Application by 50 percent by Fiscal Year 2000
- EO 13112, Invasive Species
- CWA, Section 402: NPDES

4.8.3 Goals, Objectives, and Management Strategies

It is the goal of the SDARNG to eliminate pests using environmentally and economically sound means. An IPMP was updated for all SDARNG properties (SDARNG 2019c). Minimal spraying is done, and the work is contracted to a qualified individual with the appropriate, up-to-date certification. Contracting the work is more cost-effective and eliminates the need to maintain a qualified and certified individual on-board. Bug

infested tree removal is also contracted. ***Table 4-8*** outlines the goals, objectives, and management strategies for pest management.

Table 4-8. Goals, Objectives, and Strategies for Integrated Pest Management on the ATA and WCRTA

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
Protect human health and prevent damage to facilities and natural resources caused by pests.	Control plant and animal species that affect natural resources management or directly affect the military mission.	Regularly monitor forest health for insect infestation and disease. If mountain pine beetle populations are found on the WCRTA or emerald ash borer populations are found on the ATA , remove or treat green infested trees prior to emergence. Maintain stand vigor to limit pine engraver outbreaks. Remove slash, windthrow, and stressed trees. Control invasive noxious weeds in accordance with the IPMP using fire, mechanical and chemical means. Train personnel on personal protective measures against harmful flora and fauna. Take action for incidents involving nuisance wildlife.
Implement IPM Practices.	Reduce quantity of toxic pesticide used and promote effective pest control practices.	All uses of pesticides will be in strict compliance with a currently approved USEPA label, unless approved otherwise by the USEPA or applicable Federal regulations. Only pesticides registered by USEPA will be used. Pesticides will also be limited to standard items, those listed in the DoD section of Federal supply catalogs, unless approved in writing by the Major Army Command. No pesticides, pesticide-related wastes, pesticide containers, or residues from a pesticide container will be disposed of in a way that is inconsistent with the label or labeling instructions. Do not apply pesticides directly to wetlands or waterbodies, unless such application is specifically approved on the label. CWA, Section 402: NPDES permits may also be required for some pesticide applications that involve wetlands and bodies of water. Additionally, all pesticides must be on the current SDARNG Pesticide Use Proposal. Train personnel on personal protective measures against harmful flora and fauna. Do not apply pesticides directly to wetlands or waterbodies, unless such application is specifically approved on the label.

4.8.4 Inventory and Monitoring

4.8.4.1 ATA

The statewide IPMP was updated in 2019 to address all SDARNG training facilities (SDARNG 2019c). The statewide IPMP identifies methods of control for pests, identifies the preferred method for individual species, and outlines a time frame for implementation of the preferred control methods.

The IPMP also identifies regulations for the use of herbicides and pesticides on training facilities and usage in close proximity to waterbodies.

4.8.4.2 WCRTA

The Forest Pest Management Plan (AMEC 2007) provides the following recommendations with regard to the mountain pine beetle and *Ips spp*. that should be incorporated into the IPMP update:

Mountain Pine Beetle

- Maintain well-managed tree stands. The most susceptible stands are those with trees greater than 8 inches in diameter and a basal area greater than 120 square feet per acre. As the average tree diameter and density decreases, the risk of mountain pine beetle attacks also decreases (SDDA 2020a). The most susceptible size trees are those trees that are greater than 8 inches in diameter (Amman et al. 1997; SDDA 2020a).
- Thin to reduce stand density. Even more important than tree size is stand density. Crowded stands (i.e., basal area exceeds 120 square feet) are far more susceptible to beetle attack for two reasons: (1) the trees are competing for water, nutrients, and light, and (2) lower light intensities and cooler temperatures found in dense tree stands increases the intensity of beetle attacks (SDDA 2020a). If possible, stands should be thinned in a patchwork mosaic pattern. This method will help to reduce the acreage of trees that are highly susceptible to beetles at one time (Amman et al. 1997). It is important to factor in timing of tree cutting and disposal of tree debris in order to reduce the likelihood of an infestation by pine engraver beetles in the downed material (Fettig et al. 2006).
- Remove infested trees. Either salvage harvest or cut and leave trees on site. A successful salvage harvest is only feasible when there is a relatively large volume of wood available and makes the harvest operation cost effective to the logger (Douce et al. 2002). Prompt removal of dead and dying trees is important to prevent significant degradation. Cut and leave is best for controlling small spots of trees (10 to 50) when salvage is not practical or cost effective. Trees can either be chipped or lopped and scattered or piled and burned.
- Protect important individual trees. Annual preventative spraying of individual, high value trees can protect those trees close to homes, buildings and roadways (Amman et al. 1997; Douce et al. 2002).

Pine Engraver Beetle

- Maintain well managed stands. Thinned stands are far less susceptible to infestation than dense ones (SDDA 2007). Stands in which the basal area has been reduced to 80 to 100 square feet per acre have been found to be less susceptible to beetle attack. Prevent population

buildups through timely thinning and slash disposal. The use of preventative measures will accomplish far more than after-the-fact control measures) (Kegley et al. 1997).

- Proper timing of management activities. The most optimal time for forest management in ponderosa pine stands is between August and December. This allows for the wood and slash to dry out sufficiently before the next beetle flight and infestation the following spring (SDDA 2007; Kegley et al. 1997).
- Avoid creating green logging slash in the early winter through late spring. Pine engraver beetles overwinter in the adult stage and normally infest green slash in the spring (Kegley et al. 1997).
- Avoid piling green cut trees next to live trees. The beetles can infest the firewood and then move on to the adjacent trees (SDDA 2007).
- Protect of individual trees. Preventative chemicals/sprays may also be used to protect high value trees from infestation (SDDA 2007). A form of carbaryl is the most commonly used preventative spray. Trees should be sprayed yearly before mid-April (Kegley et al. 1997).
- Minimize potential impacts of green slash. Promptly dispose of slash either through bulldozer trampling, chipping, burning, or allowing slash to dry out quickly by lopping and scattering large pieces around the harvest site (Kegley et al. 1997).
- Remove infested trees. Proper disposal is important to stop the spread of the infestation. This can be done either through the removal of infested wood from the site, burning or chipping (SDDA 2007).

4.8.5 Integrated Pest Management Projects

4.8.5.1 ATA

ATA Implementation Project No. 13– Incorporate Statewide IPMP into management guidance at the ATA: This project includes:

- Identifying mechanical, cultural, biological, or chemical controls for invasive, exotic or noxious plants
- Identifying a timetable for implementing control or eradication processes
- Implementing control or eradication measures in such a way as to not impede the training mission, endanger the native species, or compromise the water quality of the region.

All activities undertaken during the implementation portion of the IPMP will adhere to the Federal Insecticide, Fungicide, and Rodenticide Act, EO 12865, Occupational Safety and Health Act (OSHA), Resource Recovery and Conservation Act (RCRA), CWA, and NEPA, when applicable.

4.8.5.2 WCRTA

See ***WCRTA Implementation Project No. 2 – Beetle Control***: Annually remove beetle infested trees marked by the State Forester and South Dakota Wildland Fire and use forestry practices to reduce future outbreaks in accordance with the IPMP.

4.8.6 Relationship to Other Natural Resource Management

IPM is related to the following natural resources management issues on the ATA and WCRTA:

- Fish and Wildlife Management—Herbicides and pesticides could impact non-target species, including threatened and endangered species.
- Water Quality—Herbicides and pesticides could impact water quality, which could affect aquatic insects.

4.8.7 Military Mission Considerations

Uncontrolled pests can become health hazards with potential to threaten the military mission.

4.9 EROSION CONTROL AND SOIL CONSERVATION

4.9.1 Overview

Erosion control and soil conservation are important natural resources issues. Erosion potentially threatens water quality, land stewardship or training goals. Areas that suffer from erosion should be managed to prevent pollution, possible damage to water quality or biologic materials or diversity, and training needs.

4.9.2 Compliance

Laws and regulations pertaining to erosion control and soil conservation include:

- Soil Conservation Act (16 USC §590a et seq.)
- Federal Water Pollution Control Act as amended by the CWA of 1977 (33 USC §1251)
- EO 11989, Off-road vehicle use

4.9.3 Goals, Objectives, and Management Strategies

Erosion management will be integrated with many other natural resource activities, including forest, prescribed fire, and endangered species management. ***Table 4-9a*** outlines the soil conservation and erosion control goals, objectives, and management strategies for the ATA and WCTRA. ***Table 4-9b*** lists institutional and vegetative practices that may be used to prevent or repair erosion problems.

Table 4-9a. Goals, Objectives, and Strategies for Soil Conservation and Erosion Control Management on the ATA and WCRTA

GOALS	OBJECTIVES	MANAGEMENT STRATEGIES
Protect soil resources and prevent soil erosion	Comply with water quality and other environmental laws and regulations.	As required by ARs 200-1 and 32 CFR 651, the SDARNG will assess potential erodibility of a site during the planning of training activities.

and impacts on water quality, habitat, and the military mission.	Integrate mission requirements with the capability of the land to ensure sustainable use.	
	Rehabilitate eroded areas through establishment of vegetation, use of anchored mulch or erosion control mats, establishment of stable training surfaces, restrictions to access, and site monitoring.	Use of institutional and vegetative practices (See ***Table 4-9b***). Vegetation utilized for soil erosion prevention and stabilization shall be county specific native species of South Dakota. Erosion control and protection plans will be submitted and reviewed by the SDARNG for any construction or training activity when a possible activity may lead to soil disturbance. A qualified engineer or soil professional will be engaged in the planning of erosion or soil protection plans.

Table 4-9b. Institutional and Vegetative Practices on the ATA and WCRTA

INSTITUTIONAL PRACTICES	VEGETATIVE PRACTICES
Review of land use changes	Seeding
Stormwater Discharge permit	Transplants
Implement soil erosion monitoring and management	Vegetative filter strips
Training of personnel	Anchored mulch/erosion control mats
Riparian management zones	
Limiting vehicle access	
Stabilization of roads that transect vegetative communities to prevent unnecessary erosion	

4.9.3.1 ATA

Native grasses will be utilized during re-vegetation processes. Grasses native to the Union County region of South Dakota are associated with the tallgrass prairie. The dominant plants of tallgrass prairies are big bluestem (Andropogon gerardii), little bluestem (*Schizachyrium scoparium*), switchgrass (*Panicum* i), Indiangrass (*Sorghastrum nutans*), prairie sandreed (*Calamovilfa longifolia*), prairie cordgrass (*Spartina pectinata*), pasqueflower (*Anemone patens*), goldenrod (*Solidago sp*.), purple coneflower (*Echinacea angustifolia*), and prairieclover (*Dalea*). Other grasses native to South Dakota are buffalograss (*Buchloe dactyloides*), blue grama (*Bouteloua gracilis*), and wheat grass (*Agropyron triticeum*).

4.9.3.2 WCRTA

Native grasses will be utilized during re-vegetation processes. Grasses native to the Pennington County region of South Dakota are associated with the mixed-grass prairie. Dominant plants include big bluestem, little bluestem, prairie cordgrass, buffalograss, switchgrass, wheat grass, blue grama (*Bouteloua gracilis*), prairie dropseed (*Sporobolus heterolepis*), Canada wildrye (*Elymus canadensis*), sideoats grama (*Bouteloua curtipendula*), Indian ricegrass (*Oryzopsis hymenoides*), Virginia wildrye (*Elymus virginicus*),

prairie rose (*Rosa arkansana*), blackeyed Susan (*Rudbeckia hirta*), purple coneflower, prairie clover, and sunflowers (*Helianthus sp*).

4.9.4 Inventory and Monitoring

4.9.4.1 ATA

There are no monitoring or inventory programs in place at the SDARNG ATA, pertaining to soil erosion or erosion prevention. Currently BMPs are employed for erosion control. No specific erosion control projects are implemented or scheduled at this time.

4.9.4.2 WCRTA

As part of the 2014 Master Plan several analyses were conducted using NRCS web soil survey:

- Site degradation analysis indicates that a majority of the WCRTA is highly or moderately susceptible to soil degradation.
- Category 5 trafficability analysis indicates that a majority of the soil on the WCRTA has no characteristics that limit trafficability and that very low maintenance can be expected. Soil may have characteristics that limit trafficability but are favorable for use. Good operational performance and low maintenance can be expected. The limitations can be overcome or minimized by special planning, design, or management.
- Bivouac suitability analysis indicated that a majority of the WCRTA is classified as very limited in the development of bivouac areas, meaning the soil has one or more features that are unfavorable for bivouac use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

4.9.5 Erosion Control and Soil Conservation Projects

4.9.5.1 ATA

Monitoring of site soils and vegetation occurs during both planning and post-training activities. Proper soil erosion mitigation procedures are employed where necessary (**Table 4-9b)**.

4.9.5.2 WCRTA

Monitoring of site soils and vegetation occurs during both planning and post-training activities. Proper soil erosion mitigation procedures are employed where necessary (**Table 4-9b)**. See also Section 4.4.5.2. **WCRTA *Implementation Project No. 6.***

4.9.6 Relationship to Other Natural Resource Issues

Erosion control is related to the following other natural resources management issues on the ATA and WCRTA:

- Water Quality—Erosion negatively impacts the water quality of receiving streams.

- Wetlands—Erosion negatively impacts wetlands and aquatic habitats through potential siltation.

4.9.7 Military Mission Considerations

Appropriate soil conservation and erosion control are vital to the military mission. Threats to the military mission on the ATA and the WCRTA, as characterized by removal of and/or lack of accessibility to available training lands and other resources, such as infrastructure components, include:

- Undermining of roads
- Loss of topsoil, which would decrease revegetation rates
- Impacts to area riparian habitats, potentially resulting in CWA implications
- Establishment of washout areas on training lands

4.10 OUTDOOR RECREATION MANAGEMENT

4.10.1 Overview

Outdoor recreation is defined as a recreational program, activity, or opportunity that is dependent on the natural environment. Examples include hunting, fishing, trapping, picnicking, bird watching, off-road vehicle use, hiking and interpretive trails use, wild and scenic river use, and underdeveloped camping areas. The public is not allowed access to the ATA or WCRTA for outdoor recreational purposes and the ATA or WCRTA are not generally open to the public.

4.10.2 Compliance

The SAIA (16 USC §670 et seq.) requires DoD lands with suitable resources be managed for outdoor recreation and be open to the public provided that such access would not compromise security, safety, or integrity of natural resources.

4.10.3 Goals and Objectives

It is the goal of the SDARNG to maintain ecosystem integrity and function. The SDARNG does not permit hunting and fishing on the ATA or WCRTA, and the public is not allowed access to the ATA or WCRTA for recreational purposes.

4.11 RECREATION AND ECOSYSTEM MANAGEMENT

4.11.1 Overview

Land usage will be monitored for impacts on ecosystem integrity, as appropriate. The SDARNG will avoid introduction of unauthorized personnel through the placement of notice of no trespassing signs throughout the ATA and WCRTA.

4.11.2 Relationship to Other Natural Resource Management

The following natural resources issues and programs pertain to outdoor recreation management on the ATA and WCRTA:

- Forest Management—Forest management practices directly affect wildlife habitat.
- Fish and Wildlife Management—Programs, such as creating wildlife food plots, allow for healthier and larger game populations.

4.11.3 Military Mission Considerations

Accomplishment of the military mission has priority over outdoor recreation. The SDARNG may at any time alter access privileges to the ATA and WCRTA. Current denial of access is to ensure the safety and security of the public and/or government property.

4.12 THREATENED AND ENDANGERED SPECIES MANAGEMENT

4.12.1 Overview

This section discusses threatened and endangered species management at the ATA and WCRTA with respect to habitat and wildlife management. Fish and Wildlife Management and Wetland Habitat Management are discussed in Sections 4.3.3 and 4.6.3 respectively.

4.12.2 Compliance

Protection and management of threatened and endangered species on the ATA and WCRTA will be conducted in accordance with federal laws and regulations, Executive Orders DoDI 4715.03 (Natural Resources Conservation Program), DoDM 4715.03 (INRMP Implementation Manual) and AR 200-1 (Environmental Protection and Enhancement), USFWS regulations and agreements, and other applicable laws and guidance. Laws and regulations pertaining to fish and wildlife management include:

- Bald and Golden Eagle Protection Act (16 USC §668a–d)
- ESA (16 USC 1531 et seq.)
- Clean Water Act (CWA): Section 401 Water Quality Certification, 1986 (33 USC §1341)
- EO 11990, Protection of Wetlands

- Federal Water Pollution Control Act: Section 404, as amended by the CWA of 1977 (33 USC §1251)
- Fish and Wildlife Conservation Act (16 USC §2901 et seq.)
- Fish and Wildlife Coordination Act, as amended (16 USC §661 et seq.)
- Migratory Bird Treaty Act, as amended (16 USC §703-712)
- NEPA (42 USC §4321 et seq.)
- Oil Pollution Prevention Act of 1990, PL 101-380
- SAIA (16 USC §670a-o)

4.12.1 Goals, Objectives, and Management Strategies

The goal of threatened and endangered species management is to maintain and enhance populations and habitats of federally and state listed species on the SDARNG training areas while maintaining military training missions. A thorough plan will be completed in September 2020 (**Threatened and Endangered Species Management Plan for SDARNG, WCRTA and ATA** (Banner Associates 2020b)), which addresses specific goals, objectives, and management strategies for each federally or state listed threatened or endangered species known to occur or possibly occur on SDARNG training areas.

4.12.2 Inventory and Monitoring

4.12.2.1 ATA

Sixteen species (three birds, two mammals, one invertebrate, one freshwater mussel, one flowering plant, five fish, and three reptiles) have been identified as being either federally or state threatened or endangered with a possible distribution on the ATA. Section 3.10, ***Tables 3-10a*** and ***3-10c,*** illustrate the federal and state listed species on the training area. Further investigation of each species indicates that four endangered or threatened species are probable/known to occur on ATA. These include northern long-eared bat, false map turtle, lined snake, and eastern hog-nosed snake. These species are further discussed in detail in Section 3.10. Fish species were not included as training activities are primarily land-based exercises and have little impact on aquatic habitats (i.e. the Missouri River).

4.12.2.2 WCRTA

Twelve species (six birds, four mammals and two fish) have been identified as being either federally or state threatened or endangered with a possible distribution on WCRTA. Section 3.10, ***Tables 3-10b*** and ***3-10d,*** detail the federal and state listed species on the training area. Further investigation of each species indicates that only three are probable/known to occur at the WCRTA. These include the osprey, peregrine falcon, and northern long-eared bat. These species are further discussed in detail in Section 3.10.

4.12.3 Threatened and Endangered Species Projects

ATA Implementation Project No. 9 –Threatened and Endangered Species Management Plan: As resources permit, review plan annually and update every 5 years.

WCRTA Implementation Project No. 11 –Threatened and Endangered Species Management Plan: As resources permit, review plan annually and update every 5 years.

4.12.4 Relationship to Other Natural Resource Management

Threatened and endangered species management is related to the following natural resources management issues on the ATA and WCRTA:

- Forest Management—Silvicultural activities (i.e., prescribed burning, thinning) play an important role in habitat development and management.
- Stormwater and Water Quality Management—Adverse effects to rivers, streams, and water quality may adversely affect aquatic resources and wildlife.
- Fish and Wildlife Management—The general management of fish and wildlife habitat is linked closely with threatened and endangered species management.
- Riparian Management—Riparian zones provide quality habitat and corridors between other habitat types.
- Wetland and Aquatic Habitat Management – Wetland areas tend to have high species diversity.
- Outdoor Recreation Management—Programs, such as creating wildlife food plots, allow for healthier and larger game populations.

4.12.5 Military Mission Considerations

General wildlife management is accomplished in conjunction with the military mission and training activities and does not generally interfere. The presence of threatened and endangered species may minimize or prohibit the use of some areas on the WCRTA and ATA for some training activities (***Appendix D, Tables D-3 and D-4***). In cases where endangered species management in accordance with the appropriate guidance would conflict with mission activities, consultation with the USFWS and SDGFP will be initiated to avoid jeopardizing any listed species or its critical habitat, if applicable.

5.0 CULTURAL RESOURCE PROTECTION

5.1 REGULATORY FRAMEWORK

Cultural resources protection and management is addressed in AR 200-1 (Chapter 15) and AR 200-4. Cultural resources protection programs at the ATA and WCRTA will be administered in accordance with the following:

- Section 106 of the National Historic Preservation Act (NHPA) (16 USC §470, as amended)
- Archeological Resources Protection Act (16 USC §470aa–47011)
- American Indian Religious Freedom Act (42 USC §1996)
- Native American Graves Protection and Repatriation Act (25 USC §3001 et seq.)

- EO 13007, Protection of Indian Religions Practices
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- DoD Annotated Policy of Native Americans and Alaskan Natives (October 27, 1999)
- DoD Directive 4710.1 (Archeological and Historic Resources Management, 1984)
- AR 200-4 (Cultural Resources Management)

The NHPA establishes the Federal government's policy to provide leadership in the preservation and management of historic properties. Under Section 106 of the NHPA, as well as 36 CFR §800, Federal agencies are required to identify and protect historic properties included in, or eligible for listing on, the National Register of Historic Places (NRHP). Historic properties may be archaeological sites (both prehistoric and historic), buildings, structures, objects, or districts. The Federal proponent is responsible for seeking the comments of the Advisory Council on Historic Preservation under 36 CFR §800 on projects that affect historic properties. In the state of South Dakota, all Federal projects are reviewed by the South Dakota State Historical Society, which has been designated as the State Historic Preservation Office (SHPO).

South Dakota Administrative Rules (ARSD)

ARSD 24:52:06 State register of historic places.

ARSD 24:52:07 Standards for continued listing on the state register

ARSD 24:52:13 Project review.

ARSD 24:52:16 Heritage area designation

South Dakota Codified Laws

SDCL 1-19A Preservation of Historic Sites—outlines the state's historic preservation program. Similar to Section 106 of NHPA, the role of the SHPO in the state preservation law SDCL 1-19A-11.1 is to comment on projects with the potential to damage, destroy, or encroach upon any historic property listed on the state or National Register of Historic Places.

SDCL 1-19B County and Municipal Historic Preservation Activities—At the local level, SDCL 1-19B provides the authority for county and municipal historic preservation activities. SDCL 1-19B enables local governments to establish historic preservation commissions, designate historic properties by local ordinance, and protect historic properties through local design review procedures.

SDCL 34-27-25 Reporting discovery of human skeletal remains

SDCL 34-27-28 Notification to landowner and coroner

SDCL 34-27-31 Discovery of human remains or funerary objects by state educational institution or museum

State Historic Preservation Office

Statewide Preservation Plan 2016-2020—In South Dakota, the State Historic Preservation Office, one of five program areas of the State Historical Society, is responsible for implementing the state's preservation program. SDCL 1-19A, entitled *Preservation of Historic Sites*, outlines the state's historic preservation

program. The Plan outlines the purposes and policies of the NHPA and provides a statewide and local perspective on issues relating to South Dakota.

5.2 CULTURAL RESOURCES AT THE TRAINING AREA

5.2.1 ATA

A cultural resources survey was conducted at the ATA during implementation of the Statewide Integrated Cultural Resources Management Plan (ICRMP) for the SDARNG (2002). No cultural resources were identified at the ATA. At this time, the SDARNG does not plan to improve the property; therefore, a cultural resources inventory is not required. If future alterations to land use or construction for the ATA are initiated, a cultural resources survey may be required if the location of the proposed alteration or improvement is outside of the footprint of the previous survey, or in areas deemed as highly disturbed due to river scour or deposition, in accordance with the findings of the Statewide ICRMP (2002).

5.2.2 WCRTA

The entire WCRTA property has been surveyed for cultural resources. The SDARNG coordinated with the South Dakota State Historical Society (SDSHS) to identify site cultural resources (2002). The SDSHS identified four cultural sites on the property area. Three of the sites are located in the eastern portion of the property and are identified as diffuse scatters of lithic artifacts. Due to their disturbed nature, the three sites are considered ineligible for the NRHP.

To comply with AR 200-4, the SDARNG completed a statewide ICRMP that included all National Guard facilities in the state of South Dakota in 2002 (SDARNG 2002). The plan identifies that a site survey was completed on the WCRTA in 1988, leading to the identification of the three eastern sites mentioned in the SDSHS letter. The western acreage with the fourth identified site was not part of the property at the time. The plan also identifies that two natural limestone overhangs were tested at the time for cultural resources; however, the tests came back negative. No other historical architectural resources, or Native American issues or properties were identified on the site. In addition, the updated ICRMP (SDARNG ICRMP 2016) confirms that four archeological sites and seven structures have been recorded on WCRTA. One needs further evaluation for listing in the NRHP. The training area does not include a historic district/historic landscape and does not lie within a historic district. There are not any known resources of traditional, cultural, or religious significance that might be part of a larger cultural landscape. WCRTA contains no known burials or cemeteries.

A Level III Cultural Resources Inventory (Quality Services, Inc. 2009) was conducted at WCRTA to assess a 40-acre tract of land purchased by SDARNG, and to update and re-record and evaluate a previously recorded site for the NRHP. The site was revisited, expanded in size, and given updated management recommendations. No new cultural resources were encountered during this 40-acre site survey, other than those structures and features added in the expansion of the site. The site received a full re-record, adding five new components. The recommendation status is to have the site remain ineligible for the NRHP due to its lack of integrity, its non-association with important peoples or events, and its inability to provide significant information into the homesteading period of South Dakota.

5.3 CULTURAL RESOURCES MANAGEMENT

Management of cultural resources at the ATA and WCRTA is a mission of the SDARNG Environmental Office and is implemented by the SDARNG State Environmental Program Manager. The primary source of outside assistance is the South Dakota SHPO, which is also the primary advisor with regard to cultural resources in South Dakota.

Any discovered areas of cultural interest should be reported to the SHPO and analyzed for possible inclusion in the NRHP. If during the course of any ground disturbance related to training, any bones, artifacts, foundations, or other indications of past human occupation of the area are uncovered, the project should be temporarily stopped, the SHPO notified immediately, and appropriate steps taken to preserve the site.

5.4 EFFECTS OF NATURAL RESOURCES MANAGEMENT ON CULTURAL RESOURCES

Potential negative effects on cultural resources from natural resources management are associated primarily with ground disturbance resulting from erosion control and firebreak maintenance. The following training and routine operational and maintenance activities and natural resources management activities could require Section 106 consultation:

- Right-of-way easements
- Off-road vehicular use
- Other earthmoving activities (i.e., terrain modification)
- Erosion control measures that alter original ground surface

Activities that generally do not require Section 106 consultation include:

- Mowing and routine landscaping
- Plowing and disking in historically agricultural areas
- Field bivouacking
- Land navigation
- Construction of pedestrian trails that cause relatively little ground disturbance
- Use of existing excavated areas
- Fueling and refueling activities

All land-disturbing activities should be coordinated through the SDARNG Cultural Resource Manager to ensure compliance with relevant cultural resources laws and regulations and that no negative impacts to cultural resources are incurred.

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6.0 LAND USE, LAND PLANNING, AND NATURAL RESOURCES MANAGEMENT

This section discusses land use at the ATA and WCRTA and specific natural resources management (i.e., forest management, fish and wildlife management, land and water management, and outdoor recreation) occurring within the property boundaries. This section also addresses natural resource considerations that should be considered during land use planning.

6.1 Current Land Use and Natural Resource Management

6.1.1 ATA

As shown in ***Figure 2-1***, the ATA consists of a largely undeveloped area adjacent to the Missouri River. Land area primarily consists of unimproved grounds. Natural resource management within this area focuses on issues such as habitat improvement, wildlife, wetlands, water quality, riparian zone management, pest management, and erosion control. Specific natural resources management in this area include:

- Creating a vegetative buffer (stream management zone) to minimize pollutants entering the stream system
- Controlling erosional process through vegetative and engineered processes
- Using native species in re-vegetation activities
- Ensuring that use of herbicides and pesticides are used in accordance with IPMP strategies

Land use on the ATA is discussed in this section according to the type of training activities that occur. Based on training activities, the ATA has been divided into the following land use areas: areas used for light maneuver training (land navigation and bivouac) and bridge training and natural forested areas. Natural resources management is based on the requirements of the military mission within the ATA.

Light Maneuver Training Areas

The majority of land area on the ATA (approximately 384 acres) is available for light maneuver training. Light maneuver training areas are generally utilized for bivouac sites, base camps, staging activities, land navigation (foot traffic, compass orienteering), vehicle movements (unpaved road convoys), engineer training, and combat support and combat service support. Light maneuver training areas are primarily grasslands and open forests and are managed to enhance natural resources consistent with the needs of the military mission.

Bridge Training Areas

A former bridge training site is located directly adjacent to the Missouri River. Natural resource management occurring throughout bridge training areas includes soil erosion, water quality, and habitat management.

6.1.2 WCRTA

All training on the WCRTA needs to comply with the standard operating procedures set forth by the South Dakota Army National Guard and the National Guard Bureau NEPA Handbook (ARNG 2002). This requires the completion of a Record of Environmental Consideration and Environmental Checklist (REC/CK) for all training activities and construction projects to be conducted on the site. The REC/CK system focuses on preventing unnecessary environmental damage before the fact. A completed checklist must be sent through Camp Rapid to the SDARNG Environmental Office before the proposed training. The Environmental Office evaluates the REC/CK, determines any applicable measures to minimize environmental impacts, and determines the necessity of any permits for the task. The REC/CK is then returned with a list of requirements and recommendations for completing the activity.

Minimal Impact Training

Multiple training activities that occur on the WCRTA generally result in minimal disturbances to site natural resources. Under normal conditions, such activities do not require precautions, limitations, or restrictions. A REC/CK is still a necessary component of the training activity and will be evaluated to determine if any site conditions are out of ordinary due to weather conditions or other circumstances. Training activities that generally fall into this category include:

- Reconnaissance
- Small unit tactics
- Terrain/map analysis/orienteering
- Land navigation
- Patrolling
- Engineer reconnaissance
- Nuclear, biological, and chemical training with simulated agents
- First aid and survivability training

Tactical Concealment

Effective use of camouflage and concealing vegetation is a key training exercise in preparation for wartime. The pine steppe forests of the WCRTA can provide material for vegetative concealment, but indiscriminate cutting can harm the resource for future use. The following guidelines should be followed when using portions of the WCRTA for tactical concealment:

- Use camouflage netting whenever possible.
- Use standing vegetation rather than cutting when possible. Remember that cut vegetation will appear on an enemy's infrared detector anyway.
- Cut limbs only from trees taller than 6 feet. Cut the limbs close to the trunk and only remove limbs from the lower one third of the tree. Only remove limbs, trees, or bushes smaller than 2 inches in diameter.
- Leave healthy trees every 6 feet and preferentially cut any diseased or deformed trees rather than healthy individuals.
- Do not cut trees with any tape, markings, or signs attached, and do not remove any dead trees or snags.
- Do not drive nails or other materials into standing vegetation and avoid damaging trees with tools or vehicles.
- Remove camouflage at the end of exercises and scatter the slash at a depth of no more than 18 inches.

Bivouac Sites

The WCRTA is used regularly to train units in the preparation of field bivouac sites. In addition to the guidelines for vegetation usage in tactical concealment, the following guidelines apply to site use for bivouacking:

- Rotate bivouac sites whenever possible to minimize impacts to any one site.
- Use ground guides when backing all vehicles off the road and avoid damaging local vegetation.
- Place waste receptacles away from areas of vehicle usage to avoid spills.
- Clean up all evidence of site usage and dispose of waste in designated dumpsters or garbage cans. Do not bury trash.
- Police and properly dispose of all ammo casings and residue.
- Extinguish all sources of fire, including cigarette butts, before leaving the bivouac site.
- When locating new bivouac sites, place them on level areas with sandy soils and an overstory of ponderosa pine.

Fire Hazards

Some training activities pose serious fire hazards. Activities that could pose significant fire risks include weapons qualification/familiarization and off-road vehicle use during extremely dry conditions. More detail on fire hazards and management can be found in the draft Integrated Wildland Fire Management Plan. The following precautions can be employed to reduce the risk of uncontrolled fires at the WCRTA:

- No tracer ammunition for range qualification.
- No smoking allowed on state-owned facilities.
- Conduct exercises with a high fire potential away from buildings, in recently burned areas, or in areas surrounded by fire breaks.
- Conduct these exercises when humidity is relatively high and wind speeds are relatively low.
- Extinguish all sources of fire, including cigarette butts and used pyrotechnics.
- Have fire control equipment ready when pyrotechnic training is occurring.
- Determine the potential for fire hazards prior to any pyrotechnic training and plan accordingly.

Disturbed Area Management

Disturbed areas include roadsides, eroded areas, mowed developed areas, areas from which vegetation or topsoil was removed, and areas planted to non-native species. Disturbed areas that are no longer in regular use should have remediation measures applied to reduce further impacts to the surrounding environment and restore native communities to the site. Suggested management measures for disturbed areas include:

- Minimize mowing where possible, allowing the area to revert to prairie grasses. Mow roadsides only where needed to maintain visibility.
- Only mow areas outside of developed regions and roadsides between July 15 and August 15 to avoid ground nesting birds.
- Avoid using fescue to revegetate areas; use native grasses when feasible.
- Burn areas where non-native plants have taken hold.

Protected Area Management

Three types of natural areas on the WCRTA should be avoided when planning training activities: gypsum prairie, deciduous drainages, and designated wetlands. These are areas of high susceptibility to environmental degradation and are generally managed under special regulations, requiring extra permitting for any activity.

Management strategies for the three types of protected areas on the property are described below.

Gypsum Prairie

Due to the high erodibility of site soils and the presence of a state-monitored floral species (buff fleabane), avoiding any training activities or impacts on the gypsum prairie portions of the property is suggested. Seeding of native grasses on the site could be used to control erosion.

Deciduous Drainages

The deciduous drainages of the property act as drainage channels for the area during storm events. Rainwater focuses into these areas, so any adverse impacts to the drainages may be amplified during stormwater events. Restrict vehicles, including lawn mowers, from within 15 feet of drainages and avoid the area for any heavy training. Monitor bank and gully erosion along the drainages. Walk the banks annually during the winter and mark any areas where corrective measures may be necessary to stem erosion. Some measures may require USACE contact and permitting. Plant species like silver maple (Acer saccharinum), green ash (Fraxinus pennsylvanica), American elm, and hackberry (Celtis occidentalis) for erosion control. Permits will be required for any road building or ditch cleaning that involves the drainages.

Designated Wetlands

Restrict training activities and mowing in designated wetland areas. Adverse impacts to wetlands generally require extensive permitting. No training activities should take place within 100 feet of the wetlands, except for weapons qualification and familiarization at the pistol range. A 50-foot vegetative buffer is recommended at each wetland area.

6.2 Natural Resource and Land Use Planning

Natural resources and natural resources management should be considered during land use planning. Natural and cultural resources should be considered prior to the implementation of land use changes and/or development projects. All ground-breaking activities with the potential to impact natural or cultural resources should be reviewed by the SDARNG Conservation Manager. Impacts to natural resources may be avoided using the following BMPs/principles:

- Habitat fragmentation should be avoided. Habitat fragmentation results when contiguous community types (i.e., forestland) are bisected or “cut up” by roads, rights-of-way, or other development. New rights-of-way should be co-located with existing disturbance corridors where practicable to minimize habitat fragmentation.
- New buildings and training facilities should be sited in previously disturbed areas when possible. If new undisturbed areas must be utilized for development, new facilities should occur adjacent to previously disturbed land.
- Activities with the possibility of contaminant release (i.e., vehicle refueling) should occur a minimum of 50 feet (and preferably more) from waterbodies and wetlands to minimize the potential for release to surface waters.
- Land clearing (with the exception of selected prescribed burning) should not occur within 50 feet of waterbodies or jurisdictional wetlands.
- Impervious surfaces generally increase stormwater runoff and should be minimized in areas of new development. Alternative surfaces (i.e., gravel pathways) should be considered to minimize impervious surface area at the ATA.

- Erosion control will be a consideration of land use planning; activities that have the possibility to create disturbances within areas of highly erodible soils will be avoided to the extent possible; erosion control measures and methods of controlling sedimentation will be instituted in areas identified as existing erosion sites or have the characteristics of a future erosion site; control measures and methods of control will be included in preliminary designs for new construction or improvement of existing facilities, if applicable.

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7.0 RESPONSIBLE PARTIES AND INRMP IMPLEMENTATION

7.1 Responsible Parties

The Adjutant General (TAG) for the state of South Dakota is directly responsible for the operation and maintenance of SDARNG facilities, including implementation of this INRMP. Under the direction of TAG, the force structure (i.e., types and number of units, types of equipment, and training events), projects, construction, and budgets at SDARNG facilities are determined throughout the 5-year operational period of the INRMP.

Under the leadership of TAG, all SDARNG personnel and guests are trained in environmental awareness, and as such are explicitly mandated to comply with the policies, procedures, requirements, and applicable laws and regulations that accomplish the goals and objectives of the INRMP.

The SDARNG Deputy Chief-of-Staff for Operations (DCSOPS)/G3 has the primary responsibility for scheduling military training and ensuring the safety of all personnel during the conduct of training exercises at SDARNG facilities. The DCSOPS and the training site command (TSC) determine the training capacity based on the force structure determined by TAG.

The SDARNG Environmental Office is responsible for directing the management of natural resources. The Environmental Office is also responsible for identifying compliance requirements and providing guidance to the TSC and other personnel. The Environmental Office provides technical assistance to the TSC and the training site personnel to develop projects, secure required permits, conduct field studies, provide materials, identify natural and cultural resources, direct the NEPA process, and manage the development and revision of the INRMP. The State Environmental Program Manager for the SDARNG oversees the environmental program responsibilities.

7.2 INRMP Implementation

This INRMP presents practicable alternatives and recommendations that allow for the protection and enhancement of ecosystems while minimizing the impact to the SDARNG mission(s). Consequently, the implementation of some of the recommendations may sacrifice the enhancement of existing natural resources in deference to protecting the safety and efficiency of the training mission. This approach allows for insight into possible adaptations for operations and resource management strategies that result in reduced negative impacts to natural resources and increased operational efficiencies.

This INRMP proposes actions in accordance with applicable DoD and Army policies, directives, and instructions. As such, it is a dynamic or “living” document, subject to periodic updates or changes to integrate the adaptive management of natural resources at the ATA and WCRTA and changing mission requirements. Proper utilization of the INRMP is not intended to impair the ability of the SDARNG to perform its mission. However, the INRMP does identify restrictions that must be placed on sensitive attributes such as wetlands, cultural resources, and threatened and endangered species.

The reader should specifically note that while there are no immediate plans or intentions for activities that contribute to habitat degradation and/or as a worst-case scenario, removal of natural resources, individuals and agencies must be aware that achievement of the military mission is the primary consideration with regard to environmental and installation planning; maintenance of habitat, maintenance of recreational and natural resources, and opportunities for public use are secondary.

However, the SDARNG depends on natural resources for the sustainability of many training programs and will manage natural resources to ensure sustainable use. Controlled access to the ATA and WCRTA for authorized personnel is permitted for the purposes of implementing this plan. Access is permitted only when compatible with the military mission and in accordance with SDARNG safety and security requirements.

Access is granted when necessary to various environmental professionals to conduct research or biological inventories to support SDARNG natural resources management. The SDDA, SDGFP, USFWS, SDDANR, and other personnel from environmental and conservation organizations may be granted access to assist in carrying out cooperative management efforts as identified in this plan.

Implementation of the INRMP will require:

- Administrative and technical support
- Agency cooperation and technical assistance
- Funding
- Priorities and scheduling
- Production of project scopes and budgets
- The ability to amend and revise this document as necessary

Where 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.

7.2.1 Administrative and Technical Support

7.2.1.1 Personnel

The Natural Resources Program at the ATA and WCRTA is administered by the SDARNG Environmental Program Manager based at the SDARNG headquarters in Rapid City, South Dakota. Responsibilities of the Environmental Program Manager include:

- Implementing the INRMP
- Managing all phases of the SDARNG Natural Resources Program with appropriate natural resources management professionals
- Developing and implementing programs to ensure the inventory, delineation, classification, and management of all applicable natural resources to include wetlands, scenic areas, endangered and threatened species, sensitive and critical habitats, and other natural resource areas of special interest
- Providing for the training of natural resources personnel
- Maintaining forestry records (i.e., prescribed burns, timber harvests, fire break maintenance)
- Maintaining the endangered species monitoring log
- Reviewing all environmental documents (e.g., environmental impact assessments and remedial action plans) and construction designs and proposals to ensure adequate protection of natural resources, while ensuring that technical guidance as presented in this INRMP is adequately considered
- Coordinating with local, state, and Federal governmental and civilian conservation organizations relative to the ATA natural resources management program;
- Implementing and executing AR 200-1

- Assisting TAG with developing funding priorities for all natural resources program and compliance activities Additional labor resources may include:
- Federal agencies (i.e., USFWS, NRCS, USACE-Water Experiment Station, and the U.S. Army Environmental Center);
- State agencies (i.e., SDDANR, SDNHP, SDDA [Forestry])
- Local and regional universities
- Scouting groups
- Special interest groups (i.e., Audubon Society)

7.2.1.2 Training

Training for personnel participating in the management of natural resources (***ATA INRMP Implementation Project No. 14 and WCRTA INRMP Implementation Project No. 15***) should be practical and job-related. All training programs should involve at a minimum a review of legal compliance requirements, applicable DoD/DA regulations, and pertinent state and local regulations. Annual workshops, professional conferences, and classes are excellent means of obtaining interdisciplinary training for natural resources managers.

Conferences and workshops will be evaluated for their usefulness, and decisions will be made based on appropriateness to ongoing projects and funding availability. Personnel will be trained in related environmental fields, as appropriate. NEPA training will be required of all supervisory personnel and those who review or prepare NEPA documents.

7.2.1.3 Data Management

Natural resources data are maintained by SDARNG environmental program and natural resources personnel. The SDARNG has electronic data files for installation boundary and roads and vehicle trails. GIS technology is used to manipulate and analyze data. Currently, the SDARNG has electronic data files for the following natural resources on the ATA or WCRTA:

- Geology and soils
- Waterbodies
- Wetlands
- FEMA-designated floodplains
- Threatened and endangered species
- Forest stand
- Vegetative community mapping
- Cultural resources

In addition, the SDARNG has electronic data files for the following:

- Installation boundary
- Roads and vehicle trails

GIS has become an integral part of the natural resources program, specifically with regard to endangered species management and forest management. GIS may also be used to coordinate natural resources management and troop training.

7.2.1.4 Agency Coordination and Technical Assistance

Intra- and inter-agency cooperation, coordination, and communication at the Federal, state, and local levels (i.e., USFWS, NRCS, SDGFP, and SDDANR) are requisite to the success of the INRMP. A yearly review of the INRMP will be completed by the SDARNG, USFWS, and SDDGFP ***(ATA INRMP Implementation Project No. 15, WCRTA INRMP Implementation Project No. 16***).

The document will be reviewed for content, relevance to current projects onsite, and proposed implementation of programs. Attached to the document is a signature page for identification of reviewing parties, and date of concurrence. If installation functions are incompatible with the goals and objectives of the INRMP, then the proponent of the function and the SDARNG Environmental Coordinator must seek to resolve the conflict to mitigate the negative effects of the proposal. If the resulting compromise is not consistent with the INRMP, then the INRMP should be revised to reflect the new management decision.

Specialized expertise is required to adequately manage natural resources on the ATA and WCRTA. Technical assistance should be sought from Federal and state agencies, universities, and special interest groups (i.e., the Nature Conservancy or others, as appropriate).

USFWS—The USFWS has a field office at Pierre, South Dakota that can provide technical advice to the SDARNG for management of its natural resources, particularly endangered and threatened species. AR 200-1 provides guidance to be followed by the SDARNG when dealing with the USFWS for endangered species management.

SDGFP—The SDGFP can provide technical advice and assistance for programs relating to natural resources, or more specifically, fish and wildlife, if funds are available and priority warrants. The Wildlife Division can provide support to the SDARNG natural resources management program in the areas of fisheries, game, and law enforcement.

USGS—The USGS can provide natural resources management assistance to the SDARNG. The USGS has also performed water quality monitoring and soils and geochemical surveys at the ATA.

NRCS—The NRCS has conducted soils surveys for the ATA and is available to assist with erosion control.

USACE—Coordination with the USACE is required for CWA Section 404 and Nationwide Permits.

SDDA—The SDDA can provide assistance in the areas of fire breaks, prescribed burns, monitoring forest health, and inventory of hardwood timber on the ATA.

SDDANR—The SDDANR provides policy clarification and limited technical assistance in the areas of water quality, environmental protection, and pollution control for the ATA. In addition, NPDES construction permits are acquired through the SDDANR.

SDNHP—The SDNHP provides support in the areas of natural resources inventory, endangered and sensitive species management, and neotropical migratory bird monitoring.

Universities—Regional universities have provided specialized expertise to help manage natural resources on the ATA. South Dakota State University has built and maintained a GIS database for the SDARNG. This database may be utilized for Implementation of the INRMP subject to the availability of annual funding. The installation will make every effort to request funding through appropriate channels. Funding options for natural resources programs are discussed in the following subsections.

7.2.2 Funding

Agricultural Funds

Agricultural funds are derived from agricultural leases on installations. They are centrally controlled at both Department of the Army and Major Command levels with no specific requirements for spending where they were generated. They are primarily intended to offset costs of maintaining agricultural leases, but they are also available for preparing and implementing INRMPs. These are broadest use funds available exclusively to natural resources managers. They are exempt from certain limits on the purchase of equipment. The SDARNG maintains an agricultural lease for the ATA (see Sections 2.1.3 and 4.2.1). The lease is identified for 31 acres for growing hay, and 353 acres for bison grazing during the winter months (December to June). As such, the major use of the applicable lease funds is available for implementation of this INRMP, however, only a small, limited amount of funding, totaling $3,500/year, is generated through this program.

Operations & Maintenance Environmental Funds

Environmental funds are a special subcategory of Operations & Maintenance (O&M) funds and are controlled by the Environmental Program Requirements budget process. They are special in that they are restricted by the DoD solely for environmental purposes, but they are still subject to restrictions of O&M funds. Compliance with appropriate laws and regulations is the key to securing environmental funding. The program heavily favors funding high priority projects with a goal of achieving compliance with Federal or state laws, especially if noncompliance is backed by Notices of Violation or other enforcement agency action.

7.2.3 Priorities and Scheduling

The Environmental Quality Conservation Compliance Classes define funding priority with regard to O&M funds. All projects in Classes 0, I, and II are funded consistent with timely execution to meet future deadlines (DoDI 4715.03). ***Table 7-2*** describes each class:

Table 7-2. Conservation Compliance Classes

Class	Description	Examples
Class 0: Recurring Natural and Cultural Resources Conservation Management Requirements	Recurring requirements include projects and activities needed to cover the recurring administrative, personnel and other costs necessary to meet applicable compliance requirements (Federal and State laws, regulations, Presidential Eos, and DoD policies) or which are in direct support of the military mission.	Manpower, training, supplies Permits and fees Reporting and record keeping Maintenance of environmental conservation equipment Compliance self-assessments
Class I: Current Compliance are not implemented in the current program year.	Current compliance includes projects and activities needed because an installation is currently or will be out of compliance if projects or activities	Environmental analyses, monitoring, and studies required to assess and mitigate potential effects of the military mission on conservation resources Planning documents

Class	Description	Examples
		Baseline inventories and surveys of natural and cultural resources (historical and archaeological sites) Biological assessments, 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 jurisdictional determinations and consequent permitting Efforts to achieve compliance with requirements that have deadlines that have already passed Initial documenting and cataloging of archaeological materials
Class II: Maintenance Requirements	Maintenance requirements include those projects and activities needed that are not currently out of compliance but shall be out of compliance if projects or activities are not implemented in time to meet an established deadline beyond the current program year	Compliance with future requirements that have deadlines Conservation and GIS mapping to be in compliance Efforts undertaken in accordance with nondeadline specific compliance requirements of leadership initiatives Wetlands enhancement, in order to achieve the EO for "no net loss" or to achieve enhancement of existing degraded wetlands Public education programs that educate the public on the importance of protecting archaeological and natural resources
Class III: Enhancement Actions, Beyond Compliance	This category includes those projects and activities 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 EO and are not of an immediate nature. Generally, projects included in this category are funded after all those in the previous three are funded.	Community outreach activities, such as "Earth Day" and "Historic Preservation Week" activities Educational and public awareness projects, such as interpretive displays, oral histories, "Watchable Wildlife" areas, nature trails, wildlife checklists, and conservation teaching materials

Class	Description	Examples
		Biological assessments, surveys, or habitat protection for a candidate species Restoration or enhancement of cultural or natural resources when no specific compliance requirement dictates a course or timing of action; Re-interment of Native American remains on land managed and controlled by DoD Management and execution of volunteer and partnership programs

7.2.4 Proposed Implementation Projects

Implementation of the INRMP will be realized through the accomplishment of specific goals and objectives as measured by the completion of proposed projects described within each resource section (Chapter 4) INRMP. A summary of the proposed implementation projects is provided in the Appendix, ***Table A-3*** and ***A-4 (Appendix A***). Implementation is dependent on availability of funds.

7.2.5 INRMP Approval and Revisions/Updates

Within the SDARNG, the INRMP must be approved by TAG or representative, and the Plans, Operations, Training and Military Support Officer. Additionally, the INRMP must be approved by the Chief of the NGB Environmental Programs Division (NGB-ILE). Signatures from these approving officials can be found on the signature page of this document. The INRMP must also reflect the mutual agreement of the USFWS and SDGFP concerning conservation, protection, and management of fish and wildlife resources.

Mutual agreements between SDARNG and the USFWS and SDGFP will be reached through review of the INRMP prior to implementation. The USFWS and SDGFP local offices will have the opportunity to review the draft edition of the INRMP. Comments made by the USFWS and SDGFP will be integrated in the document. All comments and concerns will be addressed and integrated in the final document. A final version, along with a comment matrix for all USFWS and SDGFP comments will be forwarded to USFWS and SDGFP for their records. The SDARNG will request a letter of concurrence for the INRMP from the USFWS and SDGFP for the implementation of the INRMP.

Mutual agreement of the USFWS and the SDGFP will be documented by letters of concurrence from each agency and included in the appendices of the final INRMP document. Mutual agreement will be reached in accordance with AR 200-1, NGB-ILE guidance and “Guidelines for Coordination with the DoD and Implementation of the Sikes Act.”

This INRMP is effective for 5 years from the date of approval; however, the SDARNG may perform annual updates to the plan to include project updates, species changes, budget updates, or other changes to keep the INRMP current. Annual updates will be discussed with USFWS and SDGFP at the annual meeting as

required. Whenever there is a change in the mission of the ATA or there is a substantial change to the natural or cultural resource base, this INRMP should be amended to reflect such changes, even if such changes occur within the effective dates of the plan. Changes that affect the integrity/objective of the INRMP will be coordinated with the approving authorities/agencies prior to implementation.

The INRMP will be reviewed annually, with a Review for Operation and Effect at least once every five years. The outcome of the Review for Operation and Effect will result in one of three options: 1) All partners agree the INRMP is still functioning and is signed off on for another 5 years (or until the next Review for Operation and Effect; 2) An INRMP update - The major goals, objectives and management policies are still adequate, but the INRMP requires updates to ensure it stays current; 3) INRMP Revision - Changes to the mission require an overhaul of the INRMP with new goals, objectives, and strategies with land use changes that have not been analyzed in previous NEPA documents. It is expected that the INRMP will be kept current through annual updates that make INRMP revisions rare. Updates are the default method of renewing an INRMP. Request for a Revision should be routed through ILE-CN for validation. The review process will take into account mission changes; new laws, regulations, and policies; and information obtained from monitoring programs and surveys. The revision process will be conducted under the direction of the SDARNG Environmental Officer. The following update forms should be used to help maintain and update the INRMP, as discussed below.

INRMP Master Update List (*Appendix C*)

This form, along with the Update Report form, will be used to keep the INRMP current. A log will be maintained on the master update list for every update to the INRMP, the time it was created, and the section and page of the INRMP it affects. The master update will be kept in the front of the INRMP (electronic and/or hard copy). The forms from each staff member will be consolidated when completing annual or 5-year INRMP updates. Each INRMP update report will be logged on the INRMP master update list. This form will be completed electronically or in hard copy and inserted into the INRMP. Annual review letters sent to the SDGFP and USFWS, including the date sent, summary of projects and actions, and any comments received and SDARNG response will be documented in this form.

INRMP Update Report (*Appendix C)*

This form, along with Master Update List, will be used to record any updates to the INRMP. The update report provides a record of detailed information about each update, such as goal or objective, needed resources, start and end dates, and coordination and compliance requirements. The update report will be inserted into the relevant section of the INRMP (electronic and/or hard copy). The top section will be completed with the identifying information for the change: the Report Number (numbering the update reports sequentially), the relevant INRMP section and page, the name of the person preparing the Update Report, and the type of change to the INRMP. The bottom section contains an area to describe the impact of the INRMP update.

The SDARNG Environmental Officer will ensure that the regional USFWS office and SDGFP office are involved in the review process. The USFWS and SDGFP offices will be forwarded current versions of the INRMP and allowed to comment on any changes that may have taken place within the prior 12 months. The SDARNG will address these concerns and comments and will address them in the INRMP. The SDARNG will request a letter of concurrence from the USFWS and SDGFP after review of any yearly changes.

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8.0 CONTACTS AND ADDITIONAL INFORMATION

South Dakota Army National Guard Environmental Program Manager, 2823 West Main Street, Rapid City SD, 57702. (605) 737-6670.

South Dakota Department of Environment and Natural Resources Air Quality
http://denr.sd.gov/des/aq/airprogr.aspx

Surface Water Quality http://denr.sd.gov/des/sw/surfacewaterquality.aspx

Ground Water Quality http://denr.sd.gov/des/gw/groundprg.aspx

South Dakota Game Fish and Parks http://gfp.sd.gov/agency/contacts/

Wildlife Division http://gfp.sd.gov/wildlife/management/default.aspx

South Dakota Department of Agriculture (605.773.5425)

Wildland Fire Suppression http://sdda.sd.gov/contact/#wildlandfire

South Dakota Natural Heritage Program http://gfp.sd.gov/wildlife/management/diversity/default.aspx

USDA Forest Service, Natural Resource Conservation Service
http://www.nrcs.usda.gov/wps/portal/nrcs/site/sd/home/

US Fish and Wildlife Service, http://www.fws.gov/

South Dakota Field Office Endangered Species
http://www.fws.gov/southdakotafieldoffice/endangered_species.htm

National Wetlands Inventory http://wetlands.fws.gov/mapper_tool.htm

U.S. Army Corps of Engineers, Omaha District: Regulatory Branch
http://www.nwo.usace.army.mil/html/od-rsd/frame.html

Wetlands Nationwide Permit Regulations
http://www.usace.army.mil/inet/functions/cw/cecwo/reg/nationwide_permits.htm

United States Geologic Survey National Wetlands Research Center, http://www.nwrc.usgs.gov/

Classification of Wetlands and Deepwater Habitats of the United States Manual:
http://www.nwi.fws.gov/Pubs_Reports/Class_Manual/class_titlepg.htm

Center for Aquatic Plants Aquatic Plant Manuals and Field Guides:
http://aquat1.ifas.ufl.edu/manuals.html

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APPENDICES

APPENDIX A

Table A-1 Projects Implemented from 2015-2019 ATA INRMP

Table A-2 Projects Implemented from 2015-2019 WCRTA INRMP

Table A-3 INRMP Implementation Projects ATA 2020-2024

Table A-4 INRMP Implementation Projects WCRTA 2020-2024

Table A-5 Management Strategies and Restrictions on ATA and WCRTA

Table A-1. Projects Implemented on the ATA from the 2015-2019 INRMP

2015-2019 Project No.	Description	Status
1. GIS Database	GIS Mapping	Ongoing
2. Trail Maintenance	Maintain existing trails	Not Implemented
3. Perimeter Road Clearing	Maintain 3.1 miles of perimeter road	Ongoing
4. Forest Ecosystem Health	Perimeter road clearing (noxious weeds, dog hair thinning, cedar tree removal (average 15 ac/year))	FY 2015-2018
5. Update Herpeto-Fauna Survey	Inventory of herpetological, mammal, and bird species, including threatened and endangered species	Biological Surveys competed 2017, 2020 Bat surveys completed 2019 Threatened and Endangered Species Management Plan completed 2020
6. Wildlife Enhancement	Construct artificial bat houses, bird houses, native vegetation plantings	Not Implemented
7. Land Use Considerations	Riparian Zone survey	ATA Missouri River Boundary update 2020
8. Invasive and Exotic Species survey	Conduct invasive and exotic species survey	FY 2017
9. Invasive and Exotic Species Management	Treat 20 ac/year	FY 2015-2018
10. Integrate ATA into statewide IPMP	Integrate ATA into statewide Integrated Pest Management Plan	Not Implemented
11. INRMP Training	Conduct training on INRMP BMP's and conservation practices	Ongoing
12. Annual Reviews	USFWS, SDGFP	Ongoing

Table A-2. Projects Implemented on the WCRTA from the 2015-2019 INRMP

2015-2019 Project No.	Description	Status
1. GIS Database	GIS Mapping	Ongoing
2. Beetle Control	Bug tree removal Monitoring	Ongoing
3. Bivouac Site Clearing	Bivouac thinning	Ongoing
4. Forest Ecosystem Health	Thinning dog hair stands (20 ac/year)	Ongoing
5. Update Fire Management Plan	Wildland Fire Management Plan	FY 2020
6. Revegetate	Survey for erosion after training events and revegetate.	Ongoing
7. Botanical Surveys	Conduct survey, targeting sensitive species, aquatic, and wetland plants	Not Implemented
8. Update bird and mammal surveys	Update 2007 bird and mammal surveys	Completed Biological surveys (herp, mammals, birds) 2017, 2020 Completed Threatened and Endangered Species Management Plan 2020
9. Wetlands Management	Create 50’ buffer zone around wetlands	Not Implemented
10. Invasive and Exotic Species Management	Monitoring and treatment of 10 ac/year	Ongoing
11. INRMP Training	Conduct training on INRMP BMP’s and conservation practices	Ongoing
12. Annual Reviews	USFWS, SDGFP	Ongoing

Table A-3. INRMP Implementation Projects on the ATA for 2020-2024

Resource	Implementation Project No.	Section	Description	Proposed Implementation Date	Driver
Natural Resources	1. GIS	4.0	Continue to develop GIS layers for use in scheduling training activities and natural resource conservation and planning.	Annually	Army SRP Doctrine
Forest and Fire Management	2. Perimeter Road Clearance	4.2.2	Maintain access to and clearance of 3.1 miles of perimeter road.	Annually	Army SRP Doctrine
	3. Forest Ecosystem Health	4.2.1	Promote forest ecosystem health through fuel reduction methods such as thinning, mastication (average 15 acres/year).	Annually	AR 200-1
	4. Integrated Wildland Fire Management Plan	4.2.1	Review on an annual basis and update every 5 years.	FY 2020-2024	
	5. Update Biological Surveys	4.3.5	Update bird, mammal, herpetofauna surveys at least every 2 years.	FY 2020-2024	AR-200-1; SAIA
Wildlife Management	6. Wildlife Habitat Enhancement	4.3.5 4.9.5	Based on available funding: 1) Construct artificial bat roosting houses. 2) Construct bird houses. 3) Plant native grasses and/or forbs in the interior area where invasive species dominate the landscape and in areas where flooding caused significant erosion. 4) Evaluate opportunities for creation of pollinator plots.		
	7. Maintain Terrestrial Habitat	4.3.5	Monitor annual photo points, encourage/promote snags, promote habitat corridors, leave microhabitats, minimize	Annually	

Resource	Implementation Project No.	Section	Description	Proposed Implementation Date	Driver
			habitat fragmentation and disturbance.		
	8. Wildlife Habitat Monitoring	4.3.5	Utilize management indicator species to assess overall ecosystem health.		
	9. Threatened and Endangered Species Management	4.12.3	Review plan annually and update every 5 years.	Annually	
	10. Deer harvest through disabled veteran hunting event	4.3.5	Explore opportunities for deer harvest and population number reduction through a disabled veteran hunting event.		
Wetland and Aquatic Species Management	11. Land Use Considerations	4.6.5	Define land use considerations within ATA and incorporate into GIS Database (project 1).	FY 2022	AR 200-1
Invasive and Exotic Species Management	12. Invasive and Exotic Species Management	4.7.5	Conduct annual surveys (funding permitting) to identify invasive species and plan to treat throughout the year.	Annually	AR 200-1
Pest Management	13. Manage the ATA in accordance with the Statewide IPMP	4.8.5	Integrate ATA into the Statewide IPMP.		AR 200-1
	14. INRMP Training	7.2.1	Conduct training on INRMP BMPs and conservation practices.	As Scheduled	AR 200-1
	15. Annual Review	7.2.1	Annual Review of INRMP implementation.	Annually	AR 200-1

Table A-4. INRMP Implementation Projects on the WCRTA for 2020-2024

Resource	Implementation Project No.	Section	Description	Proposed Implementation Date	Driver
Natural Resources	1. GIS	4.0	Continue to develop GIS layers for use in scheduling training activities.	Annually	Army SRP Doctrine
Forest Management	2. Beetle Control	4.2.2 4.8.5	Remove beetle infested trees marked by State Forester and continue forestry practices to reduce future outbreaks, including annual monitoring of beetle activity.	Annually	AR-2001
	3. Bivouac site clearing	4.2.2	Remove excessive underbrush from designated bivouac sites and continue thinning of pine stands as necessary.	Annually	AR 200-1; DODI 4715.03
	4. Forest Ecosystem Health	4.2.2	Thin an average of 20 acres of dog hair stands annually.	Annually	AR 200-1; DODI 4715.03
	5. Update Fire Management Plan	4.2.2	Review on annual basis and update every 5 years.	FY2020-2024	
	17. Evaluate burned areas for mitigative needs		Evaluate burned areas for re-vegetation or sediment and/or erosion control methods and implement mitigation methods where needed	FY2020-2024, as needed	AR 200-1
	18. Evaluate WCRTA for Additional firebreak areas		Evaluate the need for additional firebreak areas on WCRTA	FY2020-2024	AR 200-1
Wildlife Management	6. Revegetation	4.3.5 4.4.5 4.9.5	Monitor and manage for erosion after all training events and revegetate with native grasses and forbs to enhance wildlife habitat and training.	Annually	AR-200-1
	7. Botanical Survey	4.3.5	Conduct botanical/flora survey targeting sensitive species, aquatic and wetland plants.	FY2020-2024	AR-200-1

Resource	Implementation Project No.	Section	Description	Proposed Implementation Date	Driver
	8. Update Biological Surveys	4.3.5	Update bird, mammal, herpetofauna surveys at least every 2 years.	FY2020-2024	AR-200-1; SAIA
	9. Maintain Terrestrial Habitat	4.3.5	Monitor annual photo points, encourage/promote snags, promote habitat corridors, leave microhabitats, minimize habitat fragmentation and disturbance.	Annually	
	10. Wildlife Habitat Monitoring	4.3.5	Utilize management indicator species to assess overall ecosystem health.		
	11. Threatened and Endangered Species Management	4.12.3	Review plan annually and update every 5 years.	Annually	
	12. Deer harvest through disabled veteran hunting event	4.3.5	Explore opportunities for deer harvest and population number reduction through a disabled veteran hunting event.		
Wetland and Aquatic Species Management	13. Wetland Management	4.6.5	Conduct a wetland delineation and create and maintain 50-foot vegetative buffer area around all wetlands to reduce runoff, improve water quality, and reduce invasive species.		AR-200-1; CWA
Invasive and Exotic Species Management	14. Invasive and Exotic Species Management	4.7.5	Conduct annual surveys (funding permitting). Treat an average of 10 acres annually for invasive species to maintain ecosystem health and safety during training events.	Annually	AR 200-1
	15. INRMP Training	7.2.1	Conduct training on INRMP BMPs and conservation practices.	As scheduled	AR 200-1
	16. Annual Review	7.2.1	Annual Review of INRMP implementation.	Annually	AR 200-1

Table A-5. Management Strategies and Restrictions on the ATA and WCRTA

Resource	Management Strategy	Restrictions
Forest Management	**ATA** Continue forestry activity (thinning [dogwood] and chipping [dead and damaged trees] and stump treatment (cedar). Preserve snags and trees (4 to 6 per acre) with natural cavities to increase wildlife habitat (birds, bats). Complete fuels reduction through appropriate management practices, such as mastication and harvesting. Incorporate South Dakota forestry BMPs, available at: https://danr.sd.gov/Conservation/Forestry/RuralForestry/Docs/2018-BMP-Field-Audit-Report.pdf. **WCRTA** Monitor forest health for insect infestation and disease. Remove or treat infested trees. Continue fuel wood harvesting, commercial harvesting, maintain a 50-percent canopy with well-spaced trees. Maintain water supply for fire suppression. Reduce fuel loads around power lines and maintain corridors. Incorporate South Dakota forestry BMPs, available at: https://danr.sd.gov/Conservation/Forestry/RuralForestry/Docs/2018-BMP-Field-Audit-Report.pdf.	
Fish and Wildlife Management	Preserve portions of stands with snags and large trees for cavity-nesting species (one den tree and one snag per 4–6 acres). Re-establish native communities where appropriate and practicable. Leave microhabitats intact or replace (i.e. rocks, logs, boards, and other ground debris) when disturbed.	Avoid driving through water filled ruts and borrow pits during April 15 to August 31 to preserve breeding habitats and potential food sources for reptiles and amphibians. Avoid the removal of suitable summer habitat during reptiles and amphibians' active season (typically April – October).

Resource	Management Strategy	Restrictions
	Provide or maintain vegetative corridors between wetlands and surrounding upland areas. Minimize habitat fragmentation and reduce any disruption to ecosystem processes (such as soil erosion and introduction of noxious weeds). ***Red-Headed Woodpeckers*** Preserve deciduous woodlands and associated snags in the training areas. Allow for successional replacement within thinned stands to maintain future snag habitat. A recommendation of four to six snags per acre.	Avoid areas disturbed by training activities to allow for native species to revegetate. Take steps to reduce the spatial extent and timeframe of such activities so woodpeckers will only temporarily be displaced and/or habituate to the situation. Conduct training activities outside the general bird nesting season from March through August.
	WCRTA Construct and place nest boxes, bird boxes, and bat boxes. Manage forest for raptor species. Maintain large trees and high canopy closure for nesting and create small openings and encourage ground cover to promote foraging. Utilize management indicator species to assess ecosystem health. The following management indicator species for WCRTA are forest raptors, white-tailed deer, primary cavity nesters, and bats. Manage unwanted bat roosts. Maintain natural water resources. Minimize impacts and disturbance to osprey and peregrine falcons.	Avoid raptor nests (January-August) and maintain a 300-foot-radius buffer zone around active nest sites. Avoid GP and DD habitats, as these areas are highly susceptible to environmental degradation. Avoid rotary wing landing areas if wildlife are present. Appropriate operations (Conservation Manager) should be notified, and the activity of the raptor should be monitored during training activities. If disturbance occurs, activities should be suspended in areas close to the raptor, until the raptor has left the area.

Resource	Management Strategy	Restrictions
	ATA Install bird boxes and/or artificial bat roosting houses. Utilize management indicator species to assess ecosystem health. The following management indicator species for ATA are bald eagles, white-tailed deer and primary cavity nesters. Leave in place any snags or logs that are caught in the river shoreline to promote reptile and amphibian habitat. ***Bald Eagles*** During the breeding season (January – August) for bald eagles, SDARNG personnel will check from the ground to determine the status of any nests. Ground surveys may also be conducted in May and June to count fledglings and to reconfirm nest sites. Management in areas around nests should focus on reducing human disturbance. Installing a landscape buffer to reduce stress to active nest sites during training activities is encouraged. Promote cottonwood regeneration in areas subject to the removal of mature cottonwood trees at a ratio of 4 seedlings: 1 mature tree replacement.	Do not destroy/remove reptile or amphibian nests (depressions in sandy areas) at any time and take time to avoid these areas during training activities. No work should occur within a quarter mile of any discovered active bald eagle nest or nesting trees. Any bald eagle nests should be reported to the SDGFP.
Threatened and Endangered Species	***Northern long-eared bats*** Preserve portions of stands with snags and large trees for cavity-nesting bat species. No known hibernaculum will be disturbed Oct 1 to April 30. No known maternity roost will be disturbed Jun 1 to July 30. Activities that will cause disturbance within 2 weeks before or after the time frames outlined above may need further coordination.	Avoid known roosting areas during training activities. Training activities are limited to daylight hours only. No suitable summer habitat will be removed during the active season for the northern long-eared bat, which is May 1 to September 30. No known hibernaculum or maternity roost would be removed/destroyed at any time.
Migratory Bird Protections	Measures to minimize, reduce, or avoid unintentional take of migratory birds will be applied to all actions and projects where there is potential to impact migratory birds. Specific conservation actions will vary based on which priority migratory bird species, priority habitats, critical areas, and key risk factors are involved.	Minimize/avoid impacts to nesting migratory birds by imposing a timing limitation to mitigate disturbing and disruptive activities during the primary portion of the nesting season. Most migratory birds in South Dakota nest from April 15 to July 15. Timing limitations may be modified based upon the species and habitats involved, current environmental conditions, and the timing of breeding activity of the migratory bird species found in the planning area (i.e., higher elevation habitats my start and end later).

Resource	Management Strategy	Restrictions
		Where disturbance cannot be avoided during the nesting season, the scale and duration of disturbance may be considered mitigating circumstances. Actions or projects that have intense impacts during one season, but do not reoccur should be preferable to lower intensity actions that occur over multiple breeding seasons. Removal of nesting habitat prior to migratory bird primary nesting season for some actions may also mitigate impacts of surface disturbing activities allowed during the primary nesting season; however, surface disturbance will be restricted to the amount that would have been disturbed during the breeding period. Inventory project areas for migratory bird nests for actions occurring during the primary nesting season. These inventories should be performed by qualified personnel (wildlife biologists or trained resource specialists with experience conducting bird surveys). If any active migratory bird nests are found within the project area and a 300-foot buffer, the activity or project will not continue until nesting activities have been completed. The project or activity may proceed if no nests are found. Require a second nest-search survey if surface disturbing activities begin more than 5 days after completion of surveys. Activities may begin at the end of the primary breeding season. The intent of the inventories is to locate migratory bird nests in the project area and avoid impacts to identified nests and birds. The methodology, extent of the area surveyed, and mitigation measures, will be designed to ensure this intent is met.
Stormwater and Water Quality	Minimize the number of impervious surfaces. Adhere to BMPs for construction activities, such as such as the use of geotextiles, riprap, seeding, grass lined channels, filter berms/socks/rolls, silt fences, straw /hay bales, and vegetated buffers. Stabilize erodible soils through revegetation of barren ground following training activities. Re-vegetate barren ground as soon as possible. Manage the use of pesticides and herbicides, in accordance with the Integrated Pest Management Plan (IPMP)	
Floodplains and Riparian Zones	Maintain a 100-foot vegetated buffer along waterways, wetlands, and intermittent creeks. Adhere to forestry BMPs for South Dakota (SDDA 2003) in riparian zones and on floodplains at the ATA. Maintain a 50-foot vegetated buffer along wetland areas.	Avoid development or management practices that affect the attenuation capacity of floodplains.

Resource	Management Strategy	Restrictions
Wetlands and Aquatic Habitats	Post signs prohibiting vehicle access around wetlands and aquatic habitats that are experiencing training encroachment. Prevent erosion and sedimentation into wetlands and aquatic habitats. Maintain vegetative corridors between wetlands and surrounding upland areas. Maintain 50-foot buffers around wetlands to avoid disturbance to wetlands and aquatic habitats where practicable.	Prohibit both vehicular and pedestrian maneuvers near wetlands. Avoid disturbance of wetlands and aquatic habitats where practicable Avoid use of chemical pesticides and nonbiodegradable herbicides within 300 feet of any wetland.
Invasive and Exotic Species and Noxious Weeds	Implement management of invasive and exotic species in accordance with the Integrated Pest Management Plan (See Section 4.8) and AR 200-1 Chapter 5 Pest Management. Use all herbicides in compliance with Federal regulations and army standards. Clean Water Act (CWA), Section 402: National Pollutant Discharge Elimination System (NPDES) permits may also be required for some pesticide applications that involve wetlands and bodies of water	Do not apply pesticides directly to wetlands or waterbodies unless such application is specifically approved on the label. All pesticides must be on the current SDARNG Pesticide Use Proposal.
Integrated Pest Management	Control invasive noxious weeds in accordance with the IPMP using fire, mechanical and chemical means. Take action for incidents involving nuisance wildlife. Train personnel on personal protective measures against harmful flora and fauna. CWA, Section 402: NPDES permits may also be required for some pesticide applications that involve wetlands and bodies of water.	Do not apply pesticides directly to wetlands or waterbodies unless such application is specifically approved on the label. All pesticides must be on the current SDARNG Pesticide Use Proposal.
Erosion and Sediment Control	Create vegetative buffers to minimize pollutants entering the stream system. Control erosion through vegetative and engineered processes. Use native species of county specific in revegetation activities. Use herbicides and pesticides are used in accordance with IPMP strategies. All ground-breaking activities with the potential to impact natural or cultural resources should be reviewed by the SDARNG Environmental Coordinator.	Avoid habitat fragmentation. Activities with the possibility of contaminant release (i.e., vehicle refueling) should occur a minimum of 50 feet from waterbodies and wetlands. Land clearing should not occur within 50 feet of waterbodies or jurisdictional wetlands. Avoid disturbances within areas of highly erodible soils.

APPENDIX B

Record of Environmental Consideration (REC)

SDGFP Review Letter

USFWS Review Letter

SDARNG Section 7 Determination Letter and USFWS Concurrence (2021)

South Dakota NATIONAL GUARD
2823 West Main Street
Rapid City, South Dakota 57702-8170
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114TH FIGHTER WING

January 27, 2021

Kevin Robling, Acting Secretary
South Dakota Department of Game, Fish and Parks
523 East Capitol Avenue
Pierre, SD 57501

RE: Integrated Natural Resources Management Plan – Update
South Dakota Army National Guard West Camp Rapid Training Area, Pennington County
South Dakota Army National Guard Austin Training Area, Union County

Dear Acting Secretary Robling:

Banner Associates, Inc. was contracted by the South Dakota Army National Guard (SDARNG) to prepare an update to the Integrated Natural Resources Management Plan (INRMP) for the Austin Training Area in Union County and the West Camp Rapid Training Area in Pennington County. Details specific to each training area can be found in the attached INRMP.

The purpose of an INRMP is to document any changes in the policies and desired future direction of SDARNG's Natural Resource Program at a training site. The INRMP describes baseline conditions of natural resources at a military installation and provides management programs and guidance to allow for successful military training to occur while providing for the conservation of renewable resources, preservation of rare and unique resources, and long-term sustainability of ecosystem-oriented resources.

Preparation of an INRMP is required by Army Regulation (AR) 200-1, which states that an, "Integrated Natural Resources Management Plan (INRMP) in accordance with 16 USC 670a are developed in cooperation with the USFWS and the State fish and wildlife agency." An Environmental Assessment (EA) was completed for both the Austin and West Camp Training Areas in 2005 and 2006. A Record of Environmental Consideration (REC) will also be updated in compliance with the National Environmental Policy Act. The INRMP will be prepared in accordance with the Sikes Act; Army Regulations; and other federal, state, and local regulations.

SDARNG coordinated with the US Fish and Wildlife Service (USFWS) and South Dakota Game, Fish and Parks during the development of the 2005 and 2006 EAs and subsequent updates to the INRMP to determine the potential for federally listed threatened and endangered species

and state-listed species on the two training areas. The INRMP/EAs completed for both the Austin and West Camp Training Areas describe and analyze impacts on potential natural resources, endangered species, and sensitive ecosystems.

SDARNG is requesting information regarding known or potential natural resources, endangered species, or sensitive ecosystems or concerns located on or immediately adjacent to the training areas. This information and data will provide input in preparation of the INRMP update. We look forward to and welcome your participation in this INRMP update process. If you have any questions, please contact Emily Beck, Natural Resources Program Manager, at 605-737-6265 or emily.s.beck.nfg@mail.mil.

MARTIN R. YOST
LTC, GS, SDARNG
Construction & Facilities Management Officer

cc: Casey Heimerl; SDGFP

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114TH FIGHTER WING

January 27, 2021

Mr. Drew Becker, Acting South Dakota Field Supervisor
U.S. Fish and Wildlife Service
North Dakota Ecological Field Office
3425 Miriam Avenue
Bismarck, ND 58501

RE: Integrated Natural Resources Management Plan – Update
South Dakota Army National Guard West Camp Rapid Training Area, Pennington County
South Dakota Army National Guard Austin Training Area, Union County

Dear Mr. Becker:

Banner Associates, Inc. was contracted by the South Dakota Army National Guard (SDARNG) to prepare an update to the Integrated Natural Resources Management Plan (INRMP) for the Austin Training Area in Union County and the West Camp Rapid Training Area in Pennington County. Details specific to each training area can be found in the attached INRMP.

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SDARNG coordinated with the US Fish and Wildlife Service (USFWS) and South Dakota Game, Fish and Parks during the development of the 2005 and 2006 EAs and subsequent updates to

the INRMP to determine the potential for federally listed threatened and endangered species and state-listed species on the two training areas. The INRMP/EAs completed for both the Austin and West Camp Training Areas describe and analyze impacts on potential natural resources, endangered species, and sensitive ecosystems.

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MARTIN R. YOST
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114TH FIGHTER WING

The U.S. Fish and Wildlife Service concurs with your conclusion that the described project will not adversely affect listed species. Contact this office if changes are made or new information becomes available.

DREW BECKER Digitally signed by DREW BECKER Date: 2021.02.03 06:56:57 -06'00'

Field Supervisor

January 27, 2021

Mr. Drew Becker, Acting South Dakota Field Supervisor
U.S. Fish and Wildlife Service
North Dakota Ecological Field Office
3425 Miriam Avenue
Bismarck, ND 58501

RE: Integrated Natural Resources Management Plan – Update
South Dakota Army National Guard West Camp Rapid Training Area, Pennington County
South Dakota Army National Guard Austin Training Area, Union County

Dear Mr. Becker:

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SDARNG coordinated with the US Fish and Wildlife Service (USFWS) and South Dakota Game, Fish and Parks during the development of the 2005 and 2006 EAs and subsequent updates to

the INRMP to determine the potential for federally listed threatened and endangered species and state-listed species on the two training areas. The INRMP/EAs completed for both the Austin and West Camp Training Areas describe and analyze impacts on potential natural resources, endangered species, and sensitive ecosystems.

SDARNG is requesting information regarding known or potential natural resources, endangered species, or sensitive ecosystems or concerns located on or immediately adjacent to the training areas. This information and data will provide input in preparation of the INRMP update. We look forward to and welcome your participation in this INRMP update process. If you have any questions, please contact Emily Beck, Natural Resources Program Manager, at 605-737-6265 or emily.s.beck.nfg@mail.mil.

MARTIN R. YOST
LTC, GS, SDARNG
Construction & Facilities Management Officer

APPENDIX C

INRMP Master Update List

INRMP Update Report

INRMP MASTER UPDATE LIST

Use this INRMP master update list and the INRMP update reports to keep your INRMP current. Consolidate forms from each staff member when completing annual and 5-year INRMP updates.

Log each INRMP update report Annual Review on the INRMP master update list. Complete this form electronically or in hard copy and insert into the INRMP. See the particular INMRP update report for more details on that update. This section is also provided to track the SDGFP and USFWS Annual Review Letters, date sent, summary of projects/actions and comments received/SDARNG responses.

Report Number	Date Created	INRMP Section / Page	Project/Action
1		/	
2		/	
3		/	
4		/	
5		/	
6		/	
7		/	
8		/	
9		/	
10		/	
11		/	
12		/	
13		/	
14		/	
15		/	

SDGFP AND USFWS Annual Review (Operation and Effects) Letters

Year	Date Sent	Summary of Projects/Actions	Agency Comments Received/ SDARNG Response
2020			
2021			
2022			
2023			
2024			

INRMP Update Report

APPENDIX D

Table D-1 Annotated Checklist of Species Found at WCRTA

Table D-2 Annotated Checklist of Species Found at ATA

Table D-3 T&E Management Recommendations for Training Activities at WCRTA

Table D-4 T&E Management Recommendations for Training Activities at ATA

Table D-1. Annotated Checklist of Species found at WCRTA

West Camp Rapid Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2006–2007	Found 2011	Found 2016–2017	Found in 2020	Anecdotal Sightings
MAMMALS											
Vespertilionidae – Common Bats											
Northern Long-eared Bat *Myotis septentrionalis*	FT	N	P	R	U	S	X	X			
Little Brown Bat *Myotis lucifugus*		N	P	R	C	S W	X	X			
Big Brown Bat *Eptesicus fuscus*		N	P	R	C	S W	X	X			
Hoary Bat *Lasiurus cinereus*		N	P	R	C	S W	X	X			
Long-legged Myotis *Myotis volans*		N	P	R	U	W		X			
Fringe-tailed Myotis *Myotis thysanodes*	SGCN	N	P	R	C	W		X			
Townsend's Big-eared Bat *Corynorhinus townsendii*		N	P	R	C	W		X			
Long-eared myotis *Myotis evotis*		N	PP	R	U			X			
Silver-haired Bat *Lasionycteris noctivagans*		N	P	R	C	W		X			
Eastern Red Bat *Lasiurus borealis*		N	P	R	C	W		X			
Western Small-footed Bat *Myotis ciliolabrum*		N	P	R	C	W		X			
Evening Bat *Nycticeius humeralis*		N	P	R	U	W					
Tri-colored Bat (Eastern pipistrelle) *Perimyotis subflavus*		N	P	R	U	W					
Leporidae – Hares and Rabbits											
Eastern Cottontail *Sylvilagus floridanus*		N	P	B	C	S	X		X	X	
Sciuridae – Squirrels											
Least Chipmunk *Tamias minimus*			P	R	C	S	X		X	X	
Yellow-bellied Marmot *Marmota flaviventris*			PP	U	?	S					
Fox Squirrel *Sciurus niger*		N	P	R	C		X		X		
Red Squirrel *Tamiasciurus hudsonicus*		N	P	R	C	S	X			X	
Cricetidae – Mice, Rats, Lemmings and Voles											
White-footed Mouse *Peromyscus leucopus*		N	P	B	C	S	X		X		

West Camp Rapid Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2006–2007	Found 2011	Found 2016–2017	Found in 2020	Anecdotal Sightings
Deer Mouse *Peromyscus maniculatus*		N	P	B	C	S	X		X	X	
Prairie Vole *Microtus ochrogaster*		N	P	R	C					X	
Erethizontidae – Porcupines											
Common Porcupine *Erethizon dorsatum*		N	P	R	U	S	X				
Canidae – Dogs, Wolves and Foxes											
Coyote *Canis latrans*		N	P	R	C	S	X		X	X	
Red Fox *Vulpes*		N	P	B	U	S	X		X		A
Procyonidae – Raccoons and Coatis											
Common Raccoon *Procyon lotor*		N	P	R	U	S	X		X	X	
Mustelidae – Weasels and Allies											
Long-tailed Weasel *Mustela frenata*		N	PP	U	?	S					
Striped Skunk *Mephitis mephitis*		N	P	R	C	S	X				A
Felidae – Cats											
Mountain Lion *Felis concolor*		N	U	U	?						A
Bobcat *Felis rufus*		N	PP	U	U						A
Cervidae – Deer											
Elk *Cervus elaphus*		N	U	U	?						A
Mule Deer *Odocoileus hemionus*		N	P	B	C	S	X		X		
White-tailed Deer *Odocoileus virginianus*		N	P	B	A	S	X		X	X	
Bovidae – Bison, Goats, Muskox and Sheep											
Bighorn Sheep *Ovis canadensis*		N	PP	R	?						A
BIRDS											
Anatidae – Ducks, Geese and Swans											
Canada Goose *Branta canadensis*			P	R	C		X				
Mallard *Anas platyrhynchos*			P	B	U	S	X				

West Camp Rapid Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2006–2007	Found 2011	Found 2016–2017	Found in 2020	Anecdotal Sightings
Blue-winged Teal *Anas discors*				U	?	S					
Phasianidae – Partridges, Grouse, Turkeys											
Ring-necked Pheasant *Phasianus colchicus*			P	R	U		X				
Wild Turkey *Meleagris gallopavo*		N	P	B	A	S	X		X	X	
Sharp-tailed Grouse *Tympanuchus phasianellus*			H	U	?	S					
Cathartida – New World Vultures											
Turkey Vulture *Cathartes aura*			P	R	C	S	X		X	X	
Accipitridea – Hawks, Kites and Eagles											
Northern Goshawk *Accipiter gentilis*	SDNHP, SGCN	N	P	R	R	S	X		X		
Sharp-shinned Hawk *Accipiter striatus*	SDNHP	N	P	R	R				X		
Red-tailed Hawk *Buteo jamaicensis*		N	P	R	C	S	X		X	X	
Swainson's Hawk *Buteo swainsoni*	SDNHP	N	PP	U	U	S				X	
Falconidae – Caracaras and Falcons											
American Kestrel *Falco sparverius*		N	P	B	C	S	X		X	X	
Pandionidae – Ospreys											
Osprey *Pandion haliaetus*	ST, SDNHP, SGCN	N	H	U	?	S			X	X	
Gruidae – Cranes											
Sandhill Crane *Grus canadensis*		N	P	R	U		X				
Ardeidae – Herons											
Great Blue Heron *Ardea herodias*	SDNHP	N	P	U	U				X		
Charadriilae – Lapwings and Plovers											
Killdeer *Charadrius vociferus*		N	PP	B	U	S			X		
Scolopacidae – Sandpipers and Phalaropes											
Wilson's Snipe *Gallinago delicata*		N	H	U	?	S					

West Camp Rapid Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2006–2007	Found 2011	Found 2016–2017	Found in 2020	Anecdotal Sightings
Columbidae – Pigeons and Doves											
Rock Pigeon *Columba livia*		I	P	R	C		X		X		
Mourning Dove *Zenaida macroura*		N	P	B	C	S	X		X	X	
Cuculidae – Cuckoos, Roadrunners and Anis											
Yellow-billed Cuckoo *Coccyzus americanus*		N	P	R	R		X				
Strigidae – Typical Owls											
Great Horned Owl *Bubo virginianus*		N	P	R	U	S	X		X	X	
Eastern Screech Owl *Megascops asio*		N	P	R	R		X				
Northern Saw-whet Owl *Aegolius acadicus*		N	PP	B	R	S					
Caprimulgidea – Nighthawks and Nightjars											
Common Nighthawk *Chordeiles minor*		N	P	B	C	S	X			X	
Common Poorwill *Phalaenoptilus nuttallii*	SGCN	N	P	B	U	S	X		X		
Picidae – Woodpeckers											
Red-headed Woodpecker *Melanerpes erythrocephalus*	BOCC	N	P	B	U	S	X		X	X	
Northern Flicker *Colaptes auratus*		N	P	B	C	S	X		X	X	
Downy Woodpecker *Picoides pubescens*		N	P	B	C	S	X		X		
Hairy Woodpecker *Picoides villosus*		N	P	B	C	S	X		X	X	
Black-backed Woodpecker *Picoides arcticus*	SGCN	N	PP	B	R	S					
Tyrannidea – Tyrant Flycatchers											
Western Wood-Pewee *Contopus sordiulus*		N	P	B	C	S	X		X	X	
Dusky Flycatcher *Empidonax oberholseri*		N	PP	B	U	S					
Eastern Phoebe *Sayornis phoebe*		N	H	U	?	S			X		
Eastern Kingbird *Tyrannus*		N	P	R	U		X		X		

West Camp Rapid Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2006–2007	Found 2011	Found 2016–2017	Found in 2020	Anecdotal Sightings
Laniidae – Shrikes											
Loggerhead Shrike *Lanius ludovicianus*		N	PP	R	U	S					
Vireonidae – Vireos											
Plumbeous Vireo *Vireo plumbeus*		N	P	R	C		X				
Warbling Vireo *Vireo gilvus*		N	P	R	C	S	X				
Corvidae – Crows and Jays											
Blue Jay *Cyanocitta cristata*		N	P	B	A	S	X		X	X	
Black-billed Magpie *Pica hudsonia*		N	P	B	C	S	X		X	X	
American Crow *Corvus brachyrhynchos*		N	P	B	A	S	X		X	X	
Hirundinidae – Swallows											
Tree Swallow *Tachycineta bicolor*		N	H	U	?	S			X	X	
Violet-Green Swallow *Tachycineta thalassina*		N	P	R	U		X				
Barn Swallow *Hirundo rustica*		N	P	R	U	S	X			X	
Paridae – Chickadees and Titmice											
Black-capped Chickadee *Poecile atricapillus*		N	P	B	A	S	X		X	X	
Sittidae – Nuthatches											
White-breasted Nuthatch *Sitta carolinensis*		N	P	B	C	S	X		X	X	
Red-breasted Nuthatch *Sitta canadensis*		N	P	B	A	S	X		X	X	
Pygmy Nuthatch *Sitta pygmaea*	SDNHP	N	P	R	R		X		X	X	
Troglodytidae – Wrens											
House Wren *Troglodytes aedon*		N	PP	B	R	S			X		
Rock Wren *Salpinctes obsoletus*		N	P	B	U	S	X				
Regulidae – Kinglets											
Ruby-crowned Kinglet *Regulus calendula*		N	PP	R	U	S					

West Camp Rapid Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2006–2007	Found 2011	Found 2016–2017	Found in 2020	Anecdotal Sightings
Turdidae – Thrushes											
Eastern Bluebird *Sialia sialis*		N	P	R	U	S	X		X	X	
Mountain Bluebird *Sialia currucoides*		N	P	B	C	S	X		X	X	
Townsend's Solitaire *Myadestes townsendi*		N	P	B	C	S	X		X		
Swainson's Thrush *Catharus ustulatus*		N	P	R	U	S	X				
American Robin *Turdus migratorius*		N	P	B	A	S	X		X	X	
Mimidea – Mockingbirds and Thrashers											
Gray Catbird *Dumetella carolinensis*		N	P	R	U	S	X				
Northern Mockingbird *Mimus polyglottos*		N	P	R	R		X				
Brown Thrasher *Toxostoma rufum*		N	P	R	U	S	X				
Sturnidae – Starlings											
European Starling *Sturnus vulgaris*		I	P	B	U	S	X		X		
Bombycillidae – Waxwings											
Cedar Waxwing *Bombycilla cedrorum*		N	PP	R	C	S					
Parulidae – Wood-Warblers											
Orange-crowned Warbler *Vermivora celata*		N	PP	R	R	S					
Yellow-rumped Warbler *Dendroica coronata*		N	P	R	C	S	X				
Yellow Warbler *Dendroica petechia*		N	PP	R	U	S			X	X	
MacGillivray's Warbler *Oporornis tolmiel*		N	P	R	R		X				
Wilson's Warbler *Wilsonia pusilla*		N	PP	R	R	S					
Ovenbird *Seiurus aurocapilla*		N	PP	B	R	S			X		
Common Yellowthroat *Geothlypis trichas*		N	PP	R	R	S					
American Redstart *Setophaga ruticilla*		N	PP	R	R	S			X		

West Camp Rapid Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2006–2007	Found 2011	Found 2016–2017	Found in 2020	Anecdotal Sightings
Thraupidae – Tanagers											
Western Tanager *Piranga ludoviciana*		N	P	B	C	S	X		X		
Emberizidea – Sparrows, Buntings, and Towhees											
Spotted Towhee *Pipilo maculates*		N	P	B	C	S	X		X	X	
American Tree Sparrow *Spizella arborea*		N	P	R	C	S			X		
Chipping Sparrow *Spizella passerina*		N	P	B	A	S	X		X		
Clay-colored Sparrow *Spizella pallida*		N	P	R	U	S					
Lark Sparrow *Chondestes grammacus*		N	P	B	C	S	X		X		
Grasshopper Sparrow *Ammodramus savannarum*		N	PP	R	?	S					
Lark Bunting *Calamospiza melanocorys*	SGCN BOCC	N	P	R	R		X				
Lincoln's Sparrow *Melospiza lincolnii*		N	P	R	U	S	X				
Song Sparrow *Melospiza melodia*		N	PP	R	U	S			X	X	
Vesper Sparrow *Pooecetes gramineus*		N	P	R	U		X				
White-crowned Sparrow *Zonotrichia leucophrys*		N	P	R	U	S	X				
Dark-eyed (White-winged) Junco *Junco hyemalis aikeni*		N	P	B	C	S	X		X	X	
Cardinalidae – Cardinals											
Black-headed Grosbeak *Pheucticus melanocephalus*		N	P	B	C	S	X				
Indigo Bunting *Passerina cyanea*		N	PP	U	?	S					
Lazuli Bunting *Passerina amoena*		N	PP	R	U	S					
Icteridae – Blackbirds											
Western Meadowlark *Sturnella neglecta*		N	P	B	C	S	X		X	X	
Red-winged Blackbird *Agelaius phoeniceus*		N	P	B	U	S	X				

West Camp Rapid Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2006–2007	Found 2011	Found 2016–2017	Found in 2020	Anecdotal Sightings
Common Grackle *Quiscalus quiscula*		N	P	R	U	S				X	
Brown-headed Cowbird *Molothrus ater*		N	P	B	C	S	X		X	X	
Bullock's Oriole *Icterus bullockii*		N	PP	R	U	S					
Fringillidae – Finches											
House Finch *Carpodacus mexicanus*		N	P	B	C		X		X	X	
Red Crossbill *Loxia curvirostra*		N	P	B	A	S	X		X		
Pine Siskin *Carduelis pinus*		N	P	B	A	S	X		X	X	
American Goldfinch *Carduelis tristis*		N	P	B	C	S	X		X		
Evening Grosbeak *Coccothraustes vespertinus*		N	PP	R	U	S					
Cassin's Finch *Haemorhous cassinii*	SGCN	N	P	R	U				X		
Passeridae – Old World sparrows											
House Sparrow *Passer domesticus*		I	P	R	U		X		X	X	
AMPHIBIANS											
Ambystomatidae – Mole Salamanders											
Tiger Salamander *Ambystoma tigrinum*				U	?	S					
Hylidae – Treefrogs and Allies											
Boreal Chorus Frog *Pseudacris maculata*			PP	U	?	S			X		
REPTILES											
Colubridae – Colubrids											
Eastern Yellow-bellied Racer *Coluber constrictor flaviventris*		N	P	R	U	S	X		X	X	
Smooth Green Snake *Liochorophis vernalis*		N	P	B	R		X				
Bullsnake *Pituophis melanoleucus sayi*		N	P	R	U	S	X				
Plains Garter Snake *Thamnophis radix*		N	PP	U	?	S					

West Camp Rapid Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2006–2007	Found 2011	Found 2016–2017	Found in 2020	Anecdotal Sightings
Viperidae – Vipers and Pit Vipers											
Prairie Rattlesnake *Crotalus viridis*		N	PP	U	U						A

Table D-2. Annotated Checklist of Species found on ATA

Austin Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2005–2006	Found 2016–2017	Found in 2020	Anecdotal Sightings
MAMMALS										
Didelphidae- Opossum										
Virginia Opossum *Didelphis virginiana*			P	R	R	X		X		
Soricidae – Shrews										
Hayden's Shrew *Sorex haydeni*			P	R	U	S	X			
Northern Short-tailed Shrew *Blarina brevicauda*				R	C	S	X			
Pygmy Shrew *Sorex minutus*	SDNHP	N	P	R	U			X	X	
Masked Shrew *Sorex cinereus Kerr*		N	P	R	U			X		
Talpidae – Moles										
Eastern Mole *Scalopus aquaticus*		N	P	R	C	U	X	X		
Vespertilionidae – Plainnose Bats										
Big Brown Bat *Eptesicus fuscus*		N	P	R	A	U T W				
Hoary Bat *Lasiurus cinereus*		N	P	R	A	U T W				
Northern Long-eared Bat *Myotis septentrionalis*	FT	N	PP	R	U	T				
Silver-haired Bat *Lasionycteris noctivagans*		N	P	R	A	T W				
Eastern Red Bat *Lasiurus borealis*		N	P	R	A	T W				
Western Small-footed Bat *Myotis ciliolabrum*		N	P	R	C	T W				
Evening Bat *Nycticeius humeralis*		N	P	R	R	T W				
Tri-color Bat (Eastern pipistrelle) *Perimyotis subflavus*		N	P	R	C	T W				
Little Brown Bat *Myotis lucifugus*		N	P	R	C	T W				
Leporidae – Hares and Rabbits										
Eastern Cottontail *Sylvilagus floridanus*		N	P	B	C	U	X	X	X	
Sciuridae – Squirrels										

Austin Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2005–2006	Found 2016–2017	Found in 2020	Anecdotal Sightings
Thirteen-lined Ground Squirrel *Spermophilus tridecemlineatus*		N	P	R	U	U	X	X		
Fox Squirrel *Sciurus niger*		N	P	R	C	U	X	X	X	
Geomyidae – Pocket Gophers										
Plains Pocket Gopher *Geomys bursarius*		N	P	R	C	U	X			
Heteromyidae – Pocket Mice and Kangaroo Rats										
Plains Pocket Mouse *Perognathus flavescens*		N	PP	R	R	U		X		
Castoridae – Beavers										
Beaver *Castor canadensis*		N	PP	R	C	U		X		
Cricetidae – Mice, Rats, Lemmings and Voles										
Western Harvest Mouse *Reithrodontomys megalotis*		N	PP	R	U	U		X		
White-footed Mouse *Peromyscus leucopus*		N	P	B	A	U	X	X	X	
Deer Mouse *Peromyscus maniculatus*		N	P	B	A	U	X	X	X	
Prairie Vole *Microtus ochrogaster*		N	P	B	U		X	X	X	
Meadow Vole *Microtus pennsylvanicus*										
Muskrat *Ondatra zibethicus*		N	PP	R	?	U				
Muridae – Old World Rats and Mice										
House Mouse *Mus musculus*		I	P	R	U		X	X		
Zapodidae – Jumping Mice										
Meadow Jumping Mouse *Zapus hudsonius*	SDNHP	N	P	B	U	U	X	X	X	
Canidae – Dogs, Wolves and Foxes										
Coyote *Canis latrans*		N	P	R	U	U	X	X	X	
Red Fox *Vulpes*		N	PP	R	?					
Procyonidae – Racoons and Coatis										
Common Racoon *Procyon lotor*		N	P	B	C	U	X	X	X	
Mustelidae – Weasels and Allies										

Austin Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2005–2006	Found 2016–2017	Found in 2020	Anecdotal Sightings
Mink *Mustela vison*		N	PP	R	?					
American Badger *Taxidea taxus*		N	P	R	R	U	X			
Striped Skunk *Mephitis mephitis*		N	P	B	C	U	X			
Cervidae – Deer										
White-tailed Deer *Odocoileus virginianus*		N	P	B	A	U	X	X	X	
BIRDS										
Laridae – Gulls										
Ring-billed Gull *Larus delawarensis*		N	P	R	C			X		
Pelecanidae – Pelicans										
American white pelican *Pelecanus erthrorhynchos*	SDNHP	N	P	B	U			X		
Phalacrocoracidea										
Double-crested Cormorant *Phalacrocorax auritus*		N	P	R	U		X			
Anatidae – Ducks, Geese and Swans										
Canada Goose *Branta canadensis*		N	P	R	C		X	X		
Cathartida – New World Vultures										
Turkey Vulture Cathartes aura		N	P	R	C	U	X	X	X	
Accipitridea – Hawks, Kites and Eagles										
Bald Eagle *Haliaeetus leucocephalus*	BOCC SGCN	N	PP	R	R	U		X		
Northern Harrier *Circus cyaneus*		N	P	R	U		X			
Red-tailed Hawk *Buteo jamaicensis*		N	P	R	C	U	X	X	X	
Falconidae – Caracaras and Falcons										
American Kestrel *Falco sparverius*		N	P	R	U	U	X	X		
Phasianidae – Partridges, Grouse, Turkeys										
Ring-necked Pheasant *Phasianus colchicus*		I	P	R	C	U	X	U		
Wild Turkey *Meleagris gallopavo*		N	P	B	U		X	X	X	
Odontophoridae – New World Quail										

Austin Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2005–2006	Found 2016–2017	Found in 2020	Anecdotal Sightings
Northern Bobwhite *Colinu virginianus*		N	P	B	C	U	X			
Charadriilae – Lapwings and Plovers										
Killdeer *Charadrius vociferus*		N	P	R	U		X			
Scolopacidae – Sandpipers and Phalaropes										
Baird's Sandpiper *Calidris bairdii*		N	P	R	R		X			
Spotted Sandpiper *Actitis macularius*		N	P	R	C			X		
American Woodcock *Scolopax minor*		N	P	R	R	U	X			
Columbidae – Pigeons and Doves										
Mourning Dove *Zenaida macroura*		N	P	B	A	U	X	X	X	
Cuculidae – Cuckoos, Roadrunner and Anis										
Black-billed Cuckoo *Coccyzus eerythropthalmus*		N	PP	B	R	U		X		
Yellow-billed Cuckoo *Coccyzus americanus*		N	P	R	R	U	X			
Strigidae – Typical Owls										
Great Horned Owl *Bubo virginianus*		N	P	R	U	U	X	X		
Caprimulgidea – Nighthawks and Nightjars										
Eastern Whip-poor-will *Caprimulgus vociferus*	SDNHP	N	P	R	U	U	X	X		
Apodidae – Swifts										
Chimney Swift *Chaetura pelagia*		N	P	R	U	U	X			
Picidae – Woodpeckers										
Red-headed Woodpecker *Dryocopus pileatus*	BOCC	N	P	B	C	U	X	X	X	
Pileated Woodpecker *Dryocopus pileatus*	SDNHP	N	P	B	C			X		
Red-bellied Woodpecker *Melanerpes carolinus*		N	P	R	R	U	X	X		
Northern Flicker *Colaptes auratus*		N	P	B	A	U	X	X	X	
Downy Woodpecker *Picoides pubescens*		N	P	B	C	U	X	X	X	
Hairy Woodpecker Picoides villosus		N	P	R	C	U	X			
Tyrannidea – Tyrant Flycatchers										

Austin Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2005–2006	Found 2016–2017	Found in 2020	Anecdotal Sightings
Olive-sided Flycatcher *Contopus cooperi*	SDNHP	N	P	R	R	X				
Eastern Wood Pewee *Contopus virens*		N	P	B	A	U	X	X		
Willow Flycatcher *Empidonax traillii*		N	PP	R	R	U				
Least Flycatcher *Empidonax minimus*		N	P	R	U	U	X	X		
Eastern Phoebe *Sayomis phoebe*		N	P	R	U		X		X	
Great Crested Flycatcher *Myiarchus crinitus*		N	P	R	R		X	X	X	
Western Kingbird *Tyrannus verticalis*		N	P	R	R		X	X		
Eastern Kingbird *Tyrannus tyrannus*		N	P	B	A	U	X	X	X	
Vireonidae – Vireos										
Yellow-throated Vireo *Vireo flavifrons*	SDNHP	N	P	R	U	U	X			
Bell's Vireo *Vireo bellii*		N	P	B	C	U	X			
Blue-headed Vireo *Vireo solitarius*		N	P	R	R		X			
Warbling Vireo *Vireo gilvus*		N	P	B	C	U	X	X		
Corvidae – Crows and Jays										
Blue Jay *Cyanocitta cristata*		N	P	B	A	U	X	X	X	
American Crow *Corvus brachyrhynchos*		N	P	R	C	U	X	X	X	
Hirundinidae — Swallows										
Tree Swallow *Tach cineta bicolor*		N	P	B	C		X	X	X	
Bank Swallow *Riparia riparia*		N	P	R	R		X	X		
Northern Rough-winged Swallow *Stelgidopteryx serripennis*		N	PP	R	R	U				
Barn Swallow *Hirundo rustica*		N	P	R	U	U	X	X	X	
Paridae – Chickadees and Titmice										
Black-capped Chickadee *Poecile atricapillus*		N	P	B	A	U	X	X	X	
Sittidae — Nuthatches										

Austin Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2005–2006	Found 2016–2017	Found in 2020	Anecdotal Sightings
White-breasted Nuthatch *Sitta carolinensis*		N	P	B	A	U	X	X		
Red-breasted Nuthatch *Sitta canadensis*		N	P	R	C			X		
Tufted Titmouse *Baeolophis bicolor*		N	P	R	U			X		
Troglodytidae – Wrens										
House Wren *Troglodytes aedon*		N	P	B	C	U	X	X	X	
Regulidae – Kinglets										
Ruby-crowned Kinglet *Regulus calendula*		N	P	R	C		X			
Turdidae – Thrushes										
Eastern Bluebird *Sialia sialis*		N	P	R	C	U	X	X	X	
Wood Thrush *Hylocichla mustelina*	BOCC, SDNHP	N	PP	R	R	U				
Veery *Catharus fuscescens*	SDNHP	N	P	R	R		X	X		
Swainson's Thrush *Catharus ustulatus*		N	P	R	C		X			
American Robin *Turdus migratorius*		N	P	B	A	U	X	X	X	
Mimidea -- Mocking birds and Thrashers										
Gray Catbird *Dumetella carolinensis*		N	P	B	C	U	X	X	X	
Brown Thrasher *Toxostoma rufum*		N	P	B	C	U	X	X	X	
Sturnidae – Starlings										
European Starling *Sturnus vulgaris*		I	P	B	U	U	X			
Bombycillidae – Waxwings										
Cedar Waxwing *Bombycilla cedrorum*		N	P	B	C	U	X			
Parulidae – Wood Warblers										
Yellow-rumped Warbler *Dendroica coronata*		N	P	R	A		X			
Black and White Warbler *Mniotilta varia*		N	PP	R	R		X			
Prairie Warbler *Dendroica discolor*		N	PP	R	R	U				
Pine Warbler *Dendroica pinus*		N	PP	R	R	U				

Austin Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2005–2006	Found 2016–2017	Found in 2020	Anecdotal Sightings
Palm Warbler *Dendroica almarum*		N	P	R	R		X			
Yellow Warbler *Dendroica etechia*		N	P	R	C		X	X	X	
Common Yellowthroat *Geothlypis trichas*		N	P	R	U	U	X			
Yellow-breasted Chat *Icteria virens*		N	P	R	U		X			
Thraupidae – Tanagers										
Summer Tanager *Piranga rubra*		N	P	R	R		X			
Scarlet Tanager *Piranga olivacea*	SDNHP	N	P	R	R			X		
Emberizidea – Emberizids										
Eastern Towhee *Pipilo erthrphthalmus*		N	P	B	C	U	X	X		
Field Sparrow *Spizella pusilla*		N	P	B	C	U	X	X		
Chipping Sparrow *Spizella passerina*		N	P	B	C	U	X	X		
Clay-colored Sparrow *Spizella pallida*		N	P	R	U		X			
Lark Sparrow *Chondestes grammacus*		N	P	B	C	U	X	X		
Grasshopper Sparrow *Ammondramus savannarum*		N	P	B	U		X	X		
Savannah Sparrow *Passerculus sandwichensis*		N	P	R	R		X			
Lincoln's Sparrow *Melospiza lincolnii*		N	P	R	U		X			
Song Sparrow *Melospiza melodia*		N	P	R	U		X	X		
Harris' Sparrow *Zonotrichia querula*		N	P	R	R		X	X		
White-throated Sparrow *Zonotrichia albicollis*		N	P	R	R		X	X		
White-crowned Sparrow *Zonotrichia leucophrys*		N	P	R	U		X	X		
Cardinalidae – Cardinals										
Rose-breasted Grosbeak *Pheucticus ludovicianus*		N	P	B	A	U	X	X	X	
Black-headed Grosbeak *Pheucticus melanoce halus*		N	P	R	R		X			

Austin Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2005–2006	Found 2016–2017	Found in 2020	Anecdotal Sightings
Northern Cardinal *Cardinalis cardinalis*		N	P	B	C	U	X	X	X	
Dickcissel *Siza americana*		N	P	B	U		X			
Blue Grosbeak *Guiraca caerulea*		N	P	B	U	U	X			
Indigo Bunting *Passerina cyanea*		N	P	B	C	U	X			
Icteridae – Blackbirds										
Western meadowlark *Sturnella neglecta*		N	P	R	U	U	X	X	X	
Red-winged Blackbird *Agelaius phoeniceus*		N	P	R	U	U	X			
Common Grackle *Quiscalus quiscula*		N	P	B	U	U		X	X	
Brown-headed Cowbird *Molothrus ater*		N	P	B	A	U	X	X	X	
Orchard Oriole *Icterus spurius*		N	P	R	C	U	X	X	X	
Baltimore Oriole *Icterus galbula*		N	P	B	A	U	X	X	X	
Fringillidae – Finches										
House Finch *Carpodacus mexicanus*		N	P	R	U		X	X	X	
Pine Siskin *Carduelis pinus*		N	P	R	U		X	X		
American Goldfinch *Carduelis tristis*		N	P	B	A	U	X	X	X	
REPTILES AND AMPHIBIANS										
Pelobatidae – Spadefoots										
Plains Spadefoot *Scaphiopus bombifrons*		N	PP	R	U	U				
Bufonidae – True Toads										
Woodhouse Toad *Bufo woodhousii*			P	B	C	U	X	X	X	
Great Plains Toad *Bufo cognatus*		N	P	R	U		X			
Hylidae – Treefrogs and Allies										
Blanchard's Cricket Frog *Acris crepitans blanchardi*	SDNHP, SGCN	N	P	B	C		X	X		
Plains Leopard Frog *Rana blairi*	SDNHP	N	PP	R	U	U		X		
Northern Leopard Frog		N	P	B	C		X	X	X	

Austin Training Area Annotated Checklist	Special Status	Native	Training Area Status	Residency	Abundance	Previous Studies	Found 2005–2006	Found 2016–2017	Found in 2020	Anecdotal Sightings
Rana pipiens										
Western Chorus Frog *Pseudacris triseriata*		N	PP	U	U	U				
Cope's Gray Treefrog *Hyla Chrysoscelis*	SDNHP	N	P	R	?				X	
Colubridae – Colubrids										
Red-sided Garter Snake *Thamnophis sirtalis parietalis*		N	U	U	U					A
Plains Garter Snake *Thamnophis radix*		N	P	R	U		X			
Eastern Hognose Snake *Heterodon platirhinos*	ST, SDNHP, SGCN	N	U	R	R					A
Western Fox Snake *Elaphe vulpia*	SDNHP	N	P	R	R	U				
Bullsnake *Pituophis melanoleucus sayi*		N	U	U	R	U				
Emydidae — Pond Turtles										
False Map Turtle Graptemys pseudogeographica	ST SGCN	N	P	R	U			X		

Table D-3. Management Recommendations for WCRTA (Pennington County)

South Dakota Army National Guard West Camp Rapid Training Area, Pennington County, South Dakota					
Field Training Activities (small arms, grenade launcher, training and maneuvers, obstacle course, land navigation, night-driving, bivouac)					
Potential Habitat Affected	**Determine Potential Species Affected**	**Responsible Party**	**Action(s)**	**Potential Species Affected**	**Management Recommendations**
Deciduous Drainage, Pine Steppe, Gypsum Prairie, Mixed Prairie	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	Conservation Manager (CM)	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Osprey	• Managers should be aware that these large birds occasionally fly over the training area and intensive management operation, such as timber harvest or construction activities, could affect the osprey's use of the surrounding landscapes.
Deciduous Drainage, Pine Steppe, Gypsum Prairie, Mixed Prairie	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Peregrine Falcon	• Managers should be aware that these large birds occasionally fly over and have the potential to utilize the training area for foraging. Intensive management operations, such as timber harvesting or construction activities, could affect the peregrine falcon's use of the surrounding landscape.

South Dakota Army National Guard West Camp Rapid Training Area, Pennington County, South Dakota					
Deciduous Drainage, Pine Steppe, Gypsum Prairie, Mixed Prairie	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP and USFWS may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Northern Long-eared Bat	• Avoid the removal of suitable summer habitat during the bats active season (typically May – September). If modification to habitat (i.e. large trees, snags or structures) is necessary, conduct activities outside of the active season. If activities are necessary during the active season, take steps to reduce the spatial extent and timeframe of such activities so bats will only temporarily be displaced and/or habituate to the situation. • If evidence of roosting is observed (primarily on human-made structures), install bat exclusion devices and inspect annually to avoid conflicts with training activities. • If hibernaculum or maternity roosts are observed, do not remove/destroy them at any time or disturb them during critical pup rearing season (June 1 – July 30).
Deciduous Drainage, Pine Steppe, Gypsum Prairie, Mixed Prairie	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Red-Headed Woodpecker	• Preserve deciduous woodlands and associated snags across the WCRTA, especially within the DD and MP habitats where species diversity is high.

South Dakota Army National Guard West Camp Rapid Training Area, Pennington County, South Dakota					
Aviation Support Activities					
Potential Habitat Affected	**Determine Potential Species Affected**	**Responsible Party**	**Action(s)**	**Potential Species Affected**	**Management Recommendations**
Deciduous Drainage, Pine Steppe, Gypsum Prairie, Mixed Prairie	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Osprey	• Managers should be aware that these large birds occasionally fly over the training area and intensive management operation, such as timber harvest or construction activities, could affect the osprey's use of the surrounding landscapes.
Deciduous Drainage, Pine Steppe, Gypsum Prairie, Mixed Prairie	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Peregrine Falcon	• Managers should be aware that these large birds occasionally fly over and have the potential to utilize the training area for foraging. Intensive management operations, such as timber harvesting or construction activities, could affect the peregrine falcon's use of the surrounding landscape.

South Dakota Army National Guard West Camp Rapid Training Area, Pennington County, South Dakota					
Deciduous Drainage, Pine Steppe, Gypsum Prairie, Mixed Prairie	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP and USFWS may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Northern Long-eared Bat	• Avoid the removal of suitable summer habitat during the bats active season (typically May – September). If modification to habitat (i.e. large trees, snags or structures) is necessary, conduct activities outside of the active season. If activities are necessary during the active season, take steps to reduce the spatial extent and timeframe of such activities so bats will only temporarily be displaced and/or habituate to the situation. • If evidence of roosting is observed (primarily on human-made structures), install bat exclusion devices and inspect annually to avoid conflicts with training activities. • If hibernaculum or maternity roosts are observed, do not remove/destroy them at any time or disturb them during critical pup rearing season (June 1 – July 30).
Deciduous Drainage, Pine Steppe, Gypsum Prairie, Mixed Prairie	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Red-Headed Woodpecker	• Preserve deciduous woodlands and associated snags across the WCRTA, especially within the DD and MP habitats where species diversity is high.

*Source: U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Final ESA Section 7 Consultation Handbook.

Table D-4. Management Recommendations for ATA (Union County)

South Dakota Army National Guard Austin Training Area, Union County, South Dakota					
Waterway Bridging/Boating Activities					
Potential Habitat Affected	**Determine Potential Species Affected**	**Responsible Party**	**Action(s)**	**Potential Species Affected**	**Management Recommendations**
River Front	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	Conservation Manager (CM)	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Eastern Hognose Snake	• Avoid the removal of suitable summer habitat during the snake's active season (typically April – October). If modification to habitat (i.e. disruption of sandy areas near river) is necessary, conduct activities outside of the active season. If activities are necessary during the active season, take steps to reduce the spatial extent and timeframe of such activities.
River Front	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	False Map Turtle	• When present, leave in place any snags or logs that are caught on the river shoreline. Additional basking habitat could also be created by placing dead logs into the water and left in place for turtles and other species to utilize.

South Dakota Army National Guard Austin Training Area, Union County, South Dakota					
Field Training Activities					
Potential Habitat Affected	**Determine Potential Species Affected**	**Responsible Party**	**Action(s)**	**Potential Species Affected**	**Management Recommendations**
Alluvial Forests, Upland Forests, Open Fields	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP and USFWS may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Northern Long-eared Bat	• Avoid the removal of suitable summer habitat during the bats active season (typically May – September). If modification to habitat (i.e. large trees, snags, or structures) is necessary, conduct activities outside of the active season. If activities are necessary during the active season, take steps to reduce the spatial extent and timeframe of such activities so bats will only temporarily be displaced and/or habituate to the situation. • If hibernaculum or maternity roosts are observed, do not remove/destroy them at any time or disturb them during critical pup rearing season (June 1 – July 30).
Alluvial Forests, Upland Forests, Open Fields	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Lined Snake	• Avoid the removal of suitable summer habitat during the snake's active season (typically April – October). If modification to habitat (i.e. disruption/removal of logs, rocks, other cover) is necessary, conduct activities outside of the active season. If activities are necessary during the active season, take steps to reduce the spatial extent and timeframe of such activities.

South Dakota Army National Guard Austin Training Area, Union County, South Dakota					
Alluvial Forests, Upland Forests, Open Fields	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Red-Headed Woodpecker	• To the extent possible, preserve deciduous woodlands and associated snags across the ATA, especially within the DD and MP habitats where species diversity is high.
Alluvial Forests, Upland Forests, River Front	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998). *	Bald Eagle	• A minimum quarter mile buffer zone should be protected around the nest and potentially disturbing activities restricted, as identified in the INRMP. Disturbance is any action that interrupts the normal breeding, feeding, or resting activities. Examples can include but are not limited to a nesting bird abandoning its nest, a foraging bird leaving an area it is hunting in, or a roosting bird leaving a suitable roost site • Cottonwood regeneration is recommended in areas subject to the removal of mature cottonwood trees. A 4:1 replacement ratio of 4 cottonwood seedlings to one mature tree removed along the Missouri River is recommended (Aron 2005).

South Dakota Army National Guard Austin Training Area, Union County, South Dakota					
Aviation Support Activities					
Potential Habitat Affected	**Determine Potential Species Affected**	**Responsible Party**	**Action(s)**	**Potential Species Affected**	**Management Recommendations**
Open Fields	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP and USFWS may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species or in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Northern Long-eared Bat	• Avoid the removal of suitable summer habitat during the bats active season (typically May – September). If modification to habitat (i.e. large trees or snags) is necessary, conduct activities outside of the active season. If activities are necessary during the active season, take steps to reduce the spatial extent and timeframe of such activities so bats will only temporarily be displaced and/or habituate to the situation. • If hibernaculum or maternity roosts are observed, do not remove/destroy them at any time or disturb them during critical pup rearing season (June 1 – July 30).
Open Fields	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Lined Snake	• Avoid the removal of suitable summer habitat during the snake's active season (typically April – October). If modification to habitat (i.e. disruption/removal of logs, rocks, other cover) is necessary, conduct activities outside of the active season. If activities are necessary during the active season, take steps to reduce the spatial extent and timeframe of such activities.

South Dakota Army National Guard Austin Training Area, Union County, South Dakota					
Open Fields	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Red-Headed Woodpecker	• To the extent possible, preserve deciduous woodlands and associated snags across the ATA, especially within the DD and MP habitats where species diversity is high.
Open Fields	Desktop review to determine the presence of a species and/or suitable habitat and gain understanding of conditions and land use. Coordination letters with SDGFP may help determine if field review is necessary.	CM	CM determines if the proposed activity may affect listed species in accordance with USFWS Consultation handbook (USFWS and NMFS 1998).*	Bald Eagle	• A minimum quarter mile buffer zone should be protected around the nest and potentially disturbing activities restricted, as identified in the INRMP. Disturbance is any action that interrupts the normal breeding, feeding, or resting activities. Examples can include but are not limited to a nesting bird abandoning its nest, a foraging bird leaving an area it is hunting in, or a roosting bird leaving a suitable roost site. • Cottonwood regeneration is recommended in areas subject to the removal of mature cottonwood trees. A 4:1 replacement ratio of 4 cottonwood seedlings to one mature tree removed along the Missouri River is recommended (Aron 2005).

*Source: U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Final ESA Section 7 Consultation Handbook.