U.S. Fish & Wildlife Service

Final Comprehensive Conservation Plan and Environmental Impact Statement

National Bison Range

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U.S. GOVERNMENT
INFORMATION
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Final Comprehensive Conservation Plan and Environmental Impact Statement

National Bison Range

Montana

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Prepared by
U.S. Fish and Wildlife Service
National Bison Range
58355 Bison Range Road
Moiese, MT 59824

and

Mountain-Prairie Region
Branch of Policy and Planning
134 Union Boulevard, Suite 300
Lakewood, CO 80228

NATIONAL BISON RANGE COMPLEX VISION

Relax and take a deep breath while you step back in time to reflect on what was, what is, and what is yet to come. Immerse yourself in the inter-montane valleys of northwestern Montana shaped by glacial forces and steeped in rich cultural history. This is a special landscape important to people age after age, where we pay tribute to the persons and peoples who set aside the lands, conserved the wildlife and plants, and were stewards of various components that make up the complex. Visitors from all over the world travel to the Complex, which seeks to provide an opportunity to learn and experience varied habitats, abundant wildlife, and the natural beauty of these lands. The units of the Complex safeguard these values and preserve connectivity across the landscape, forming continuity through time for future generations to treasure. Each unit is unique, and collectively they have contributed, and will continue to contribute, to the Complex and the Refuge System. Partners foster cultural and natural resources conservation where the cultural history is expressed across the landscape. Unique opportunities to work with partners benefit many of the units within the Flathead Indian Reservation and other units located within traditional homelands of the Séliš, Qĺispé and Ksanka Tribes.

Abbreviations

AM Adaptive Management
ATB America the Beautiful (pass)
ATV All-terrain Vehicles
AUM Animal Unit Months
BIA Bureau of Indian Affairs
CCP Comprehensive Conservation Plan
CEQ Council on Environmental Quality
CFR Code of Federal Regulations
CFS cubic foot per second
CSKT Confederated Salish and Kootenai Tribes
DOI Department of Interior
EA Environmental Assessment
EDRR Early Detection and Rapid Response
EIS Environmental Impact Statement
EKiP Every Kid in a Park
EO Executive Order
EPA Environmental Protection Agency
FIIP Flathead Indian Irrigation Project
FIR Flathead Indian Reservation
FR Federal Register
FTE Full Time Equivalent
GTSR Going to the Sun Road
HMP Habitat Management Plan
IBA Important Bird Areas
IPM Integrated Pest Management
ITBC Inter-Tribal Buffalo Council
MCA Montana Code, Annotated
MOU Memorandum of Understanding
MOVI Mycoplasma ovipneumoniae
MT Montana
MTDNA Mitochondrial DNA
MTFWP Montana Fish, Wildlife and Parks
MTNHP Montana Natural Heritage Program
NAAQS National Ambient Air Quality Standards
NBR National Bison Range
NBRC National Bison Range Complex
NCDE Northern Continental Divide Ecosystem
NEPA National Environmental Policy Act
NGO Non-governmental Organization
NHPA National Historic Preservation Act
NOI Notice of Intent
NPS National Park Service
NRCS Natural Resource Conservation Service
NWR National Wildlife Refuge
NWRS National Wildlife Refuge System
PM10 Particulate matter less than 10 microns diameter
PRISM Partnership for Regional Invasive Species Management
RV Recreational Vehicle
SHPO State Historic Preservation Office
SKC Salish Kootenai College
SO Secretarial Order
SUP Special Use Permit
T&E Threatened and Endangered
TEK Traditional Ecological Knowledge
THPO Tribal Historic Preservation Office
TNC The Nature Conservancy
U.S. United States
USC United States Code
USDA United States Department of Agriculture
USFWS United States Fish and Wildlife Service
USGS United State Geological Survey
WMD Wetland Management District
WMTC Western Montana Complex

Summary

Ryan Hagerty/USFWS

National Bison Range

Located in northwestern Montana, the National Bison Range (NBR) is part of the National Bison Range Complex, which also manages the Ninepipe, Pablo, and Lost Trail National Wildlife Refuges, as well as the Flathead and Lake County Wetland Management Districts. The units of the Complex are in Flathead, Lake, and Sanders Counties. Much of the refuge complex, including the NBR, is also within the boundaries of the Flathead Indian Reservation.

The U.S. (United States) Fish and Wildlife Service (Service) has developed this final comprehensive conservation plan (CCP) and environmental impact statement (EIS) to provide alternatives and identify consequences for the management and use of the NBR. The alternatives are the result of extensive public input and close work with several cooperative agencies. These agencies include:

- The Confederated Salish and Kootenai Tribes (CSKT)
- Bureau of Indian Affairs (BIA)
- Montana Fish, Wildlife & Parks (MTFWP)
- Lake County, Montana
- Sanders County, Montana

Refuge Background

President Theodore Roosevelt established the NBR on May 23, 1908 when he signed legislation authorizing funds to purchase suitable land for the conservation of bison. It was the first time that Congress appropriated tax dollars to buy land specifically to conserve wildlife. NBR is one of the oldest units of the Refuge System. Its history is closely tied to the history and survival of the plains bison and to the Native American Tribes of western Montana. Today the bison herd is maintained at approximately 300 animals; the herd is managed using the best available science to contribute to the preservation of the species by managing for genetic diversity.

In addition, populations of white-tailed deer, mule deer, pronghorn, bighorn sheep, and elk were translocated to the NBR shortly after the refuge was established and are still managed today to both further the presentation of bison in a natural setting and to provide a source for establishing or augmenting populations across the West. In 1921, the Bison Range was also designated as “a Refuge and breeding ground for birds” (Executive Order 3596). Today, over 200 bird species inhabit the refuge, and they continue to be a management priority.

Public use has also grown over the years. Until the1950s, there were limited public use opportunities available to visitors. In 1958, Congress allocated funds for the development of

an area on the NBR for the display of bison for the public. In the 1960s, the Red Sleep Mountain road was improved and opened to visitor traffic. This one-way scenic drive continues to be a popular wildlife viewing opportunity. In 1981, a new and expanded Visitor Center was built and education and interpretive programs were developed. Overall visitation to the refuge has increased from an estimated 5,000 visitors in the early years to around 100,000 in the 1980s to an estimated 180,000 annual visitors today.

Purpose and Need for Action

The purpose of this final CCP and EIS is to identify the role the refuge will play in support of the mission of the Refuge System and to provide long-term guidance for management of refuge programs and activities. The CCP seeks:

- to communicate with the public and other partners in efforts to carry out the mission of the Refuge System
- to provide a clear statement of direction for management of the refuge
- to provide neighbors, visitors, and government officials with an understanding of the Service's management actions on and around the refuge
- to ensure that the Service's management actions are consistent with the mandates of the Improvement Act
- to ensure that management of the refuge considers other federal, state, and local government plans
- to provide a basis for prioritizing allocation of funding and staffing levels across NBR programs (e.g. visitor services, law enforcement, management, biology)
- to recognize and address, as appropriate, NBR's location within the Flathead Indian Reservation and address the refuge's importance to the tribes and the communities within the Mission Valley of Montana

The Service is committed to sustaining the Nation's fish and wildlife resources together through the combined efforts of governments, businesses, and private citizens.

National Wildlife Refuge System

Like all national wildlife refuges, the NBR is administered under the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act in 1997 (Improvement Act).

"The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

Refuge Purposes

Refuge purposes come from the law, proclamation, executive order, agreement, or other document that establish or expand a national wildlife refuge. The goals, objectives, and strategies in the CCP are intended to support the individual purposes for which the refuge was established.

NBR was established by Public Law 60-136 on May 23, 1908 as "a permanent National Bison Range for the herd of bison to be presented by the American Bison Society".

Executive Order 3596 (Dec. 22, 1921) also reserved the NBR "as a refuge and breeding ground for birds."

In addition, Public law 85-622 (August 12, 1958) allocated funds "To provide adequate pasture for the display of bison in their natural habitat at a location readily available to the public."

Public Involvement and Scoping

Public scoping began with a notice of intent to prepare a CCP and EIS in the Federal Register (FR) on May 18, 2017 (82 FR Doc. 2017-10110). This was a revision to an earlier notice of intent (NOI) published in January 2017 (82 FR 2017-00808). Since then, we conducted eleven public meetings; mailed three planning updates; sent 3 electronic newsletters via e-mail; posted information on the NBR CCP Planning website; and held four workshops with the Planning Team to develop this document. The Planning Team consists of Service staff from the refuge and the Regional office as well as representatives from the cooperating agencies.

Significant Issues to be Addressed

Based on the many qualities of the refuge, issues, and recommendations identified during the scoping process, as well as guidance from the Improvement Act, the National Environmental Policy Act (NEPA), and the Service's planning policy, the Service identified the following significant topic headings to be addressed in the CCP and EIS:

1. Habitat Management
2. Bison Management
3. Wildlife Management
4. Tribal Cooperation/Cultural and Historic Resources
5. Visitor Services
6. Socioeconomics/Refuge Operations/Staffing
7. Partnerships/Communication
8. Monitoring and Research

Vision

We developed a vision for the Complex at the beginning of the planning process. The vision describes the focus of refuge complex management and portrays a picture of the refuge complex in 15 years. As a unit of the Complex, the vision statement below sets the context for the future for

the NBR.

Relax and take a deep breath while you step back in time to reflect on what was, what is, and what is yet to come. Immerse yourself in the inter-montane valleys of northwestern Montana, shaped by glacial forces and steeped in rich cultural history. This is a special landscape, important to people age after age, where we pay tribute to the persons and peoples who set aside the lands, conserved the wildlife and plants, and were stewards of various components that make up the complex. Visitors from all over the world travel to the Complex, which seeks to provide an opportunity to learn and experience varied habitats, abundant wildlife, and the natural beauty of these lands. The units of the Complex safeguard these values and preserve connectivity across the landscape, forming continuity through time for future generations to treasure. Each unit is unique, and collectively they have contributed, and will continue to contribute, to the Complex and the Refuge System. Partners foster cultural and natural resources conservation where the cultural history is expressed across the landscape. Unique opportunities to work with partners benefit many of the units within the Flathead Indian Reservation and other units located within traditional homelands of the Séliš, Qĺispé and Ksanka Tribes.

Goals

We developed eight goals for the refuge based on the Improvement Act, the purposes of the refuge, and information developed during planning. The goals focus work towards achieving the vision and purposes of the refuge and outline approaches for managing refuge resources. Goal topics include:

- Habitat Management
- Wildlife Management
- Research and Science
- Monitoring and Adaptive Management
- Cultural Resources
- Public Use
- Partnerships and Collaboration
- Administration and Operations

Alternatives

Following the scoping process in 2017, we held meetings and workshops with the cooperating agencies and identified a range of preliminary alternatives. After sharing these preliminary alternatives with the public, we considered additional suggestions from the public and revised the alternatives. Some of the preliminary alternatives were changed or combined with other alternatives. In concert with existing refuge plans, these alternatives examine different ways in which we can address significant issues and achieve the refuge goals.

USFWS

Western meadowlark sings on the National Bison Range

Elements Common to All Alternatives

Regardless of the alternative selected, we will comply with all applicable laws, regulations, and policies for management activities such as bison donations, wildland fire (wildfire and prescribed fire), protection of archaeological and historical sites, as well as staff and visitor safety. In addition, we would continue to collaborate with our partner agencies and organizations in order to share information (e.g. existing resource plans, traditional ecological knowledge, new research, best management practices, etc.) and collaborate with the CSKT and other Tribes in developing relevant educational and interpretive materials. The refuge program in the Mountain-Prairie region developed a Realignment Strategy in 2016 to guide the future of refuges in the 8-state region. All Alternatives have been developed within the vision and goals of the Realignment Strategy.

Alternative A—Current Management

Under this alternative, we would continue all the current management activities, and maintain funding, infrastructure, all programs, and staffing with few changes. The Service's NEPA handbook states that the no action alternative is where *current conditions* and trends are projected into the future. Because alternative A represents the current, unchanged refuge management, it may not meet every aspect of every goal.

Alternative B

This alternative emphasizes managing habitat and wildlife populations to provide quality, wildlife-dependent opportunities for the public.

All programs on the NBR would foster public support and appreciation for the resources of our land and our waters. The Service would maximize the quality of recreational opportunities by

providing improved access, facilities, interpretive materials, and environmental education. The Service would also aim to enhance the quality of the public's experience by maintaining healthy wildlife populations and habitats that support activities such as wildlife observation, photography, interpretation, education and fishing. Working with partners, through existing and new partnerships, is also a key component of this alternative.

Alternative C—Preferred Alternative

This alternative emphasizes maintaining and, where feasible, enhancing ecological communities while recognizing ever-changing environmental conditions. In cooperation with our partners, the Service would develop and utilize a prioritization framework to identify and define future conditions that will drive management actions to build ecological community resiliency, promote species and genetic diversity, and build sustainability in management capacity and operations.

Under this alternative, the Service would seek to facilitate collaborative, cooperative, and coordinated management of NBR with our Federal, Tribal, State, local, public, and private partners. Where possible, the refuge would participate in landscape-level management of wildlife species, evaluate cross-boundary movements, and create corridors conducive to wildlife migration and movement. The Service would also seek ways to incorporate the expertise, resources, and efforts of our partners to help facilitate the benefits of a broader functioning landscape.

Affected Environment

The 18,800-acre NBR is located where three major geographic features merge, Mission Valley, Mission Mountain Range, and Jocko River Valley. The glacial history of the region has had a pronounced influence on the soils and landforms. Average temperatures range from 21^0F to 85^0F and most of the precipitation occurs during the spring and early summer.

Grasslands dominate the landscape at lower elevations, dotted with wetland and riparian vegetation along seasonal drainages and around seeps and springs. Mixed-conifer forest occurs at the upper elevations. The Jocko River and Mission Creek form riparian and wetland corridors along the north and south boundaries of the refuge. Invasive plant species are recognized as an important factor affecting ecosystem function and health on the refuge.

The NBR provides cover, food, water, and sufficient space for numerous native wildlife species. The NBR supports a healthy population of plains bison as well as other native ungulates and a variety of predators. The refuge also supports over 200 native bird species. In addition to the federally threatened grizzly bear and bull trout, there are forty-three Montana species of concern that occur on the refuge.

Although people have lived in the region for thousands of years, relatively few cultural resource sites have been formally recorded on the refuge. It is anticipated that a wide range of undocumented cultural resource types are located on the NBR. These could include, but would not be limited to, precontact and/or protohistoric open camps, stone circles and alignments, cairns, lithic scatters, rock shelters, trails and roads, drive-lines, kill (i.e. jump or pound) sites, hunting blinds, eagle traps, fasting beds, and rock imagery, as well as historic buildings and structures associated with the mission and operation of the NBR.

Visitors come from all over the country and other parts of the world to learn about NBR and enjoy a variety of wildlife-dependent recreational activities. In 2017, NBR welcomed approximately 180,000 visitors. Annual visitation to the NBR is most heavily concentrated during spring through fall, when the full length of the Red Sleep Mountain Drive is open. Wildlife observation, photography, and hiking account for an estimated 94 percent of visits to the NBR. NBR affects the economy through the resident and nonresident visitor spending it generates, the employment it supports, and the value it adds to surrounding area.

Environmental Consequences

Summary of Environmental Consequences Across All Alternatives

Resource Topic	Alternative A	Alternative B	Alternative C
Physical Environment	Negligible adverse impacts on topography and soils. Minor adverse impacts on air quality. Minor beneficial impacts on hydrology.	Minor adverse impacts on topography and soils. Minor adverse impacts on air quality. Minor beneficial impacts on hydrology.	Negligible adverse impacts on topography and soils. Negligible adverse impacts on air quality. Minor beneficial impacts on hydrology.
Habitat	Primarily minor benefits on grasslands and forests. Primarily negligible benefits on wetland and riparian areas.	Primarily negligible benefits on grasslands. Primarily intermediate benefits on forests. Primarily minor benefits on wetlands and riparian areas.	Primarily major benefits on grasslands and forests. Primarily minor benefits on wetlands and riparian areas.
Wildlife	Primarily minor benefits on bison, other ungulates, and other wildlife.	Primarily minor benefits on bison, other ungulates, and other wildlife.	Primarily intermediate to major benefits on bison and other ungulates. Primarily minor benefits on other wildlife.
Threatened and Endangered Species	Minor benefits	Minor benefits	Minor benefits
Cultural Resources	Minor benefits	Minor to intermediate benefits	Major benefits
Socioeconomics and Visitor Services	Minor benefits	Minor to intermediate benefits	Minor benefits
Cumulative Effects	Primarily beneficial	Primarily beneficial	Primarily beneficial

Comments on the Draft CCP and EIS

The draft CCP and EIS was available for a 45-day public review from April 5 - May 20, 2019 [84 FR 13662]. The Service received over 300 comments from organizations and individuals. Refer to Appendix B for the public involvement summary and Appendix H for public comments and Service responses.

Summary of changes in the Final CCP and EIS

As a result of public comments on the draft CCP and EIS, we made several changes or clarifications in the final CCP and EIS.

In order to better address public use under Alternative C, the preferred alternative, we have increased the full performance level of the visitor services specialist, we have revised our plans for the new Visitor Center to create greater flexibility to address the needs of the visitors, the staff and partners, and will seek to have the Visitor Center open 7 days a week, May - October, subject to funding.

We received several comments expressing concern over the grazing and habitat management on the refuge. We have clarified our intent not to endorse permanent changes in habitat management, but rather recommend conducting a robust analysis prior to development and implementation of the Habitat Management step-down plan.

We have added language to the final EIS and CCP to further clarify the Service's Native American Policy and our Tribal trust responsibilities. We also revised the refuge history and included many suggested editorial comments throughout the document.

What Happens Next

The Service's final decision will be documented in a record of decision that is published in the Federal Register, no sooner than 30 days after filing the final CCP and EIS with the U.S. Environmental Protection Agency (EPA) and distributing it to the public.

The selected alternative's goals, objectives, and strategies will become the primary components of a stand-alone CCP. Selected management activities and projects would be implemented as funds become available. This document does not constitute a commitment for funding, and future budgets could influence implementation priorities.

Table of Contents

Abbreviations i

Summary ii

Chapter 1 Introduction 1

1.1 Purpose and Need for Action 3
1.2 The U.S. Fish and Wildlife Service and the National Wildlife Refuge System 4
1.3 Legal and Policy Guidance 5
1.4 History of Refuge Establishment, Acquisition and Management 7
1.5 Refuge Purposes 9
1.6 Refuge Vision Statement 9
1.7 Refuge Management Direction: Goals 10
1.8 Step-Down Management Plans 10
1.9 Description of Planning Process and Public Involvement 11
1.10 Significant Planning Issues to Address 13
1.11 Issues Not Addressed 15

Chapter 2 Alternatives 17

2.1 Criteria for Alternatives Development 17
2.2 Elements Common to All Alternatives 17
2.3 Alternative Descriptions 19
2.4 Summary of Alternative A (No Action) 19
2.5 Summary of Alternative B 20
2.6 Summary of Alternative C—Preferred Alternative 22
2.7 Elements Considered but Eliminated from Further Analysis 25
2.7.1 Hunting on the National Bison Range 25
2.7.2 Alternatives Based on Staffing Levels 25
2.8 Partnerships 25
2.9 Monitoring and Evaluation 26
2.10 Funding and Personnel 26
2.11 Plan Amendment and Revision 28
2.12 Comparison of Alternatives 28

Chapter 3 Affected Environment 32

3.1 Physical Environment 32
3.2 Habitat 39
3.3 Wildlife 43
3.4 Threatened and Endangered Species and Species of Conservation Concern 47
3.5 Cultural Resources 48
3.6 Socioeconomics 49

Chapter 4 Environmental Consequences 54

4.1 Analysis Approach 54
4.2 Physical Environment 55
4.2.1 Topography and Soils 55
4.2.2 Air Quality 58
4.2.3 Hydrology 59
4.3 Habitat 61
4.3.1 Grasslands 61
4.3.2 Forests 65
4.3.3 Wetland and Riparian Areas 67
4.4 Wildlife 69
4.4.1 Bison 69
4.4.2 Other Ungulates 72
4.4.3 Birds, Mammals, Fish, Reptiles, and Amphibians 75
4.5 Threatened and Endangered Species and other Species of Concern 79
4.6 Cultural Resources 83
4.7 Socioeconomics and Visitor Services 85
4.7.1 Socioeconomics 85
4.7.2 Visitor Services 86
4.8 Cumulative Effects 90
4.8.1 Reasonably Foreseeable Actions 90
4.8.2 Cumulative Effects of the Proposed Alternatives 93
4.9 Summary of Environmental Consequences 97

Glossary 99

Bibliography 267

Appendices

Appendix A—List of Preparers

Appendix B—Summary of Public Involvement

Appendix C—Key Legislation and Policies

Appendix D—Compatibility Determinations

Appendix E—Bison Donation Transfer Protocol

Appendix F—Objectives, Strategies and Rationales for All Alternatives

Appendix G—List of Plant and Animal Species

Appendix H —Responses to Comments on the Draft CCP and EIS

List of Figures and Tables

Figures

Figure 1.1. National Bison Range Location Map 2

Figure 1.2. Map of the National Bison Range 8

Figure 1.3. Steps of the CCP and Environmental Analysis Process 12

Figure 2.1. Adaptive Management and the CCP Process 26

Figure 3.1. Overview of the National Bison Range 33

Figure 3.2. Regional hydrology of the National Bison Range 36

Figure 3.3. Local hydrology of the National Bison Range 37

Figure 3.4. Monthly discharge of Jocko and Mission 39

Figure 3.5. Vegetation on the National Bison Range 40

Figure 3.6. Public Use 53

Tables

Summary of Environmental Consequences Across All Alternatives vi

Table 1.1. Step-down Management Plans for the National Bison Range 11

Table 1.2. Planning Process Summary for the CCP and EIS for the National Bison Range, Montana 13

Table 2.1. Annual Costs to Carry Out the CCP Alternatives for the Complex (in FY2019 Dollars) 27

Table 2.2. Personnel Needed to Carry Out the CCP Alternatives for NBR 28

Table 2.3. Comparison of Alternatives 29

Table 3.1. Invasive Plant Species That Have Been Identified as Priorities on the NBR Currently 43

Table 3.2. The Species and Estimated Populations of Bison and Other Native Ungulates on the National Bison Range, Montana, in 2018 45

Table 4.1. Past, Present, and Reasonably Foreseeable Future Projects Affecting National Bison Range Resources 92

Table 4.2. Summary of Environmental Consequences Across All Alternatives 98

Chapter 1 Introduction

Dave Fitzpatrick/USFWS

Bison herd with calves in the National Bison Range

We, the U. S. Fish and Wildlife Service (Service), have developed this final comprehensive conservation plan (CCP) and environmental impact statement (EIS) to describe alternatives for, and potential consequences of, the management and use of the National Bison Range (NBR). Located in northwestern Montana, the refuge is part of the National Bison Range Complex (Complex), which also manages the Ninepipe, Pablo, and Lost Trail National Wildlife Refuges (NWRs) as well as the Flathead and Lake County Wetland Management Districts (WMDs) (Figure 1.1). The units of the Complex are in Flathead, Lake, and Sanders Counties.

Much of the refuge complex, including the NBR, is also within the boundaries of the Flathead Indian Reservation. The Reservation is a 1.3 million-acre area established in 1855 through the Treaty of Hellgate, which, in the language of the treaty, was reached "by and between … the United States, and the . . . confederated tribes of the Flathead, Kootenay and Upper Pend d'Oreilles Indians . . . [which] do hereby constitute a nation, under the name of the Flathead Nation." In many communications today, the tribes use their own true names: Séliš (pronounced SEH-leesh, known in English as Salish or "Flathead"), Q̓ispé (pronounced Kah-lee-SPEH, known in English as Kalispel or Pend d'Oreille), and Ksanka (pronounced KSAHN-ka, known in English as Kootenai). In 1935, the three tribes reconstituted themselves as the Confederated Salish and Kootenai Tribes (CSKT), which as of 2019, remains the official name of the tribal government.

Although all of the units making up the refuge complex are managed by the same staff, we are developing a CCP and EIS for NBR and a separate CCP and Environmental Assessment (EA) for the other units of the Complex, because the Service determined that the complexity of the issues related to the management of the NBR warranted the more detailed and rigorous analysis that is required by an EIS. This CCP is being developed in compliance with the National Wildlife Refuge Administration Act of 1966, as amended (16 United States Code [USC] §§ 668dd et seq.) and Part 602 (National Wildlife Refuge System Planning) of the Fish and Wildlife Service Manual (USFWS 2000) and other Service guidelines. The actions described in the CCP also meet the requirements of the National Environmental Policy Act of 1969 (NEPA).

Wildlife conservation, including habitat conservation, is the Service's first priority for managing national wildlife refuges. Public uses, specifically wildlife-dependent recreational uses, are allowed and encouraged as long as they are appropriate and compatible with the establishment purposes of each refuge. The final CCP and EIS for the refuge discusses program levels that are sometimes above current budget allocations and would, therefore, be phased in over time. The final CCP will specify the objectives and strategies

Figure 1.1. National Bison Range Location Map

necessary to achieve the refuge's purposes, vision, and goals.

We formulated two action alternatives —for managing NBR, as well as the no-action alternative (the continuation of current management). The action alternatives were developed in collaboration with federal, tribal, state, and county agencies as well as through public scoping. The core planning team (Appendix A) prepared the CCP and EIS. The Service invited several federal, state, and local agencies, as well as various Native American tribal governments, to participate in the planning process. The following agencies responded to the Service's invitation and became cooperating agencies on the planning team:

- Bureau of Indian Affairs
- Confederated Salish and Kootenai Tribes
- Montana Fish, Wildlife and Parks
- Lake County
- Sanders County

Public involvement in the planning process is discussed in Section 1.9 and in further detail in Appendix B. Details of the no-action alternative and two action alternatives are in "Chapter 2—Alternatives," and the predicted effects of the alternatives are described in "Chapter 4—Environmental Consequences." We have identified Alternative C as the preferred alternative.

1.1 Purpose and Need for Action

This final CCP/EIS was developed in the context of a National Wildlife Refuge System (Refuge System) that is always adapting to meet the challenges of an evolving landscape. The NBR's natural environment, the influences of the surrounding types of land uses by a wide variety of individuals and agencies, and the implications of invasive species, climate change, and other emerging challenges have all affected the refuge setting since its establishment. This CCP is designed to seek ways to address those changes, in collaboration with our conservation partners and neighbors, and establish management and protection of valuable natural and cultural resources into the future—a future where continued change is likely to occur.

Thus, the *purpose* of the CCP/EIS is to establish strategic management direction to ensure that our management of the refuge will best integrate the issues listed below. Our use of the term "strategic" means approaches that are ecologically sound and sustainable in light of physical and biological change, and are practical, viable, or economically realistic, and responsive to the following three areas of concern:

1. Abides by, and contributes to, the Service and Refuge System missions, legal mandates, Executive and Secretarial Orders (SO), and Service and Refuge System policies, including the Service's Native American Policy (510 FW 1). We provide a description of the Service and Refuge System missions, legal mandates, specific orders, and policies relevant to this planning process in subsequent chapters and appendices.

2. Helps meet the refuge's legislated purposes, vision, and CCP goals. NBR's purposes, vision, and goals are listed below. The vision statement broadly interprets the refuge purposes and is an inspiring statement of the desired future for the refuge. NBR goals articulate that desired future condition further and provide a framework for developing management objectives and strategies under each alternative.

3. Addresses key issues, including the concerns of the Service, other federal, state, local and Tribal agencies, and the public. Interest in the future management of the refuge is widespread. The concerns and interests of our partners, local communities, and interested members of the public are diverse. Through our scoping and outreach, coupled with our understanding of the particular threats and challenges to conservation, and the need to incorporate the best available scientific and technical information, we have identified, among others, the following key issue categories to focus on in this CCP and address through objectives and strategies under each alternative. We provide additional details on these issues in subsequent chapters:

    - Habitat management, including invasive species
    - Bison management
    - Wildlife management
    - Tribal cooperation/cultural resources
    - Visitor services and public use
    - Socioeconomic factors
    - Administration (e.g. budget, staffing, and facilities)
    - Partnerships and communication
    - Monitoring and research

The need for a CCP is mandated by the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act) which required all refuges to complete this process by 2012. This plan is being developed concurrently with ongoing reorganization of Refuge System units throughout the Service's Mountain-Prairie Region. Additionally, the economy and patterns of land use and land ownership in local communities surrounding the refuge are changing. The pressures for public use and access to refuge lands have continued to increase, while refuge resources (e.g. budget and staffing) have been steadily decreasing. The CCP is needed to help ensure that the refuge continues to conserve bison and

other wildlife, as well as native bunchgrass prairie and other habitats, and cultural resources, and to provide appropriate public uses and access in the face of continually changing conditions.

The CCP and EIS identify the role the refuge will play in support of the mission of the Refuge System and provide long-term guidance for management of refuge programs and activities.

The CCP seeks:

- to communicate with the public and other partners in efforts to carry out the mission of the Refuge System
- to provide a clear statement of direction for management of the refuge
- to provide neighbors, visitors, and government officials with an understanding of the Service's management actions on and around the refuge
- to ensure that the Service's management actions are consistent with the mandates of the Improvement Act
- to ensure that management of the refuge considers other federal, Tribal, state, and local government plans, as appropriate
- to provide a basis for prioritizing allocation of funding and staffing levels across NBR programs (e.g. visitor services, law enforcement, management, biology)
- to recognize and address, as appropriate, NBR's location within the Flathead Indian Reservation and address the refuge's importance to the Tribes and the communities within the Mission Valley of Montana

The final CCP will detail strategic management direction for the refuge for 15 years, by:

1. Stating clearly the desired future conditions for refuge habitat, wildlife, visitor services, staffing, and facilities through presentation of goals, objectives, and strategies.
2. Explaining concisely to Tribal, federal, state, and local agencies, refuge neighbors, visitors, partners, and other stakeholders the reasons for management actions.
3. Ensuring that refuge management conforms to the policies and goals of the Refuge System and legal mandates.
4. Ensuring that present and future public uses on refuge lands are appropriate and compatible.
5. Providing long-term continuity and consistency in management direction.
6. Justifying budget requests for staffing, operations, and maintenance funds.

The CCP will serve as an important means of conveying the vision and priorities for the NBR to our partners, local communities, and interested and affected individuals to encourage successful integration of Service priorities with partner priorities. Our hope is that creative and diverse coalitions will stimulate and maintain the vital momentum necessary to meet the conservation challenges and continually explore new and mutual conservation opportunities throughout the northwest Montana landscape.

The Service is committed to sustaining the Nation's fish and wildlife resources together through the combined efforts of governments, businesses, and private citizens.

1.2 The U.S. Fish and Wildlife Service and the National Wildlife Refuge System

We are the principal federal agency responsible for fish, wildlife, and plant conservation. The Refuge System is one of our major programs.

The U.S. Fish and Wildlife Service and its Mission

"Our mission is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."

The Service was established in the Department of the Interior (DOI) in 1940 through the consolidation of bureaus then operating in several Federal departments. The primary precursor agency was the Bureau of Biological Survey in the U.S. Department of Agriculture (USDA). Today, we enforce Federal wildlife laws, manage migratory bird populations, restore nationally significant fisheries, conserve and restore vital wildlife habitat, protect and support recovery of endangered species, and help other agencies and governments with conservation efforts. In addition, we administer the distribution of over one billion dollars of excise taxes paid by the hunting, boating, and angling industries. These funds are distributed to states for fish and wildlife restoration, boating access, hunter education, and related programs.

The National Wildlife Refuge System (NWRS)

The Service's Refuge System is an unparalleled network of public lands and waters dedicated to the conservation of native wildlife and their habitats. With 567 refuges and 38 wetland management districts covering more than 150 million acres, plus more than 418 million acres of marine national monuments, it is unrivaled as a conservation tool the world over. Refuges also are critical to the local communities that surround them, serving as centers for recreation, economic growth, and landscape health and resiliency. Each state and U.S. (United States) territory has at least one national wildlife refuge, and there is a refuge within an hour's drive of most major cities.

The Refuge System was established in 1903, when President Theodore Roosevelt protected an island with nesting pelicans, herons, ibis, and roseate spoonbills in Florida's Indian River from feather collectors decimating their colonies. He established Pelican Island as the nation's first bird sanctuary and went on to establish many other sanctuaries for wildlife during his tenure. This

small network of sanctuaries continued to expand, later becoming the Refuge System. In contrast to other public lands, which are managed for multiple uses, refuges are specifically managed for fish and wildlife conservation.

Goals of the National Wildlife Refuge System

The mission of the Refuge System, established by the Improvement Act, is:

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

The goals of the Refuge System, as established by the Refuge System Mission, Goals, and Purposes Policy (601 FW 1), are to:

- Conserve a diversity of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered
- Develop and maintain a network of habitats for migratory birds, anadromous and inter-jurisdictional fish, and marine mammal populations that is strategically distributed and carefully managed to meet important life history needs of these species across their ranges
- Conserve those ecosystems, plant communities, wetlands of national or international significance, and landscapes and seascapes that are unique, rare, declining, or underrepresented in existing protection efforts
- Provide and enhance opportunities to participate in compatible wildlife-dependent recreation (hunting, fishing, wildlife observation and photography, and environmental education and interpretation)
- Foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats

Guiding Principles of the National Wildlife Refuge System

There are four guiding principles for management and public use of the Refuge System established by Executive Order 12996 (1996):

- Habitat—Fish and wildlife will not prosper without quality habitat, and without fish and wildlife, traditional uses of refuges cannot be sustained. The Refuge System will continue to conserve and enhance the quality and diversity of fish and wildlife habitat within refuges
- Partnerships—America's sportsmen and women were the first partners who insisted on protecting valuable wildlife habitat within wildlife refuges. Conservation partnerships with other federal agencies, state agencies, Tribes, organizations, industry, and the public can make significant contributions to the growth and management of the Refuge System
- Public Use—The Refuge System provides important opportunities for compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation
- Public Involvement—The public should be given a full and open opportunity to participate in decisions about acquisition and management of national wildlife refuges

Conserving the Future

In 1999, we developed a vision for the Refuge System. A report titled "Fulfilling the Promise—The National Wildlife Refuge System" (USFWS 1999) was the culmination of a year-long process by teams of Service employees to evaluate the Refuge System nationwide. It was the focus of the first National Refuge System conference (in 1998), which was attended by the managers of Refuge System units, other Service employees, and representatives from leading conservation organizations. The report contains 42 recommendations bundled with 3 vision statements dealing with wildlife and habitat, people, and leadership. The outcome of that effort continues to influence CCP planning both nationally and locally.

In 2010, we began updating our earlier vision for the Refuge System in a report titled "Conserving the Future—Wildlife Refuges and the Next Generation" to chart a course for the Refuge System's next 10 years (USFWS 2011a). The new vision recognizes many new challenges in landscape conservation efforts, including a rapidly changing landscape and a constricted federal budget. Moreover, less undeveloped land is available, more invasive species are spreading, and it appears that we are experiencing the effects of a possible change in climate. In the face of these and other challenges, we believe we can most effectively pursue conservation objectives through continued partnering with Federal, State, and local agencies; Tribes; nongovernmental organizations; friends groups; and volunteers. As we have done in the past, we will strive to be a vital part of local communities as we work to conserve wildlife and habitats (USFWS 2011a).

We believe that the wildlife and habitat management and conservation actions outlined in this final CCP and EIS reflect our commitment to the American people to support the Refuge System's landscape conservation efforts.

1.3 Legal and Policy Guidance

Refuge System units are managed to achieve the purposes for which the unit was established (as described in establishing legislation, Executive Orders, or other establishing documents), as

well as to achieve the mission and goals of the Refuge System. Key concepts and guidance for the Refuge System are set forth in the National Wildlife Refuge System Administration Act of 1966 (Administration Act), as amended by the National Wildlife Refuge Improvement Act (Improvement Act) (16 U.S.C. 668dd et seq.) and further detailed in Title 50 of the Code of Federal Regulations (CFR) and the "Fish and Wildlife Service Manual" (https://www.fws.gov/policy/manuals/). The main sources of legal and policy guidance for the CCP and EIS are described below. Additional laws and policies guiding the CCP and EIS are listed in Appendix C—Key Legislation and Policies.

National Wildlife Refuge System Improvement Act of 1997 (Improvement Act)

Statutory authority for Service management and associated habitat management planning on units of the Refuge System is derived from the Administration Act, which was significantly amended by the Improvement Act. The Improvement Act provides clear standards for management, use, planning, and growth of the Refuge System.

The Administration Act, as amended by the Improvement Act, clearly establishes wildlife conservation as the core Refuge System mission. Refuges are managed for fish, wildlife, plants, and their habitats. The Improvement Act also recognizes that wildlife-dependent recreational uses, including hunting, fishing, wildlife observation and photography, and environmental education and interpretation, are legitimate and appropriate public uses when determined to be compatible with the mission of the Refuge System and purposes of the specific unit of the Refuge System.

Compatibility Policy

Lands within the Refuge System are different from other multiple-use public lands in that they are closed to all public uses unless specifically and legally opened. The Improvement Act states ". . . the Secretary shall not initiate or permit a new use of a refuge or expand, renew, or extend an existing use of a [refuge], unless the Secretary has determined that the use is a compatible use and that the use is not inconsistent with public safety." In accordance with the Improvement Act, the Service has adopted a Compatibility Policy (603 FW 2) that includes guidelines for determining if a use proposed on an NWR is compatible with the purposes for which the refuge was established. A summary of the compatibility determinations prepared in association with this CCP/EIS are provided in Appendix D.

Biological Integrity, Diversity, and Environmental Health Policy

Central to the Improvement Act is the requirement that the biological integrity, diversity, and environmental health of the Refuge System be maintained for the benefit of present and future generations of Americans. In 2001, we published a policy (601 FW3) that directs a refuge manager to consider the broad spectrum of fish, wildlife, and habitat resources found on the refuge and associated ecosystems in achieving the refuge purpose and NWRS mission. The policy defines the terms "biological integrity," "diversity," and "environmental health," and provides direction for secondary economic uses like farming, haying, livestock grazing and other extractive activities. These are permissible habitat management practices only when prescribed in plans to meet wildlife or habitat management objectives and only when more natural methods, such as fire or grazing by native herbivores, cannot meet the purposes and goals of the unit of the Refuge System. As stated above, a compatibility determination is required for these uses.

Native American Policy

Over the last 30 years, the Department of the Interior (DOI) and the United States (US) Fish and Wildlife Service (Service), have been tasked to collaborate with American Indian Tribes in the management of natural resource issues through consultation, part of the Trust responsibility of the federal government.

The US government and Tribes have a complex and conflict-filled history. Past and present administrations have tried to improve these relationships and address historical policies that have not lived up to the federal Trust responsibility, as evidenced by the many Executive Orders (EOs), Memoranda of Understanding (MOUs), and policies. The mission of the Service is "working with others, to conserve and protect wildlife and their habitats". As a result of this mission and the responsibility for trust resources, the Service is frequently required to consult with Tribes, yielding mixed results in the past. To approach this issue, the Service aims to create a foundation for Tribes and federal agencies to come together and begin meaningful conversations and actions that would lead to long-term relationships that improve trust. The first step is recognizing the value Native practices and cultural traditions bring to the table and acknowledging that the way in which the Service has conducted business in the past does not necessarily reflect the priorities and practices of the Tribes. For this foundation to be as solid as possible, a holistic approach is needed that seeks to understand the best way forward for all involved.

The Service's Native American policy (510 FW 1) provides a framework for government-to-government relationships and furthers the United

States' and the Department of the Interior's trust responsibility to federally recognized Tribes. The policy established a consistent framework nationwide, yet remains flexible, to reflect regional and local variations in history, knowledge systems, applicable laws, treaties, and Service-Tribal relationships. As stated in the policy, the Service supports the rights of Tribal governments as they exercise their sovereign authorities to manage, co-manage, or collaboratively manage fish and wildlife resources. We also support co-management where there is a legal basis for such. In addition to the Service's policy, the following Executive Orders, Secretarial Orders and Memorandum also apply:

- EO 13175: Consultation and Coordination with Indian Native Governments (2000);
- White House Memorandum on Government-to-Government Relationships with Native Governments (2004);
- EO 13592: Improving American Indian and Alaska Native Educational Opportunities and Strengthening Native Colleges and Universities (2011);
- Secretarial Order 3206: American Indian Native Rights, Federal-Native Trust Responsibilities, and the Endangered Species Act (USFWS, 1997)
- Secretarial Order No. 3317 - DOI Policy: Department of the Interior Policy on Consultation with Indian Tribes (2011);
- Secretarial Order No. 3335 - Reaffirmation of the Federal Trust Responsibility to Federally Recognized Indian Tribes and Individual Indian Beneficiaries (2014).

In developing this CCP, the Service has worked with the CSKT to identify ongoing, and future, opportunities for collaboration consistent with this policy. These opportunities include proactively soliciting, and incorporating into our management, information on traditional ecological knowledge from CSKT and other Tribes, as well as collaborating on developing relevant educational and interpretive materials, including exhibits, interpretive panels, and programs.

If CSKT requests negotiations for a funding agreement under the authority of the Indian Self-Determination and Education Assistance Act, as amended, such negotiations will occur as a separate process from this CCP, along with the steps needed to comply with the National Environmental Policy Act. The CSKT has not requested such an agreement.

National Environmental Policy Act of 1969 (NEPA)

NEPA (42 USC Secs. 4321 et seq.) requires that federal agencies prepare an EIS for major federal actions that significantly affect the quality of the human environment. This EIS has been prepared consistent with the requirements of NEPA, the Council on Environmental Quality (CEQ) NEPA regulations (40 Code of Federal Regulations [CFR] Secs. 1500 et seq.), and the U.S. Department of Interior's (DOI's) NEPA procedures (Department Manual, Part 516).

The Service is the NEPA lead agency responsible for the preparation of this final EIS, and we prepared it concurrently with this final CCP and with the assistance of a third-party contractor, Marstel-Day LLC (Marstel-Day) in accordance with 43 CFR 46.105. The Service served as lead agency and independently reviewed, modified, and approved the contractor's work. Our cooperating agencies; the Confederated Salish and Kootenai Tribes; Bureau of Indian Affairs; Montana Fish, Wildlife and Parks; Lake and Sanders Counties also helped prepare and review this document.

1.4 History of Refuge Establishment, Acquisition and Management

NBR is an 18,800 acre refuge situated within the Flathead Indian Reservation, Lake and Sanders Counties, about 40 miles north of Missoula, Montana (Figure 1.2). NBR is located in the Mission Valley of northwest Montana with views of the Mission Mountains and Flathead Lake, the largest natural freshwater lake west of the Mississippi River.

The refuge history is closely tied to the history and survival of the plains bison and to the Native American Tribes of western Montana. The lands included in the Flathead Indian Reservation today are home to three tribes, the Séliš (pronounced SEH-leesh, known in English as Salish or "Flathead"), the Q̓ispé (pronounced Kah-lee-SPEH, known in English as Kalispel or Pend d'Oreille) and the Ksanka (pronounced KSAHN-ka, known in English as Kootenai). The territories of the three tribes originally covered all of western Montana and extended into parts of Idaho, British Columbia and Wyoming. The Séliš, the Q̓ispé and Ksanka practiced a cyclical way of life based on the harvest of seasonal resources and spiritual traditions that respected the natural environment. Those tribal ways of life continue to this day. But over the past several centuries, the tribal world of western Montana has been radically altered by a series of transformations relating to non-Indian incursions into their traditional-use area (CSKT 2000). During the 1870's, due to the dwindling bison population resulting from their mass slaughter, a Qlispe Tribal member named Łatatí (Little Falcon Robe) first brought several bison calves over the Continental Divide to the Flathead Indian Reservation to establish a bison herd as a conservation measure.

In the early 1900s, it was clear to scientists and the American public that the plains bison was quickly heading for extinction if dramatic measures were not undertaken to save the species. The National Bison Range was established through cooperation between the American Bison Society and the U.S. Government. President Theodore

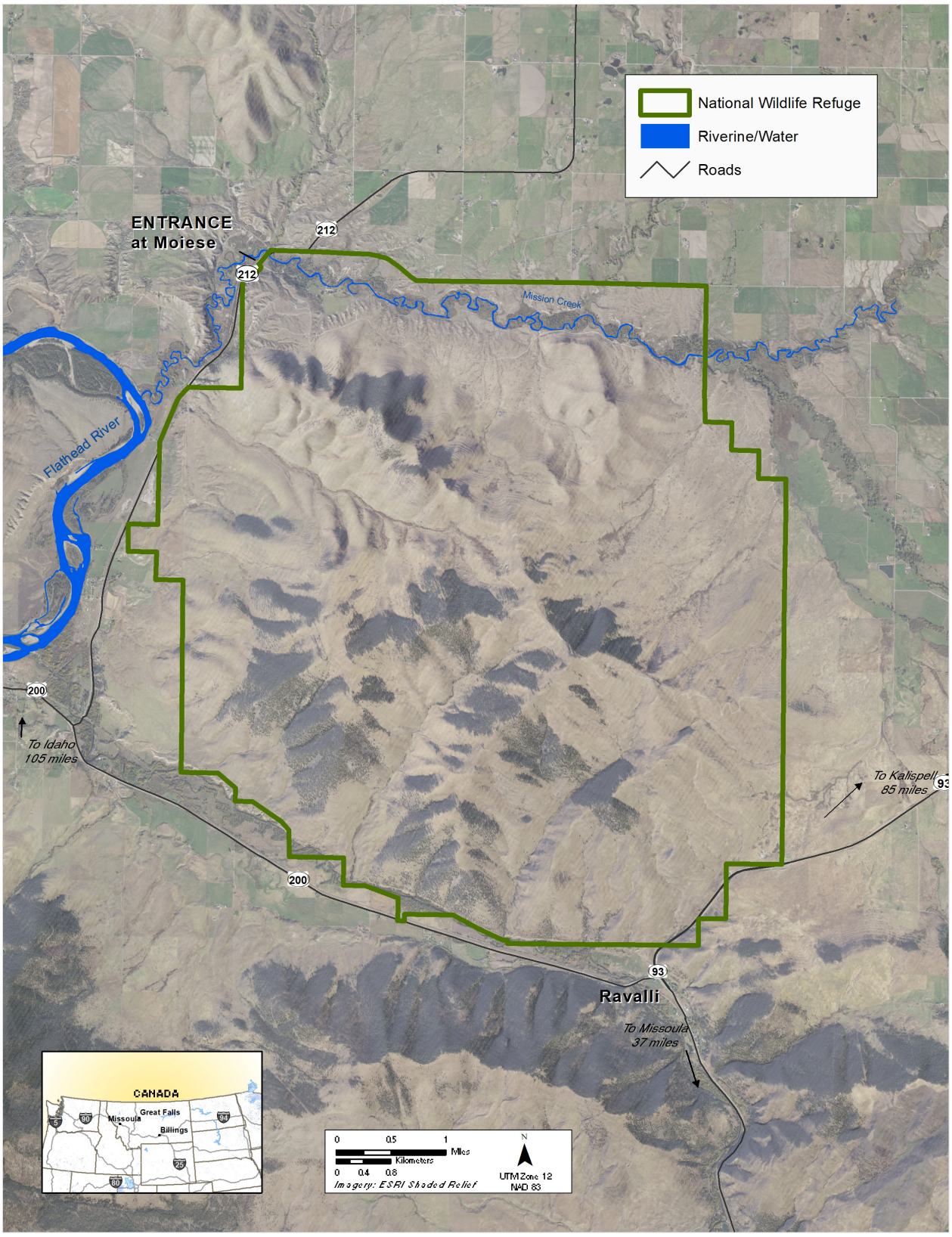

Figure 1.2. Map of the National Bison Range.

Roosevelt established the NBR on May 23, 1908 when he signed legislation authorizing funds to purchase suitable land "For a permanent National Bison Range for the herd of bison to be presented by the American Bison Society". This act, and a subsequent one passed in March of 1909, provided funds for securing the lands within the Flathead Indian Reservation from the "Confederated Tribes of the Flathead, Kootenai and Pend d'Oreille," and "to enclose said lands with a good and substantial fence." Although this was the first time Congress appropriated tax dollars to buy land specifically to conserve wildlife, the land acquired for the National Bison Range on the Flathead Indian Reservation was expropriated from allotted and unallotted Indian trust lands (Confederated Salish and Kootenai Tribes of the Flathead Reservation, Montana v. United States, 437 F.2d 458; 193 Ct.Cl. 801 (1971)).

The bison that were eventually placed on the NBR were purchased by the American Bison Society, under the direction of William Hornaday, with over $10,000 in public donations from across the country. The nucleus of the NBR herd was purchased from the estate of C.E. Conrad of Kalispell. The Conrad herd originated with the purchase of bison from the Pablo-Allard herd on the Flathead Reservation, which was the prodigy of the buffalo calves captured by Łatatí (Little Falcon Robe).

In a 1910 letter to William Hornaday, the Secretary of Agriculture, James Wilson, conveyed his desire for the NBR to become "not only a reservation for buffalo, but a great game preserve…." He further acknowledged that representation of Montana and northern Rocky Mountain big game species "should find conditions suited to their needs here and it is hoped that they may increase to a point which will make it possible to furnish stock for distribution to other reservations...." Thereafter, from 1910 to 1922, white-tailed deer, mule deer, pronghorn, bighorn sheep and elk were moved to the NBR, both to further the purpose of presenting bison in a natural setting and to provide a source for establishing or augmenting populations across the West.

By the mid-1920s, populations of bison and other ungulates multiplied and, lacking control or active management, quickly exceeded the refuge's carrying capacity. The refuge's range condition deteriorated and managers initiated practices for spring feeding and removal of excess animals until populations were gradually brought back within carrying capacity. A system of cross fences, to allow rotational grazing, was started in the 1950s. A market for live bison began to grow in the 1960s as more private ranchers became interested in raising bison. After live sales became possible, these sales or live donations have been the only population control method used for bison at the refuge. Today the bison herd is maintained at approximately 300 animals and continues to contribute to the preservation of the species by managing for genetic diversity using the best available science. Although over 500,000 bison now exist in North America, less than 5 percent are managed for conservation. Excess animals are offered to establish or augment other populations according to the Service's bison donations transfer protocol (Appendix E).

In 1921, the Bison Range was also designated by Executive Order (3596) as "a Refuge and breeding ground for birds," and today over 200 species inhabit the refuge. Despite decades of protection, the NBR is not immune to effects of habitat degradation on native bird species, and furthermore, we are uncertain as to how allocate limited resources to ensure that a fully-executable bird monitoring program is focused, stable, long-term, and reduces uncertainty associated with NBR management actions. In 2013, the NBR partnered with the University of Montana's Avian Science Center to assist with addressing these issues and developing a program that is both robust and resilient despite constraints. The NBR will use an on-line, citizen science bird monitoring platform (eBird.org) for continued surveillance of occurrence using volunteers and the public to monitor population trends and inform management.

Public use has also grown over the years. In 1936, refuge staff began conducting tours over Red Sleep Mountain upon request until 1941 when staff could no longer keep up with demand. In 1958, Congress allocated funds for the development of an area on the NBR for the display of bison in their natural habitat at a location readily available to the public. In 1966, improvements to the Red Sleep Mountain road were completed, and it opened to visitor traffic. This one-way scenic drive continues to be a popular wildlife-viewing opportunity. In 1981, a new and expanded Visitor Center was built and education and interpretive programs were developed. Other visitor use opportunities include a day use area, first developed in 1936 by a Civilian Conservation Corps group. This area includes a nature pond and interpretive trails and is used by the public as a day use area as well as by school groups for aquatic and wetland studies. Fishing access was first opened on the refuge in 1966, and later expanded in 1982. Overall visitation to the refuge has increased from an estimated 5,000 visitors in the early years to around 100,000 in the 1980s to an estimated 180,000 annual visitors today.

Relax and take a deep breath while you step back in time to reflect on what was, what is, and what is yet to come. Immerse yourself in the inter-montane valleys of northwestern Montana shaped by glacial forces and steeped in rich cultural history. This is a special landscape important to people age after age, where we pay tribute to the persons and peoples who set aside the lands, conserved the wildlife and plants, and were stewards of various components that make up the complex. Visitors from all over the world travel to the Complex, which seeks to provide an opportunity to learn and experience varied habitats, abundant wildlife, and the natural beauty of these lands. The units of the Complex safeguard these values and preserve connectivity across the landscape, forming continuity through time for future generations to treasure. Each unit is unique, and collectively they have contributed, and will continue to contribute, to the Complex and the Refuge System. Partners foster cultural and natural resources conservation where the cultural history is expressed across the landscape. Unique opportunities to work with partners benefit many of the units within the Flathead Indian Reservation and other units located within traditional homelands of the Séliš, Q̓ispé and Ksanka Tribes.

1.5 Refuge Purposes

Every national wildlife refuge has a purpose for which it was established. This purpose is the foundation on which to build all refuge programs—from biology and public use to maintenance and facilities. The refuge purposes are found in the legislative acts or Executive actions that provide the authorities to either transfer or acquire a piece of land. Over time, an individual refuge may contain lands that have been acquired under various transfer and acquisition authorities, giving the unit more than one purpose. The goals, objectives, and strategies in the CCP are intended to support the individual purposes for which the refuge was established.

NBR was established by Public Law 60-136 on May 23, 1908 as "a permanent National Bison Range for the herd of bison to be presented by the American Bison Society."

Executive Order 3596 (Dec. 22, 1921) also reserved the National Bison Range "as a refuge and breeding ground for birds."

In addition, Public law 85-622 (August 12, 1958) allocated funds "To provide adequate pasture for the display of bison in their natural habitat at a location readily available to the public."

1.6 Refuge Vision Statement

We developed a vision for the Complex at the beginning of the planning process. The vision describes the focus of refuge complex management and portrays a picture of the refuge complex in 15 years. As a unit of the Complex, the vision statement above sets the context for the future for the NBR.

1.7 Refuge Management Direction: Goals

We also developed eight goals for the Compex based on the Improvement Act, the purposes of the units, and information developed during planning. As a unit of the Complex, the goals focus work towards achieving the Complex vision and purposes of the National Bison Range and outline approaches for managing refuge resources. All efforts to achieve refuge goals would be in accordance with refuge management policies and guidelines as described in this chapter and Appendix C.

Habitat Management

Conserve, restore, and promote biological integrity in functional and sustainable ecologically diverse habitats of the inter-montane ecosystem of western Montana.

Wildlife Management

Protect, maintain, and restore healthy and diverse wildlife populations with respect to species that are endemic, migratory, and mandated species of concern.

Research and Science

Encourage high-quality research and promote the use of scientifically sound management decisions.

Monitoring and Adaptive Management

Through the life of this plan, we will monitor and evaluate the consequences of our actions and use adaptive management to reach desired outcomes.

Cultural Resources

Preserve and value the cultural resources and history of the National Bison Range Complex (NBRC) to connect staff, visitors, and community to the area's past and continuing traditions.

Public Use

Provide compatible, wildlife-dependent recreational opportunities, for persons of all abilities, to learn, enjoy, and appreciate the inter-montane landscape of western Montana, the fish and wildlife and plants.

Partnerships and Collaboration

Maintain and cultivate partnerships that help achieve the vision and supporting goals and objectives of the NBRC to support wildlife and habitat conservation, encourage research, foster awareness and appreciation of natural and cultural resources of the inter-montane ecosystem of western Montana, and provide education along with all necessary infrastructure.

Recognizing its importance, we will collaborate with the CSKT and other Tribal governments in a manner consistent with the Service's Native American policy and with other federal, state, and local government entities in a manner consistent with applicable Service policies.

Administration and Operations

Effectively use funding, staff, partnerships, volunteers, and equipment to restore and manage Complex habitats, conduct programs, and improve and maintain all necessary infrastructure to the benefit of the Complex and the Refuge System.

Marstel-Day LLC

National Bison Range Planning Team during CCP and EIS workshop

1.8 Step-Down Management Plans

The CCP is a broad umbrella plan that provides general concepts and specific objectives for habitat, wildlife, public use, cultural resources, partnerships, and operations over the next 15 years. To provide support to the CCP, stepdown management plans will also be created. The purpose of the stepdown management plans is to provide details to Service staff for carrying out specific actions and strategies authorized by the CCP. Step-down management plans will be developed following the planning process guidance in 602 FW 1, FW 3 and FW 4. Table 1.1 lists the stepdown plans needed for the refuge, their status, and next revision date.

Table 1.1. Step-down Management Plans for the National Bison Range

Plan	Plan Completed (Year Approved)	New or Revised Plan (Anticipated Completion Year)
Fenced Animal Management Plan	1990	see HMP
Disease Contingency Plan	--	2019
Fire Management Plan	2010	2020
Habitat Management Plan (HMP)	1981	2022
Forest Management Plan	2002	See HMP
Inventory and Monitoring Plan	--	2023
Integrated Pest Management Plan	--	2021
Predator Control Plan	1985	2021
Refuge Safety Plan	2017	2019
Visitor Services Plan	---	2020

1.9 Description of Planning Process and Public Involvement

The planning process is based on the Refuge System planning policy, which was issued in 2000 (602 FW1). The resulting requirements and guidance for refuge plans, including CCPs and stepdown management plans, make sure that planning efforts comply with the Improvement Act. The planning policy sets out the steps of the CCP and environmental analysis process (Figure 1.3).

Planning for the NBR began in May 2017 with a Notice of Intent (NOI) published in the Federal Register (82 FR Doc. 2017-10110). This NOI was a revision to an earlier NOI published in January 2017 (82 FR 2017-00808).

A core team of Service staff from the NBRC and the Mountain-Prairie Region was established and cooperating agencies were invited to join the process. The CSKT; Montana Fish, Wildlife and Parks; Lake and Sanders Counties; and the Bureau of Indian Affairs (BIA) accepted our invitation. The Service also engaged the services of consultants to assist with development of the CCP and EIS as well as provide writing and editing support. Appendix A lists the core team members, cooperating agency members, contributors, and consultants for this planning process.

The core team and cooperating agencies form the overall Planning Team. The Planning Team was engaged in every step of the planning process including four workshops (vision and goals, alternatives, objectives and environmental consequences). The consultants provided substantial support in developing and writing the draft and final CCP and EIS, analyzing the environmental consequences, and facilitating Planning Team meetings.

An important consideration in the development of this plan—including the vision, goals, objectives, and strategies—is the opinions, perspectives, and values of all interested citizens, agencies, and organized groups. The Service has consulted with Native American Tribes and actively involved federal and state agencies, local governments, organizations, and private citizens throughout the process.

Public scoping began with the notice of intent published in January 2017 and continued after the second notice of intent was published in May 2017. We conducted four public meetings during scoping and four public meetings during the development of the alternatives. We have also updated the public on the progress of the planning effort by mailing two planning updates and sending 2 electronic newsletters via e-mail to everyone who requested to be on our mailing list and posting information on the NBR CCP Planning website (https://www.fws.gov/mountain-prairie/refuges/nbrc.php).

Appendix B describes the planning process in more detail.

The draft CCP and EIS was released to the public for a 45-day public review and comment period on April 5, 2019 following publication of a notice of availability in the Federal Register [84 FR 13662]. A planning update (Issue 3, April 2019) was also mailed to everyone on the project mailing list. The public comment period and public involvement opportunities were announced via the NBR planning website, social media venues, advertisements in four local newspapers, a press release to local media, and direct outreach to key stakeholders and partners. We held three public meetings on the draft CCP and EIS in Missoula (April 30), Polson (May 1), and at the refuge headquarters (May 2). The comment period closed on May 20, 2019. Refer to the responses to comments section of this final CCP and EIS for more information on the comments we received (Appendix H).

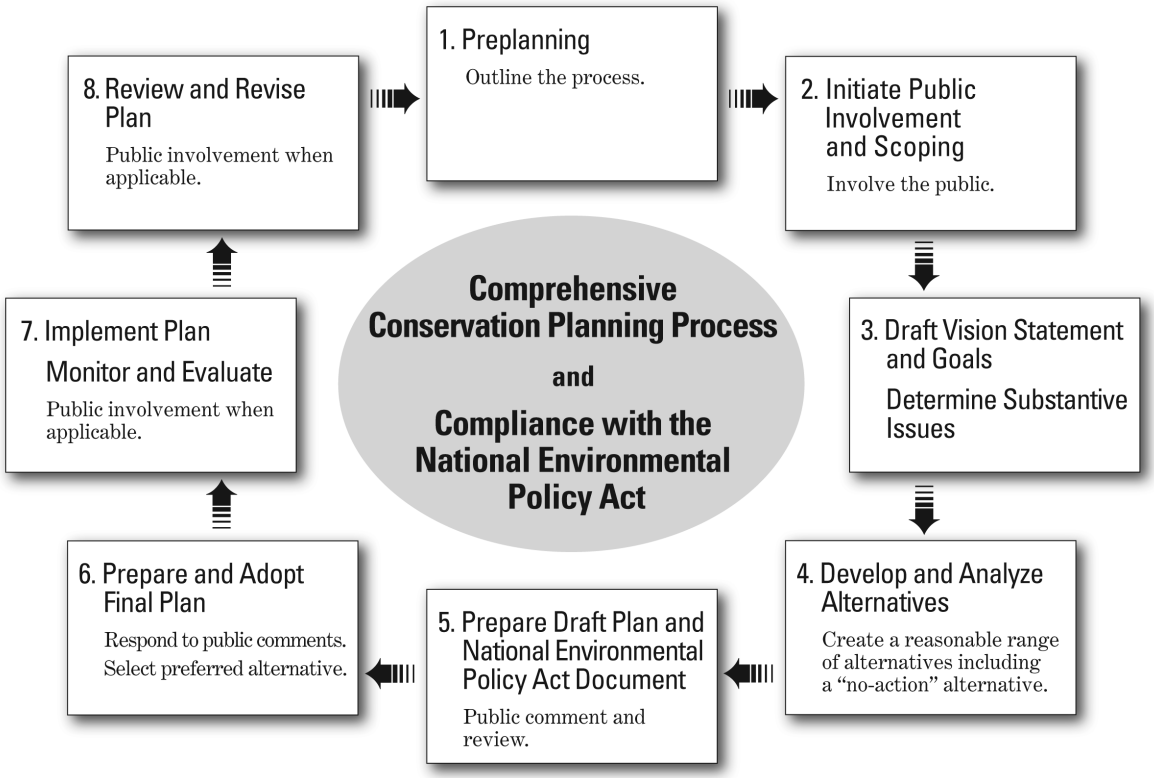

Figure 1.3. Steps of the CCP and Environmental Analysis Process

Table 1.2. Planning Process Summary for the CCP and EIS for the National Bison Range, Montana

Date	Planning Activity	Outcome
January 18, 2017	Initial Notice of Intent published in the Federal Register	Notice of intent to develop a CCP and EIS for the refuge and a request for comments published in the Federal Register (scoping comments accepted until February 17, 2017).
May 18, 2017	Revised Notice of Intent published in the Federal Register	Notice of intent to develop a CCP and EIS for the refuge and a request for comments published in the Federal Register (scoping comments accepted until June 19, 2017 then extended to September 30, 2017).
June 6-7, 2017	Public scoping meetings	Information presented about the CCP development with question and answer and comment session.
August 29, 2017	Planning Team kickoff	Initial meeting with refuge staff and the planning team.
August 30, 2017	Public scoping meetings	Information presented about the CCP development with question and answer and comment session.
October - November 2017	Scoping report	Documentation of public comments from the comment period and identification of significant issues. Scoping comments posted to CCP web page.
November 7, 2017	Vision and Goals workshop	Development of draft vision and goals with planning team. Review of refuge purpose and significant issues identified in scoping report.
March 7-9, 2018	Alternatives workshop	Development of alternative concepts with planning team.
April 26, 2018	Planning Update 1	Summary of draft vision, goals and five alternatives. Schedule for public meetings. Distribution to the mailing list and posting to the CCP web page. Public comments accepted until May 25, 2018.
May 8-11, 2018	Public meetings for draft alternatives	Four public meetings held to receive input on draft alternatives.
June 14,15,21,22, 2018	Revise alternatives; Workshop for objectives and strategies	Review public comments on draft vision, goals and alternatives with the planning team. Revised alternatives for refuge. Developed objectives and strategies for each alternative.
July 5, 2018	Planning Update 2	Summary of public comments on draft vision, goals and alternatives. Comments posted to web page. Public notified of schedule change for the CCP/EIS. Update e-mailed and posted on web page.
August 8-10, 2018	Impacts analysis workshop	Planning team met to review and revise the environmental consequences of each draft alternative.
May – November 2018	Draft CCP and EIS	Development of draft CCP and EIS
April 5, 2019	Publication of draft CCP and EIS, planning update 3	Public review and comment period began.
April 30, May 1,2, 2019	Public meetings	Public meetings held on draft CCP and EIS

1.10 Significant Planning Issues to Address

The scoping process identified many qualities of the refuge along with issues and recommendations. Based on this information, as well as guidance from the Improvement Act, NEPA, and planning policy, the Service identified the following significant issues to address in the final CCP and EIS:

- Habitat Management
- Bison Management
- Wildlife Management
- Tribal Cooperation/Cultural Resources
- Visitor Services/Public Use
- Socioeconomics/Refuge Operations/Staffing
- Partnerships/Communication
- Monitoring and Research

Significant issues are those that are within our jurisdiction, that suggest different actions or alternatives, and that will influence our decision (see description of issues below).

The Planning Team considered every comment that was received during the public scoping process to develop the CCP. Comments provided by the public and other conservation agencies were summarized by issue and consolidated into related topics and subtopics and are provided in this section. The Planning Team used this list of issues to help us develop the vision, goals and three alternatives presented in this final CCP and EIS, as well as to choose one of these alternatives as the proposed action. Furthermore, during our analysis of environmental consequences, we sought to address how the management actions proposed under each of the alternatives would affect these and other issues identified internally.

Habitat Management

The refuge encompasses a variety of habitats, including grasslands, forests, riparian areas and wetlands. This final CCP and EIS addresses the following issues related to habitat management that were identified during the scoping process:

- Managing for healthy rangeland to support wildlife populations at sustainable levels
- Inventorying and assessing refuge habitats relative to historic conditions, determining feasibility of restoration and long-term sustainability
- Forest management, including encroachment of conifers into grasslands
- The use of fire in managing refuge habitats
- Likely impacts to be expected from the effects of climate change on habitat, species (fauna and flora), water, forage and wildfire
- Invasive species management, including identifying priorities and developing plans for early detection and rapid response for new or small invasions as well as an integrated pest management plan to control existing infestations and reduce their occurrence and spread
- Riparian management and restoration opportunities
- Impacts of public use on habitat condition

Bison Management

The NBR bison herd is part of a greater metapopulation and landscape conservation effort for plains bison to ensure long-term species conservation. The 2008 DOI Bison Conservation Initiative establishes a framework for bison conservation and value as wildlife. The current USFWS genetic and health monitoring program should be continued, in part or whole, based on the best available science, as part of the management plan for NBR. We received comments encouraging us to consider opportunities for bison to access areas that may be available adjacent to the NBR, as well as to critically look at and update the fenced animal management plan.

Wildlife Management

We received comments encouraging the Service to manage for an ecologically intact ecosystem based on healthy rangeland as a foundation for supporting herds of healthy bison and native ungulates species such as elk, deer, bighorn sheep, pronghorn, and other wide-roaming species. Important issues related to the management of these species include:

- ungulate population size targets and culling plans
- disease monitoring and management
- genetics
- predator control
- impacts of visitor activity

Commenters asked us to address the potential of the NBR to serve as habitat for transient species, such as grizzly bears, and its connectivity to other occupied and unoccupied areas. We were asked to consider impacts of the external and internal fences on the NBR on wildlife movement and habitat. Although the refuge does not directly manage other species of wildlife such as migratory birds, bats, bull trout, and other species of concern, the CCP considers how refuge management activities, such as habitat management, research and monitoring, impact these species.

Tribal Cooperation/Cultural Resources

The Service recognizes its responsibility to identify, protect, and consult with Tribes about important cultural resources consistent with Federal laws and policy mandates. The Service and Tribal governments also recognize the need for strong, healthy communication and relationships

so that we can work together to improve and enhance conservation of fish and wildlife resources and shared natural and cultural resource goals and objectives. An important aspect of this is to give full consideration of the benefits of the Tribes' traditional ecological and cultural knowledge and their special historical, geographic, and cultural relationships with bison and the refuge insofar as those deep connections can support the management of natural and cultural resources and the provision of unique public educational and interpretive services at the NBR.

Visitor Services/Public Use

Many comments we received were related to visitor services and public use of the refuge. The CCP provides an opportunity to examine and plan for such public use/access considerations as:

- desired visitor experiences
- fishing access
- wildlife watching and photography opportunities
- recreation facility availability and management
- recreation fee structures
- maintenance and replacement of visitor facilities (e.g. Visitor Center, roads, and entrances)
- installation and content of signage

Opportunities for environmental education and interpretation are important visitor services. The public suggested that we consider a wide range of topics for these activities from cultural programs to factors that comprise a healthy and functioning ecosystem. We received comments asking the Service to evaluate adequate staffing to support visitor services. We also consider what is compatible for all individual uses to maintain consistency with wildlife conservation goals.

Dave Fitzpatrick/USFWS

National Bison Range staff carrying out wildlife monitoring activities.

Socioeconomics/Refuge Operations/Staffing

Many commenters asked us to closely evaluate staffing levels to insure they are adequate for meeting the purposes of the refuge, as well as expected, desired, and potential needs looking forward. The refuge program in the Mountain-Prairie region developed a Realignment Strategy in 2016 to guide the future of refuges in the 8-state region. As part of that realignment process, a Staffing Framework has also been developed (USFWS 2017b). The final CCP and EIS has been developed to be consistent with this guidance. Operational costs and capital investments necessary to sustain long-term management of the refuge are also considered. This includes maintenance of refuge facilities including the boundary fence, Visitor Center, and employee housing.

Partnerships/Communication

NBR staff currently participate in several partnerships that we seek to maintain as well as explore new ones for the betterment of refuge resources as part of the final CCP and EIS. Bison management, wildlife surveys, invasive plant management, prescribed fire, research and visitor services are all areas where partnerships have been, and will continue to be, important. Current and future partners include the CSKT; Montana Fish, Wildlife and Parks; Lake and Sanders Counties; other federal, state and local government agencies; universities; non-governmental organizations; and members of the public.

Monitoring and Research

We received comments encouraging us to identify opportunities for research. These could include ecological conditions, diversity of plants and animals on the refuge, the role of carnivores in population and disease control, the role of wildfire and other disturbance regimes in grassland health and maintenance and diversity of habitat, presence and control of weeds and other invasive species, impacts of public use, and improvements to visitor use, among others. In addition to research, adaptive management and monitoring of topics including rangeland conditions, carrying capacity, and wildlife health was suggested. Surveys and monitoring of status and trends of nongame birds, amphibians, reptiles and other fish, wildlife, and plants was also recommended. Commenters suggested that the CCP should include a plan for research and partnering with the Tribes, universities, and other agencies both on and off the Reservation. We were also asked to consider a way to standardize refuge research requests and the decision-making process to grant special use permits.

1.11 Issues Not Addressed

The Service considered several issues that were identified by our staff, our cooperating agencies, and the public during scoping and alternatives development and did not select them for detailed analysis in this final CCP and EIS. Therefore, in accordance with NEPA requirements and CEQ guidance, the Service identified and eliminated from detailed study the topics or issues that are not significant or are out of the scope of this planning process. These issues and the Service's rationale for not selecting them for further analysis in this planning process are briefly described below. Section 2.7 of this document provides information and rationale on issues identified as being within the scope of the planning process, as well as an alternative suggested by the public, which were carefully considered but later eliminated from further analysis by the Planning Team.

Transfer of the National Bison Range to Tribes and Annual Funding Agreements

As stated in the Federal Register notice (May 18, 2017, 82 FR Doc. 2017-10110), due to the variety of information and perspectives the Service received from the public and a change in policy direction, a Congressional transfer of lands comprising the NBR to the CSKT of the Flathead Reservation, to be held in trust by the Secretary of the Interior for the benefit of the CSKT, is not evaluated in this document. The CSKT has not requested an annual funding agreement (AFA); however, the selected alternative in the final CCP/EIS for NBR could serve as the basis for negotiation about a potential future AFA.

Reintroduction of sharp-tailed grouse on the National Bison Range

Sharp-tailed grouse historically occurred in the grassland valleys of western Montana but are currently extirpated. Montana Fish, Wildlife and Parks (MTFWP), in cooperation with MPG ranch, CSKT, and USFWS worked together to assess suitability for sharp-tailed grouse reintroductions in western Montana. After conducting surveys on the NBR and surrounding lands for sharp-tailed grouse nesting cover and brood-rearing habitat, it was determined that NBR is not one of the highest ranking areas for reintroduction (Anderson and Farrar 2016). Currently, reintroduction efforts are focusing on the Blackfoot Valley as the highest priority (McNew et al 2017). Depending on the success of reintroduction efforts in other areas, and as new information is collected, sharp-tailed grouse reintroduction on the NBR may be reconsidered at some point in the future, but is not currently being pursued.

Chapter 2 Alternatives

Dave Fitzpatrick/USFWS

Visitors to the refuge wait for a bull elk to cross the road along the auto tour route

In this chapter, we describe the management alternatives that we propose for the NBR. Alternatives are different approaches to management that are designed to achieve the purposes for which the refuge was established, promote the vision and goals of the refuge, and further the mission of the Refuge System. We have formulated three alternatives to fulfill the purposes of the refuge while addressing the significant issues identified by the Service, cooperating agencies, interested groups, and the public during the public scoping period and throughout the development of the plan. Chapter 1 contains a summary of the significant issues identified by the NBR staff, as well as those raised by the public and our cooperating agencies in this final CCP and EIS.

2.1 Criteria for Alternatives Development

Following the scoping process in 2017, we held meetings and workshops with the cooperating agencies and identified a range of preliminary alternatives. After sharing these preliminary alternatives with the public, we considered additional suggestions from the public and revised the alternatives. Some of the preliminary alternatives were changed or combined with other alternatives. For a detailed discussion please see Appendix B. Suggestions for alternative approaches that were not carried forward in the analysis are discussed in Section 2.7. In concert with existing refuge plans, these alternatives examine different ways in which we can address significant issues and achieve the goals described in Chapter 1. The no-action alternative would continue the current refuge management strategies and may not meet every aspect of every goal. The no-action alternative provides a basis for comparison with action alternatives B and C. The action alternatives may vary with regard to how well they meet each of the goals.

2.2 Elements Common to All Alternatives

Regardless of the alternative selected, we will comply with all applicable laws, regulations, and policies for management activities that could affect refuge resources such as soil, water, air, threatened and endangered species, and archaeological and historical sites. A list of key legislation and policies that we adhere to are found in Appendix C. All the alternatives that we propose in this final CCP and EIS would adhere to the following guidelines:

- Bison capture operations are conducted across the NWRS in order to maintain population objectives. In 2018, refuge Chiefs from Regions 2, 3 and 6 instructed refuge managers to work towards donating 100 percent of the surplus bison on Refuge System lands to conservation partners, including other DOI units, states, Tribes or intertribal organizations according to the Service's bison donations transfer protocol (701 FW 8, Fenced Animal Management,

https://www.fws.gov/policy/701fw8.html, Appendix E). In cases where there is not enough interest in bison donations from bison conservation organizations, Tribes or intertribal organizations, refuge managers will use an open, competitive, public bid process for the remaining surplus bison.

- We will carry out all prescribed fire activities under an approved and current Prescribed Fire Plan that is written with guidance from the NBR Fire Management Plan.
- Collaboration with our partner agencies or organizations in order to share information (e.g. existing resource plans, new research, best management practices, etc.) will continue under all alternatives. Any established agreements with partner agencies or organizations will also continue.
- We will collaborate and cooperate with CSKT in ongoing, and future, projects consistent with the Service's Native American Policy. We will also proactively solicit, and incorporate into our management, information on traditional ecological knowledge from CSKT and other Tribes according to Service guidance (USFWS 2018a). We will collaborate with CSKT and other Tribes in developing relevant educational and interpretive materials, including exhibits, interpretive panels, and programs.
- Under all alternatives, the Service could enter into an annual funding agreement pursuant to the Indian Self-Determination and Education Assistance Act (Public Law 93-638). The funding agreement would address the specific functions that the CSKT would perform. The funding agreement would require the CSKT to operate the refuge according to the National Wildlife Refuge System Administration Act of 1966, as amended, and according to the CCP. If necessary, additional NEPA compliance will be addressed prior to the Service entering into any agreement. However, the environmental effects of CSKT operating the National Bison Range according to the CCP would be identical to the impacts of the Service performing those functions, and are addressed in this EIS.
- We will notify the public of refuge-specific regulations through use of conspicuously posted signs, printed brochures available at information kiosk and the Visitor Center, and the refuge website. We may also notify the public through other appropriate methods, which will give them constructive notice of the permitted or curtailed public access, use, or recreational activity (50 CFR 25.31).
- As needed for individual refuge projects, refuge staff will consult with the Mountain-Prairie Region cultural resources branch, the Montana State Historic Preservation Office (SHPO), the Tribal Historic Preservation Offices, the CSKT and other interested parties to protect and preserve cultural resources on the refuge. Federal laws and policies mandate the identification and evaluation of archaeological and historic sites and structures on federal lands. Specifically, Section 106 of the National Historic Preservation Act (NHPA) requires all Federal agencies to consider cultural resources before project implementation and specifies the process required to meet this goal. We would conduct cultural resource reviews for projects that disturb the ground or that could affect buildings or structures over 50 years of age. Under the NHPA, cultural resources are treated as eligible for the National Registry until they have been evaluated. We would avoid disturbing significant cultural resources. In addition, we would continue to conduct law enforcement patrols and monitor sensitive sites. Different cultural values are acknowledged, respected, and celebrated by the Refuge System. For any project that requires NHPA section 106 consultation, the NBR will also comply with CSKT Ordinance 95 as requested by the CSKT THPO by submitting a Cultural Clearance Request Form through the CSKT website http://www.csktribes.org/history-and-culture/ccrequestform.
- All research projects on the refuge would follow the USFWS Code of Scientific and Scholarly Conduct (Chapter 7 212 FW7).
- The recent Visitor Services Program guidance for refuges in the Mountain-Prairie Region will be used to develop the scope and scale of the NBR visitor services and outreach program under all of the alternatives (USFWS 2018b).
- The refuge program in the Mountain-Prairie region developed a Realignment Strategy in 2016 to guide the future of refuges in the 8-state region. As part of that realignment process, a Staffing Framework has also been developed (USFWS 2017b). These two documents are the culmination of more than 3 years of work on determining the most effective way to manage our system of lands across the Mountain-Prairie Region today and in the future. The details in the Staffing Framework are designed to align our workforce to meet three goals of the Realignment Strategy: our people, ecologically sustainable management, and a connected conservation community. Under the Realignment Strategy, the NBR will eventually become part of the new Western Montana Complex (WMTC). This new Complex will be formed by joining the existing NBRC (consisting of the National Bison Range, Lost Trail NWR, Ninepipe NWR, Pablo NWR and the Northwest Montana WMDs in Flathead and Lake Counties) the existing Benton Lake Complex (Benton Lake NWR, Swan River NWR, Benton Lake WMD) and Lee Metcalf NWR. In the new WMTC, there will be an estimated 22 full-time, permanent staff that will support both the station where they are located, and as appropriate, other stations in the Complex. The number and types of positions has recently been updated from the 14 positions in the original Staffing Framework. The job titles, functions, and duty stations are flexible and can

be adapted to meet the needs of the WMTC over time. All alternatives in this final CCP and EIS have been developed within the vision and goals of the Realignment Strategy.

- We will seek to protect visitors and employees from accidents and injuries by educating them about potential dangers and hazards that exist from working or visiting the NBR. We will give special attention to the dangers associated with bison and other wildlife (i.e. bears, wolves, poisonous snakes, etc.).

2.3 Alternative Descriptions

The Service, with input from our cooperating agencies and the public, have developed a range of alternatives to address the goals described in Chapter 1. Since each alternative is designed to address the goals described in Chapter 1, the description of each alternative is organized by goal:

- Habitat Management
- Wildlife Management
- Research and Science
- Monitoring and Adaptive Management
- Cultural Resources
- Public Use
- Partnerships and Collaboration
- Administration and Operations

A table summarizing each alternative is presented at the end of the chapter (Section 2.12).

The specific objectives, strategies and rationales, which provide more detail for each alternative, can be found in Appendix F.

2.4 Summary of Alternative A (No Action)

Under this alternative we would continue all the current management activities, and maintain funding, infrastructure, all current programs, and staffing at existing levels. The Service's NEPA handbook states that the no action alternative is where current conditions and trends are projected into the future (USFWS 2014). Because alternative A represents the current, unchanged refuge management, it may not meet every aspect of every goal. The no-action alternative provides a basis for comparison of the action alternatives B and C.

Habitat Management

Under this alternative, we would continue the practice of conducting a range condition survey approximately every 10-15 years, with the most recent being completed in 2005 and 2010 (CSKT 2005, Marlow et al 2014). The range condition survey would assess conditions and update forage allocations for large ungulate use of 14,000 acres of grasslands on the NBR. We would continue to maintain grasslands already in excellent condition, strive to moderately increase native composition of grasslands in good to fair condition and seek to contain invasive species in the poorest quality grasslands.

We are currently planning to complete an inventory of forest health and identify old growth ponderosa pine stands on NBR in partnership with CSKT as part of Reserve Treaty Rights Lands Initiative. After the inventory is completed, we plan to prioritize and treat 1,000 acres of forest to reduce Douglas fir densities to try to avert the risk of stand-replacing wildfire. Encroaching trees in grasslands would also be selectively removed.

We would continue to maintain 500 acres of existing riparian and wetland habitats. Invasive plant management, using a variety of tools, would continue to be prioritized in these habitats.

All refuge habitats would be managed using strategies including prescribed fire, mechanical treatments and grazing manipulation, as appropriate. We would focus invasive species management on small, satellite infestations and along vector pathways (riparian corridors, roads, parking lots) using early detection and rapid response (EDRR) and an integrated pest management approach (e.g. herbicide applications, prescribed fire, biocontrol agents and mechanical (pulling, cutting, etc.) treatments). Because riparian and wetland habitats are sensitive to invasion, challenging to treat, and frequently visited by all species of wildlife on the refuge, they would continue to be a high priority for treatment.

Wildlife Management

The NBR bison herd would continue to be managed to maintain and improve genetic diversity and integrity within the ecological carrying capacity of the refuge. We would continue to use science-supported management strategies to contribute to the national bison conservation goals within the Refuge System metapopulation. Bison capture operations would continue to be conducted as needed to manage the NBR population using low-stress handling techniques. Surplus bison would be managed according to Service-wide policy, prioritizing donations to conservation partners, including other DOI units, states, Tribes or intertribal organizations through a designated process (Appendix E). NBR's boundary fence, corral system, and water sources (i.e. springs, riparian, wetlands) would also continue to be maintained.

Populations of representative native ungulates, that are ecologically compatible with bison, would be maintained on NBR (currently approximately 130 elk, 200 mule deer, 175 white-tailed deer, 125 pronghorn, and 75 bighorn sheep), through active management and partner participation. We would regularly conduct disease surveillance on bison and other ungulates.

USFWS

Visitors to the refuge observe refuge staff activities during the annual bison capture operations

Research and Science

We would maintain current levels of support for self-sustaining long-term research. We would collect traditional ecological knowledge as part of any research or other scientific-information-gathering efforts.

Monitoring and Adaptive Management

We would continue to support existing monitoring projects, such as refuge bird populations, wildlife health, bison demographics and genetics, species of concern, and public use.

Cultural Resources

Cultural resources interpretation and education about Tribal citizens and early people's use of the lands within NBR's boundary would be provided at the Visitor Center. Access to specific NBR resources, or Tribal heritage sites used for cultural traditional values, would be allowed through a "special use permit" on a case-by-case basis.

Public Use

Fishing would continue to be allowed on three and three quarters (3.75) miles of the Mission Creek and one and one-half miles (1.5) of the Jocko River.

We would continue to provide opportunities for self-directed wildlife viewing and photography for at least 180,000 visitors per year. Similarly, we would continue to provide education and interpretation opportunities at the Visitor Center to a minimum of 30 percent of annual visitors. NBR programs encourage awareness of, and provide an opportunity to learn about, conservation and the mission of the Refuge System. Visitors are also provided the opportunity to learn about the unique history of bison conservation and the cultural and historical significance of the refuge.

We would continue to provide opportunities for appropriate and compatible non-wildlife dependent recreation. We would communicate to the public how the Service incorporates traditional ecological knowledge into NBR management practices and incorporates native languages into educational materials, signage, and outreach materials to the maximum extent possible.

Partnerships

We would maintain strong and effective working relationships with existing partners to achieve our habitat, wildlife, and visitor services goals. We would also continue to foster a constructive relationship with CSKT.

Administration and Operations

Currently, there are 7.5 permanent refuge staff (Table 2.2). We would continue to seek funding for seasonal, temporary, and youth positions. We would recruit volunteers, as needed, to support refuge activities related to administrative, public use, maintenance, and biological activities. We will continue to build staff capacity for understanding and interpreting local indigenous culture, history, and traditional ecological knowledge. Facilities and real property will be maintained in operational condition that meets Service standards and NBR goals. Road maintenance, including annual dust abatement and grading, will continue. The current Visitor Center is expected to be replaced starting in 2020, if funding becomes available.

For all objectives, strategies and rationales that further describe this Alternative, please see Appendix F.

2.5 Summary of Alternative B

This alternative emphasizes managing habitat and wildlife populations, as well as NBR infrastructure and operations, to provide quality, wildlife-dependent opportunities for the public.

All NBR programs would seek to foster public support and appreciation for the resources of Refuge System lands and waters. We would strive to maximize the quality of recreational opportunities by providing improved access, facilities, interpretive materials, and environmental education programs. We would also aim to enhance the quality of the public's experience by maintaining healthy wildlife populations and habitats that support activities such as wildlife observation, photography, interpretation, education, and fishing. Working with partners, through existing and new partnerships, is also a key component of this alternative.

Habitat Management

We would conduct a range condition survey,

similar to that in Alternative A, to assess forage availability for large, grazing native ungulates. In combination with a range survey, this alternative would also survey the public to identify areas important for a high-quality visitor experience. Identified areas would then be prioritized for grassland management, including preventing the spread of invasive plant species using integrated pest management. Under this alternative, we would also develop interpretive and educational materials to inform our visitors about invasive plant species issues and the treatment efforts implemented by NBR. Visitors would be encouraged to aid refuge staff in prevention and early detection efforts through vehicle wash stations, boot brushes at trailheads and new invader handouts.

Under this alternative, the forest assessment would include all of the information described under Alternative A, as well as determining which forest areas are most accessible to visitors and which forest wildlife species might be of greatest viewing interest to the public. Based on the assessment, we would seek to renovate 1,000 acres of forest, rather than simply treat forest stands, as described under Alternative A. We use the term *renovation* rather than *restoration* because restoration often suggests a complete return to historic conditions, which is unlikely to be feasible. Renovation is used in this context to indicate improvements in forest stand health and resiliency, but not necessarily complete return to an entirely "natural," self-sustaining, or historical condition.

Once a feasible renovation outcome has been defined, and the stands have been prioritized with consideration of public access and interest, we would use a variety of resource management tools to achieve desired future conditions. These management tools would include those described in Alternative A, as well as seeking to restore and sustain to the maximum extent possible, the original fire regime.

Over the next 15 years, we would work to reduce juniper density by 50 percent on 50 acres along Mission Creek to enhance opportunities for wildlife viewing and photography, and maintain or improve existing conditions on the remaining 450 acres of riparian and wetland habitat. There is concern that the Rocky Mountain juniper is expanding and negatively impacting overall plant and wildlife diversity. We would reduce juniper density through mechanical removal or use of prescribed fire in partnership with CSKT as part of Reserved Treaty Rights Lands Initiative (BIA 2015) or other future partnerships.

Wildlife Management

We would manage wildlife as described in Alternative A, plus we would manage bison and other native ungulates to increase the public's opportunities to observe and photograph them, as well as enjoy interpretation and environmental education opportunities. Under this alternative, we would investigate options for updating the corral system (e.g. cameras and/or audio systems, catwalks in areas post handling) to better accommodate public interest in bison management, while maintaining low-stress handling protocols. Engaging the public in research and monitoring efforts involving native ungulates on the refuge is another way to enhance the quality of their experience.

Research and Science

Same as A, plus we would seek new research projects that are pertinent to NBR resources and can be accomplished through public involvement. We would collect traditional ecological knowledge as part of any research or other scientific information gathering efforts. We would encourage development of school research projects that support management of NBR and would also work with partners to conduct a research project to better understand visitor use and impacts.

Monitoring and Adaptive Management

Same as A, plus we would strive to share monitoring results with the public more widely and emphasize monitoring projects using citizen science and volunteer engagement. In the next 5 years, we would develop a project to monitor visitor impacts on wildlife habitat and populations.

Cultural Resources

Same as A, plus we would enhance interpretation programs for cultural resources. In collaboration with CSKT (and other partners), we would also develop topic-specific cultural resources interpretation and education programs. We would issue and implement NBR-specific guidance on how special-use permits would be managed to improve efficiency.

Public Use

Fishing

In addition to Alternative A, the NBR would focus efforts to enhance the quality of the fishing experience. We would explore increased access along Mission Creek as well as increasing accessible opportunities and improve communication pertaining to fishing to further enhance the visitor experience.

Wildlife Observation and Photography

Under this alternative, we would consistently strive to increase visitor satisfaction of opportunities for wildlife viewing and photography by improving services to accommodate at least 180,000 visitors per year. We would complete a Visitor Service Plan and develop a visitor

satisfaction survey to obtain feedback on how well we are achieving the objective of increasing visitor satisfaction.

We would enhance communication programs and products, including regularly updating NBR's website and kiosk, with recent wildlife observations and photography opportunities. We would facilitate workshops and guided wildlife observation and photography tours through the use of staff and partner organizations, possibly in areas currently closed to the public.

We would explore opportunities to improve the 19 miles of wildlife drive auto tour routes, including the possibility of paving sections or the entire tour route, or expanding the season of public access on Red Sleep Mountain Drive. We would investigate the opportunity to increase trail miles and increase trail accessibility. We would also work with partners to develop year-round wildlife viewing areas (turn-offs) along US 93, Highway 200, or Highway 212. We would seek additional funding

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Wildlife observation and photography enthusiasts enjoy their pastime on the refuge.

to improve and enhance the wildlife observation and photography program, including analyzing opportunities to increase entrance fees.

Environmental Education and Interpretation

We would work with partners and volunteers to increase environmental education, interpretation, and outreach programming. This may include activities for specific grades or groups, teacher trainings, and tours in normally closed areas. New communication products would be developed on specialized topics, such as bison conservation, ungulates, native birds and their habitats, and integrating traditional ecological knowledge into refuge management.

Within 2 years, we would conduct a complete sign inventory and develop a work plan for a comprehensive replacement (as needed) and maintenance of refuge wayfinding, regulatory, and interpretive signage. We would incorporate native languages into educational materials, signage, and outreach materials to the maximum extent possible. Visitor Center operations would be expanded to 5 days a week, 8am-4:30pm, from November – April and 7 days a week, 9am-7pm, May – October with staff and volunteers present to interact with visitors. Sources for alternative funding, such as grants or increased visitor-use fees, to improve and enhance the environmental education, interpretation, and outreach program would be explored.

Other Uses

Same as A, plus the NBR would support various forms of nature-based outdoor recreation that, while not strictly wildlife-dependent, may support or facilitate wildlife-dependent recreation. These activities may include social gatherings in the day use area, allowing special user groups to collect antlers and conduct an annual Saddle Club Trail ride.

Partnerships

Same as A, plus we would seek to develop new partnerships focused on creating higher quality public use opportunities including developing a refuge "Friends" group. We would develop partnership with colleges and universities to recruit students to work with and develop environmental education programs for grades K-12, both on and off refuge. We would work with the CSKT and Salish Kootenai College regarding methods of collecting traditional ecological knowledge and opportunities to collaborate. We would also develop partnerships with applicable groups to enhance wildlife recreational opportunities, such as birding groups and photography groups to develop and fund observation blinds and events. We would seek to reestablish the book store through a partnership with the refuge Friends group or another cooperating association.

Administration and Operations

Same as A, plus we would hire a visitor services specialist. We would seek to provide for at least 25 volunteers for various public use programs in which they have interests and skills. Staff capacity and training in understanding and interpreting local indigineous culture, history and traditional ecological knowledge would be expanded. We would make improvements to visitor facilities and infrastructure including upgrading trails, improving accessibility and providing additional public restrooms.

For all objectives, strategies and rationales that further describe this Alternative, please see Appendix F.

2.6 Summary of Alternative C—Preferred Alternative

This alternative emphasizes maintaining and, where feasible, enhancing ecological communities

while recognizing ever-changing environmental conditions. In cooperation with our partners, the Service would develop and utilize a prioritization framework to identify and define future conditions that will drive management actions to build ecological community resiliency, promote species and genetic diversity, and build sustainability in management capacity and operations.

Under this alternative, the Service would seek to facilitate collaborative, cooperative, and coordinated management of NBR with our federal, Tribal, state, local, public, and private partners. Where possible, the refuge would participate in landscape-level management of wildlife species, evaluate cross-boundary movements and create corridors conducive to wildlife migration and movement. The Service would also seek ways to incorporate the expertise, resources, and efforts of our partners to help facilitate the benefits of a broader functioning landscape.

Habitat Management

Grasslands

Under this alternative, we would conduct a robust rangeland health assessment to discern the current ecological status of vegetation and soils on NBR's 14,000 acres of bunchgrass prairie to better inform management. This assessment will measure ecological carrying capacity based on an estimate of total wildlife herbivory (from grasshoppers to bison) on the NBR with consideration of the ecological needs of all priority species (e.g. bison, native birds, and other species of concern). Another important component of a thorough rangeland evaluation would be to document and provide options for management on how and where to focus resources (i.e. prioritization). We would also work cooperatively with partners and experts to develop a methodology for monitoring grasslands annually that is achievable and supports continuing rangeland assessments every 15 years, possibly including a citizen science component.

Based on the results from the rangeland assessment, we would work to increase the total refuge acres in excellent range condition by 15 percent. We would also work to improve the quality of grasslands that are currently in fair to good condition (25-74 percent native plant composition), but would prioritize areas that are also primary habitat for species such as bison and grassland birds. Grasslands in poor condition (lowest quality) on the refuge correlate strongly with existing infestations of invasive grasses that threaten the integrity of this ecosystem (Marlow et al 2014). Management in these areas will focus on halting the spread of annual invasive grasses and possibly construction of a novel ecosystem—one that is a substantial departure from the historic climax plant community, but is improved to the point where native and non-invasive species provide some diversity, integrity, and resilience. Invasive species, grazing management, climate change, and drought are some of the key obstacles to achieving our grassland habitat objectives. Invasive species management efforts will combine preventing and reducing spread with herbicide applications, mechanical treatments, and cultural techniques. Prescribed fire would be used to restore and sustain the original fire regime to the maximum extent possible. All wildfire ignitions determined to be human caused will be full suppression. Wildfires determined to have been caused by natural sources may be managed for multiple objectives, and portions of a wildfire can be managed concurrently for one or more objectives. Herbivory will be monitored and population objectives for native ungulates will also be adjusted to support the maintenance of the highest quality grasslands on NBR. We would also increase our efforts to work with partners to improve grasslands on a landscape scale. Doing so would also capitalize on habitat management expertise to improve range conditions for a diversity of species while still recognizing the importance of bison to the NBR.

Forests

Under this alternative, the forest assessment would include all of the information described under Alternative A, with an emphasis on those factors and management actions that increase resiliency in forest stands. Once a feasible outcome has been defined in the assessment, and the stands have been prioritized, a variety of resource management tools, as described in Alternative B, would be used to renovate up to 1,000 acres. We would also seek to continue cooperation with our partners in management activities, especially prescribed fire. Refuge forests would also be evaluated with consideration of the larger landscape. For example, forest stands with rare or unique qualities, as compared to similar sites off the refuge, may be a higher priority for management or a focus of special treatments. To that end, we would design and implement a monitoring protocol to track forest health and management actions.

Wetland and Riparian

Same as Alternative B, plus we would also investigate options for restoring natural flood events along Mission Creek and evaluate opportunities to work with CSKT on restoration efforts on the Jocko River and Mission Creek.

Wildlife Management

Same as A, plus the Service would explore opportunities to cooperate with the CSKT on bison conservation and management. Any specific proposals or ideas would be discussed in collaboration with CSKT Tribal Council and

staff. We recommend completing a feasibility study to investigate and document all options. Possibilities could include: 1) identification of land bases available to the Tribes to start a new bison population with NBR-surplus bison that is managed by CSKT 2) provide NBR-surplus animals to start a new population that would be considered a full partner in the Refuge System bison metapopulation management program 3) provide NBR surplus animals to start a new CSKT Tribally-managed population that would be considered a full partner in the Refuge System bison metapopulation management program.

We would also evaluate the management of other native ungulate species relative to habitat quality, research, and species conservation needs. We would collaborate with adjacent landowners, state agencies, Tribes, and Non-Government Organizations (NGO's) to discuss how NBR can participate in landscape-level management of native ungulate species. We would review and update coyote control on NBR with public and partner involvement. We would increase communications and outreach efforts among partners about wildlife health concerns and major disease threats. We would seek to develop improved survey and monitoring methods.

Research and Science

Same as A, plus we would identify and support research that substantially informs the scientific community or the ecology and management of NBR species and habitats. We would also encourage the integration of traditional ecological knowledge (TEK) as part of partner-generated research or other scientific-information gathering efforts.

Monitoring and Adaptive Management

Same as A, plus this alternative highlights the importance of native bird species that are endemic to the native grasslands present on NBR and seeks to further the Service's relationship with academic entities and other agencies in a way that informs NBR management and facilitates habitat improvement specific to the ecological needs of these species. We would develop an adaptive management project for grasslands that allows NBR management to assess wildlife and vegetative responses, including invasive plants, to various management activities, such as native ungulate forage allocations, water management, predator control, rest, wildland fire, public use impacts, and invasive weed control, as well as climatic variations.

Cultural Resources

Same as B, plus we would work with CSKT and other Tribal partners in planning, producing and providing relevant materials, exhibits, signs, educational and interpretation materials. We would also conduct outreach to local groups regarding NBR's history and the NBR's effects on conservation, species management, and the community since its inception.

Public Use

Fishing

Same as A, plus decisions to close areas accessible to fishing would give greater consideration to the conflict or disturbance to priority species or habitat. We would also provide additional information to enhance the quality of the fishing experience that highlights the conservation importance of native species, especially bull trout and westslope cutthroat trout.

Wildlife Observation and Photography

Same as A, except we would prioritize public use opportunities when not in conflict with priority species or habitat. We may close trails or portions of trails with minimal use or substantial maintenance needs.

Environmental Education and Interpretation

Same as A, plus education and interpretation resources and programs would emphasize appreciation and understanding of bison, native birds, and their habitats. We would educate the public on the importance and necessity of regulations aimed at protecting and conserving priority species and habitats. We would communicate to the public how the Service incorporates TEK into its management practices and incorporate native languages into educational materials, signage, and outreach materials to the maximum extent possible. The Visitor Center may be open 7 days a week, May – October, subject to funding and availability of interns, seasonal employees and volunteers.

Other Uses

Same as A, plus the NBR would support various forms of nature-based outdoor recreation that, while not strictly wildlife-dependent, may support or facilitate wildlife-dependent recreation. These activities include social gatherings in the day use area, allowing special user groups to collect antlers, and conducting an annual Saddle Club Trail ride. These proposed activities would be managed in a way that the use would not conflict with or cause disturbance to priority species or habitats.

Partnerships

We would seek to maintain strong and effective working relationships with existing partners and develop new partnerships to achieve our priority habitat and wildlife goals. Examples of these partnerships include:

- Reinvigorate the Partnership for Regional Invasive Species Management (PRISM) and

solicit new partners (e.g. private landowners) for a comprehensive approach to invasive species management on the Flathead Indian Reservation (FIR).

- Consider expanding opportunities for donations of bones, skulls, hides etc. to the CSKT, the Inter-Tribal Buffalo Council, or other Tribes for cultural or educational purposes.
- Work with neighboring private landowners and other partners (CSKT) to develop priority conservation areas within the FIR that model and ultimately promote wildlife-friendly livestock management.
- Expand partnerships with the CSKT, MTFWP, Natual Resource Conservation Service (NRCS), Pheasants Forever, other governmental agencies, and non-governmental organizations to include working on wildlife management issues, specifically on priority species and their habitats and use of wildland fire on NBR.

Administration and Operations

Same as B, plus we would seek to strengthen biological support for refuge management by hiring a biological technician and by seeking at least 20 volunteers for various biological programs in which they have interest and skills. Staff capacity and training in understanding and interpreting local indigineous culture, history and TEK would be expanded.

We would prioritize improvements and maintenance on roads, trails, facilities, and infrastructure that are critical to manage NBR for priority species and sustainability of natural habitats. We would review the current housing on NBR to define what housing is necessary to accommodate full-time and seasonal employees, visiting Service employees, interns, contractors (Student Career Association), and volunteers. We would not maintain fencing of pastures that are no longer utilized and that would need to be removed to reduce the potential for entanglement and to facilitate movement of wildlife. Maintenance of the day use area is not a priority under this alternative, but its importance to environmental education and the overall visitor experience is recognized. Volunteers would be utilized to clean the bathrooms, mow and water the grass, and maintain a generally healthy and clean environment in the day use area.

For all objectives, strategies and rationales that further describe this Alternative, please see Appendix F.

2.7 Elements Considered but Eliminated from Further Analysis

During scoping our staff, interested groups, cooperating agencies, other federal, state, and local agencies, and the public suggested various ideas or issues which we did consider but, in the end, after extensive deliberation, eliminated from further analysis. We discuss these issues and our reasons below.

2.7.1 Hunting on the National Bison Range

Conservation of genetic diversity is essential to bison conservation, both within the individual population level and at the metapopulation level. Population size is the most important driver of genetic diversity loss. Based on current science, the bison herd on the refuge would need to be in excess of 1,000 animals to withstand the effects of genetic drift that could result from a hunting program. In addition to the concerns of the loss of genetic diversity with hunting in such a small herd, the Service considers the bison and other native ungulates to be wildlife, not game farm animals, and hunting within a fence calls into question the principles of fair chase. Furthermore, big-game hunting on the Flathead Indian Reservation is governed by the Hellgate Treaty, various Tribal, state, and federal court decisions, as well as Tribal Ordinance 44-D and Montana Code Annotated MCA § 87-1-228.

2.7.2 Alternatives Based on Staffing Levels

Several commenters asked the Service to consider alternatives based primarily on staffing levels, either from previous years or as a new alternative. CCP planning policy guides Service staff to focus first on the desired future conditions of the refuge and to provide management direction to achieve refuge purposes. Doing so then provides the basis for budget requests for operational, maintenance, and capital improvement programs. The Service recognizes that staff are essential to achieving the desired outcome for any CCP and has worked to develop alternatives in this final plan where objectives and strategies are congruent with the proposed staffing and funding levels. We have also worked to develop a set of alternatives that could be implemented based on various budget levels for the National Wildlife Refuge System.

2.8 Partnerships

Partnerships are an essential component to management of the NBR. In fact, partnerships are so important that the Planning Team designated a specific goal for maintaining and developing partnerships (Section 1.7). Different ways of achieving the goals for partnering with others have been described under each of the alternatives.

2.9 Monitoring and Evaluation

As with partnerships, monitoring, evaluation, and adaptive management are so critically important to the management of the National Bison Range that a specific goal was designated for this topic

(Section 1.7). Different ways of achieving the goals for monitoring and evaluation have been described under each of the alternatives.

Adaptive management is a flexible approach to long-term management of biotic resources. Adaptive management is directed, over time, by the results of ongoing monitoring activities and other information. More specifically, adaptive management is a process by which projects are carried out within a framework of scientifically driven experiments to test the predictions and assumptions outlined within a CCP (Figure 2.1).

To apply adaptive management, specific survey, inventory, and monitoring protocols would be developed for the refuge, including clearly defining measures of success and methods of long-term data management. These will be included in the Inventory and Monitoring Plan, currently targeted for completion in 2023 (see Table 1.1). The habitat management strategies would be systematically evaluated to determine management effects on wildlife populations. This information would be used to refine approaches and determine how effectively the objectives are being accomplished. Evaluations would include participation by Service personnel and other partners. If monitoring and evaluation indicate undesirable effects for target and non-target species or communities, alteration to the management projects would be made. Subsequently, the CCP would be revised.

2.10 Funding and Personnel

Refuge budgets generally include funds for personnel as well as refuge-management activities (management capability). Personnel costs include salaries and benefits. Management capability includes non-salary costs such as maintenance, equipment, utilities, and special projects. The Mountain-Prairie Region strives to fund each refuge complex at a ratio of 75 percent personnel to 25 percent management capability. NBR is currently funded as part of the overall National Bison Range Complex budget, which also includes staff stationed at Lost Trail NWR and the associated management capability funding. However, Table 2.1 summarizes the estimated annual budget for only the NBR for each alternative.

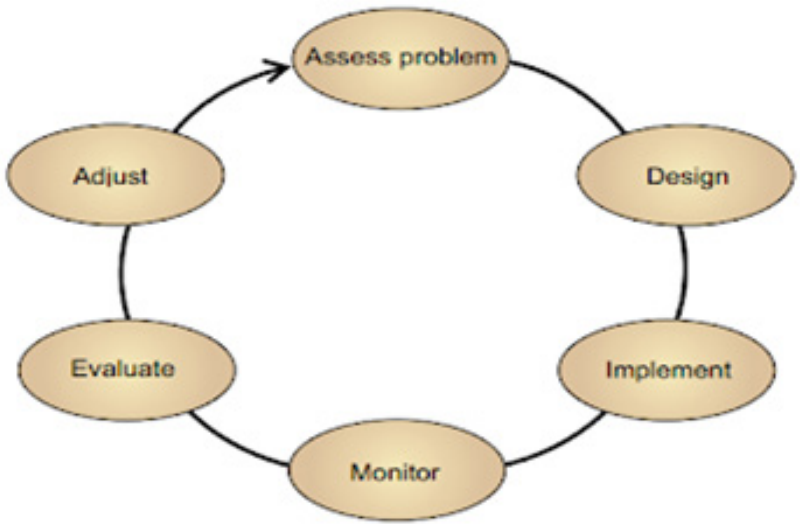

Figure 2.1. Diagram of the Adaptive Management Process (Williams et. al 2009).

Table 2.1. Annual Costs to Carry Out the CCP Alternatives for the National Bison Range[1] (in FY2019 Dollars)

	Alternative A	Alternative B	Alternative C
Salaries	$522,137	$618,032	$633,944
Management Capability	$262,981	$272,981	$272,981
Total cost	$785,118	$891,013	$906,925

(1) Funding for Lost Trail refuge is not included in these cost estimates

Table 2.2 summarizes the current staffing positions (Alternative A) and the proposed staffing changes under Alternatives B and C. Alternative A shows the positions currently filled at the refuge. Since the draft CCP/EIS, Alternative A has been updated to reflect that the wildlife refuge manager position has been filled at the refuge and a project leader has been hired. Under current position management practices across refuges in the Mountain-Prairie Region, when a position becomes vacant, the funding for the position is placed in a region-wide pool. Those funds then become available to fill any refuge position in the region based on current regional priorities. The vacant position is then removed from the refuge staffing chart unless it is a priority and there is a reasonable expectation the position can be filled in the fiscal year. Staff positions are prioritized to align with priority regional and national conservation outcomes and to manage for wildlife, habitat, safety, and recreational opportunities. While these decisions are often difficult and challenging, they are made with the intent of best achieving our mission of working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

The NWRS consists of 567 refuge units and 38 wetland management districts. As of October 2016, the NWRS is responsible for managing over 850 million acres of lands and waters, including approximately 150 million acres of land. The NWRS has been adapting to stagnant or declining budget realities for many years. Refuges in the Mountain-Prairie Region currently have a backlog of $162,000,000, which is expected to rise significantly in the next couple of years and level off at about a $200 million backlog.

In 2016, the Mountain-Prairie Region's refuge program developed a Realignment Strategy to guide the future of refuges in our 8-state region. As part of that realignment process, a Staffing Framework was also developed (USFWS 2017b). These two documents are the culmination of over 3 years of work determining the most effective way to manage our refuges today and in the future. The Staffing Framework will align our workforce to meet three goals of the Realignment Strategy: our people, ecologically sustainable management, and a connected conservation community.

Under the Realignment Strategy, the NBR will become part of the new Western Montana Complex (WMTC), which will include the six units of the NBR Complex in addition to the Benton Lake Complex (Benton Lake NWR, Swan River NWR, Benton Lake WMD) and Lee Metcalf NWR. This approach is being implemented at other refuge units and complexes throughout the region and is designed to strengthen and reinforce cooperative efforts and optimize outcomes given the continued reality of limited time, staff, and other resources. There will be an estimated total of 22 full-time, permanent staff for the entire WMTC. The Project Leader for the WMTC is currently located at the Benton Lake refuge, Great Falls, Montana. The other job titles, functions, and duty stations within the WMTC are flexible and can be adapted to meet the needs of the entire WMTC over time. In addition, all staff within the WMTC will be available to assist and support work on any other unit of the WMTC.

Dave Fitzpatrick/USFWS

Refuge staff carry out maintenance along one of the refuge roads.

USFWS

Refuge staff and volunteers take a break during the annual bison capture operations.

Table 2.2. Personnel Needed to Carry Out the CCP Alternatives for NBR

Alternative A (Current Personnel)	Alternative B	Alternative C
National Bison Range, NBR, Moiese, MT		
Project leader GS-14[1]	Project leader GS-14[1]	Project leader GS-14[1]
Wildlife refuge manager GS-12	Wildlife refuge manager GS-12	Wildlife refuge manager GS-12
Wildlife biologist GS-9	Wildlife biologist GS-9	Wildlife biologist GS-11
	Visitor services specialist GS-11	Visitor services specialist GS-11
Law enforcement officer GL-9[3]	Law enforcement officer GL-9	Law enforcement officer GL-9
Budget analyst GS-9[2]	Budget analyst GS-9	Budget analyst GS-9
Engineering and equipment operator WG-9	Engineering and equipment operator WG-9	Engineering and equipment operator WG-9
Maintenance worker WG-8	Maintenance worker WG-8	Maintenance worker WG-8
Range technician GS7 (Career seasonal)	Range technician GS -7 (Career seasonal)	Range technician GS-7 (Career seasonal)
		Biological technician GS-7

[1]The Project Leader is located at Benton Lake refuge, Great Falls, Montana. The Project Leader and the Refuge Manager positions were filled during the final CCP process.

[2]Budget analysts throughout the Mountain-Prairie Region often support more than one refuge. The budget analyst at NBR currently also supports the Green River NWR Refuge Complex, Utah.

[3]Law enforcement officer currently also supports Lee Metcalf Refuge.

2.11 Plan Amendment and Revision

The final CCP will be reviewed annually to determine the need for revision. A revision would occur if and when significant information becomes available, such as a change in ecological conditions. Revisions to the CCP and subsequent step-down management plans would be subject to public review and compliance with the National Environmental Policy Act, as appropriate. At a minimum, this plan would be evaluated every 5 years and revised after 15 years. Table 1.1 identifies the step-down plans needed to fully implement the CCP.

2.12 Comparison of Alternatives

Table 2.3 is a summarized, side-by-side look at the actions for each alternative. In addition to the items in the table, each alternative also includes the elements common to all alternatives described in Section 2.2. An analysis of these actions is in Chapter 4—Environmental Consequences; a summary of the expected consequences of the alternatives is in Table 4.1 at the end of Chapter 4.

Table 2.3. Comparison of Alternatives

Alternative A	Alternative B	Alternative C Preferred
HABITAT GOAL - Conserve, restore, and promote biological integrity in functional and sustainable ecologically diverse habitats of the inter-montane ecosystem of western Montana.		
Update range condition survey. Maintain grasslands currently in good condition, increase native cover of grasslands in fair condition, and contain invasive species in the poorest quality grasslands.	Update range condition survey. Prioritize management of native grasslands that are identified as important to visitor's experience. Prevent spread of invasive species into areas of high visitation. Contain invasive species in the poorest quality grasslands.	Conduct a comprehensive rangeland health assessment. Increase the acres of grassland in excellent condition by 15 percent. Prioritize grassland management to maintain native cover, structure and diversity in areas important to priority wildlife. For grasslands in poor condition, explore feasible restoration techniques, including creating a novel ecosystem.
By 2021, complete a forest assessment of 3,700 acres. Treat 1,000 acres of forest to reduce Douglas fir densities and risk of stand-replacing wildfire.	By 2021, complete a forest assessment to prioritize 3,700 acres to improve forest health where it would best provide for quality public uses. Renovate 1,000 acres of high public priority forest.	By 2021, complete a forest assessment of 3,700 acres. Renovate 1,000 acres of forest to improve forest health and diversity.
Maintain 500 acres of existing riparian and wetland habitats.	Same as A, plus reduce juniper density by 50 percent on 50 acres on Mission Creek to enhance visitor opportunities/ experience.	Same as A, plus reduce juniper density by 50 percent on 50 acres on Mission Creek and explore restoration opportunities on Mission Creek and the Jocko River.
WILDLIFE GOAL - Protect, maintain, and restore healthy and diverse wildlife populations with respect to species that are endemic, migratory, and mandated species of concern.		
Manage bison herd to maintain and improve genetic diversity and integrity within ecological carrying capacity using science-supported management strategies to contribute to species' conservation goals within the NWRS metapopulation. Maintain representative populations of native ungulates.	Same as A, plus manage bison and other ungulates to increase public observation, photography, interpretation, and environmental education opportunities.	Same as A, plus improve bison genetic diversity and integrity by expanding the NBR bison conservation resource in cooperation with the CSKT. Evaluate the management of other native ungulate species relative to habitat quality, predator control, research and species conservation.
RESEARCH AND SCIENCE GOAL - Encourage high-quality research and promote the use of scientifically sound management decisions.		
Maintain support for self-sustaining long term research.	Same as A, plus increase knowledge in areas of study that are pertinent to refuge resources and can be accomplished through public involvement. Work with partners to conduct a research project to better understand visitor use and impacts.	Same as A, plus identify and support research projects that substantially inform the management and ecological understanding of refuge habitat and high-priority species with an emphasis on research that informs management at the landscape level with multiple landowners and agencies.
Begin to prioritize actions to collect TEK as part of any research or other scientific-information-gathering efforts.	Same as A	Same as A.
MONITORING AND ADAPTIVE MANAGEMENT GOAL - Through the life of this plan, we will monitor and evaluate the consequences of our actions and use adaptive management to reach desired outcomes.		
Continue to support and expand existing monitoring projects, especially bird monitoring using eBird and citizen science.	Same as A, plus share monitoring results with the public more widely and emphasize monitoring projects using citizen science and volunteer engagement.	Same as A, plus this alternative highlights the importance of native grassland bird species that are endemic the NBR; also emphasize monitoring of resilience, integrity, and sustainability for other priority species and refuge habitats.

MONITORING AND ADAPTIVE MANAGEMENT GOAL - continued	In the next 5 years, develop plan to monitor visitor impacts on wildlife habitat and populations.	In the next 10 years, develop a grassland adaptive management project that allows refuge management to assess wildlife and vegetative responses, including invasives, to various management activities such as forage allocations, water management, predator control, rest, wildland fire, climate, public use impacts, and invasive weed control.
CULTURAL RESOURCES GOAL - Preserve and interpret the cultural resources and history of the National Bison Range Complex to connect staff, visitors, and community to the area's past and continuing traditions.		
Provide cultural resources interpretation and education about Tribal citizens' and early people's use of the lands within the National Bison Range at the Visitor Center.	Same as A, plus enhance interpretation of cultural resources. In collaboration with the CSKT (and other partners), develop topic-specific cultural resources interpretation and education programs.	Same as B
Provide permitted access to specific natural resources, or Tribal heritage sites used for cultural traditional values. Access will be allowed under a "special use permit" and will be approved by the refuge manager on a case-by-case basis. Requests for profit or commercialization will not be permitted.	Same as A, plus develop and implement station-specific guidance to improve efficiency on how special use permits will be permitted and issued.	Same as B
PUBLIC USE GOAL - Provide compatible, wildlife-dependent recreational opportunities, for persons of all abilities, to learn, enjoy, and appreciate the inter-montane landscape of western Montana, the fish and wildlife and plants.		
Allow fishing on three and three quarters (3.75) miles of Mission Creek and the one and one-half miles (1.5) of Jocko River with minimal disturbance to other wildlife and the natural aquatic ecosystem.	Same as A, plus explore opportunities to increase access and accessibility. Seek to enhance the quality of the fishing experience in these areas.	Same as A, except only allow fishing when use is not in conflict with priority species or habitat.
Provide opportunities for self-directed wildlife viewing and photography by maintaining services to accommodate at least 180,000 visitors per year.	Same as A, plus consistently strive to increase visitor satisfaction with wildlife viewing and photography. Improve auto tour route and trails.	Same as A, except emphasize public use opportunities not in conflict with priority species and/or habitat. Close trails as needed.
Continue to provide education and interpretation at the Visitor Center to a minimum of 30 percent of annual visitors (180,000 overall visits in 2017). Encourage awareness of and provide an opportunity to learn about conservation and mission of the refuge system and to highlight the unique history of bison conservation and cultural and historical significance of the refuge.	Same as A, plus increase education and interpretation opportunities at the Visitor Center to a minimum of 45 percent of annual visitors (180,000 overall visits in 2017). Prioritize public awareness, appreciation and engagement of bison, and other native ungulates.	Same as A, plus education and interpretation will emphasize management of NBR wildlife and habitat. Promote compliance with rules and regulations aimed at the protection and conservation of priority species and habitat. Prioritize public awareness, appreciation, and engagement of bison, native birds, and their habitats.

PUBLIC USE GOAL - continued

Provide appropriate and compatible opportunities for non–wildlife dependent recreation.	Same as A	Reduce or eliminate all non-wildlife dependent recreation and uses that disturb wildlife or do not substantially contribute to the appreciation of the refuge. Any consideration given to permitting a special use will weigh the effects that use may have on staff time, the benefit to refuge or Refuge System, and the effects the use will have directly or indirectly on species of concern.
Communicate to the public how the USFWS incorporates Traditional Ecological Knowledge (TEK) into its management practices. Incorporate native languages to maximum extent possible.	Same as A	Same as A
PARTNERSHIP GOAL - Maintain and cultivate partnerships that help achieve the vision and supporting goals and objectives of the National Bison Range Complex to support wildlife and habitat conservation, research, foster awareness and appreciation of natural and cultural resources and provide education along with all necessary infrastructure of the inter-montane ecosystem of western Montana. **Collaborate with the Confederated Salish and Kootenai Tribes and other Tribal governments in a manner consistent with the Service's Native American policy and with other Federal, State, and local government entities in a manner consistent with applicable Service policies.**		
Continue a strong and effective working relationship with existing partners for the purpose of achieving our habitat, wildlife, and visitor services goals.	Same as A, plus develop new partners for the purpose of achieving higher quality for public use opportunities.	Same as A, plus develop new partnerships for the purpose of achieving our priority habitat and wildlife goals.
Further our trust responsibilities by fostering a constructive relationship with the Confederated Salish and Kootenai Tribes.	Same as A	Same as A
ADMINISTRATION AND OPERATIONS GOAL - Effectively use funding, staff, partnerships, volunteers, and equipment to restore and manage Complex habitats, conduct programs, and improve and maintain all necessary infrastructure to the benefit of the Complex and the Refuge System.		
Throughout the life of the plan, strive to keep funding level for existing 7.5 permanent staff. Continue to seek money for vacant, seasonal, temporary, and youth positions.	Same as A, plus prioritize hiring a visitor services specialist for a total of 8.5 permanent staff.	Same as B plus, prioritize hiring a full-time, permanent biological technician for a total of 9.5 permanent staff.
Build staff capacity for understanding and interpreting local indigenous culture, history, and TEK.	Same as A	Same as A
Recruit volunteers as needed to support refuge activities related to administrative, public use, maintenance, and biological activities.	Provide for at least 25 volunteers for various public use programs in which they have interests and skills.	Provide for at least 20 volunteers for various biological programs in which they have interest and skills.
Maintain adequate facilities and real property in operational condition and meet Service standards and refuge goals.	Make improvements to visitor facilities and infrastructure to provide a variety of opportunities for visitors to foster meaningful connections to wildlife, natural resources, and the cultural heritage of the refuge.	Same as A, plus prioritize improvements and maintenance on roads, trails, facilities, and infrastructure that are critical in managing the refuge for priority species and sustainability of natural habitats.

Chapter 3 Affected Environment

Dave Fitzpatrick/USFWS

The National Bison Range boasts majestic scenic views of the Rocky Mountains.

This chapter describes the existing physical, ecological, and socioeconomic characteristics and resources of the NBR, which is the unit being considered in this analysis.

3.1 Physical Environment

This section describes the topography, soils, air quality, climate, and hydrology of the NBR.

Topography

The NBR is located where three major geographic features merge, Mission Valley, Mission Mountain Range, and Jocko River Valley (Figure 3.1). The region was formed by historic glacial activity and is characterized by moderate to high mountains bordered by narrow to broad intermountain valleys. NBR lies within the Mission Valley, an inter-montane basin south of Flathead Lake.

NBR encompasses a low-rolling mountain connected to the Mission Mountain Range by a gradually descending spur with associated ridges and drainages situated at the south end of the Flathead Valley. Elevation varies from 2,585 feet at refuge headquarters to 4,885 feet at the top of Red Sleep Mountain. Slopes vary from gradual rolling grasslands to steep hills and rock outcrops.

Soils

The glacial history of the region has had a pronounced influence on the soils and landforms of the Flathead Valley. Glacier advance and retreat, Glacial Lake Missoula, and mountain runoff have deposited extensive loose valley sediments, lakebed silts, and assorted glacial debris up to and including boulder-sized, glacially transported rocks that originated in British Columbia. Glacial Lake Missoula left behind visible shorelines and rocks that had been carried long distances by glacial activity (erratics).

The majority of the NBR consists of soils developed in materials weathered from the strongly folded pre-Cambrian quartzite and argillite bedrock. Bedrock varies from being exposed, forming ledges, outcroppings, and talus slopes, to depths ranging from a few inches on the very shallow soils to many feet in deeper zones. The soils are well-drained and range from very shallow to moderately deep in parent material developed in clayey and silty lacustrine deposits appearing to be from Lake Missoula of the Wisconsin glacial period. They have a loamy surface horizon with near-neutral pH (measure of acidity and alkalinity), medium-fine texture, high organic content (remains of once-living plants and animals), and varying amounts of parent material fragments. The surface horizon is thin, light, interspersed with rock fragments and low in parent material on lower slopes and, with increasing elevation, the reciprocal occurs. North-facing slopes retain more moisture and are characterized by deeper soils. Water infiltration rates are generally high, and soil erosion is minimal (NRCS 2017 https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm).

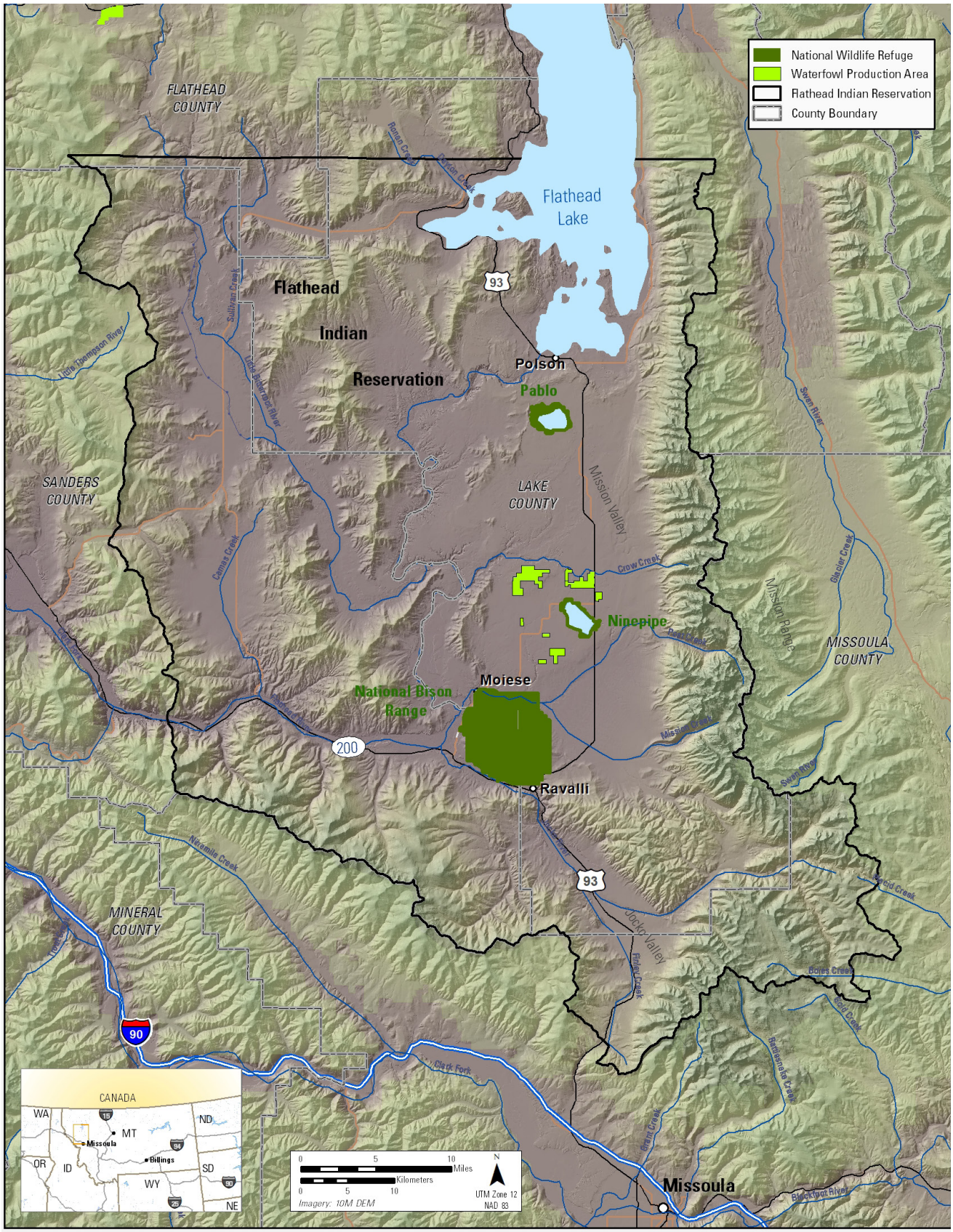

Figure 3.1. **Overview of National Bison Range and surrounding area.**

Dave Fitzpatrick/USFWS

Fog rolls through the grasslands and forests of the refuge during the fall.

Air Quality

Air quality in NBR is protected under several provisions of the Clean Air Act (42 USC 7401), including the National Ambient Air Quality Standards (NAAQS) and the Prevention of Significant Deterioration program. One of the goals of the Prevention of Significant Deterioration program is to preserve, protect, and enhance air quality in areas of special natural, recreational, scenic, or historic resources, including those of NBRC (42 USC 7470). Only a limited amount of added air pollution—associated with moderate growth in the human population of the Mission Valley—can be allowed in the future.

The Flathead Indian Reservation was designated in 1979 as a voluntary class 1 airshed under provisions of the Clean Air Act, which confers the highest degree of protection under the act. Air quality is considered exceptionally good, with no nearby manufacturing sites or major point sources of pollution. However, the cities of Polson and Ronan in Lake County are designated as nonattainment areas—areas that do not meet air quality standards—and are not in compliance with suspended particulate matter (i.e. PM10, which has a diameter of less than 10 microns) (EPA 2018). As NBR is south of Polson and Ronan, it is classified as in attainment with air-quality standards (EPA 2018).

Suspended particulate matter includes tiny liquid or solid particles in the air that are respirable in the lungs. Particulate matter and carbon monoxide are the air pollutants that have the greatest adverse impact on Montana's air quality. Seasonal burning of logging slash in the mountains and stubble fields at valley ranches cause short-term, localized smoke. In drought years, there has been heavy smoke from local wildfires or from distant fires delivered by prevailing winds. Smoke from wood-burning stoves is trapped in the valley during temperature inversions that are common in winter months. In addition to the factors mentioned above, carbon from automobiles and diesel engines, and dust associated with wind-blown sand, as well as dirt from roadways, fields and construction sites, may all contribute to particulate matter. The major sources of particulate matter are vehicles traveling on unpaved roads, sand and gravel from winter traction material, and residential wood burning.

Climate

Long-term climate data for St. Ignatius, Montana (US COOP Station ID 247286), recorded between 1896 and 2010, is available from the Western Regional Climate Center. Located approximately three miles east of the NBR, this station's records average high temperatures ranging from 35 °F in December/January to 85 °F in July and average low temperatures ranging from 21 °F in December/January to 51 °F in July. Most of the precipitation near NBR occurs during the spring and early summer, averaging more than 2.5 inches per month in May and June (Western Regional Climate Center 2010).

Over the next two decades, a warming of 2 to 4 degrees Fahrenheit is projected globally (Walsh et al. 2014). Consequent with the projected warming, the atmospheric moisture transport and convergence is projected to increase, resulting in a widespread increase in annual precipitation over most of the continent except the southern and southwestern part of the United States (Solomon et al. 2007). This increased precipitation is more likely to occur in winter and spring months, rather than summer. It is also considered very likely that extreme weather (e.g. heat waves, flooding, drought) will become more frequent. In the coming decades, the warming climate is likely to decrease the availability of water in Montana, affect agricultural yields, and further increase the risk and severity of wildfires (TNC 2009).

NBR staff rely on outside entities such as the United States Geological Survey (USGS) to help downscale climate change models to increase predictability of temperature and precipitation changes and use these predictions to help inform adaptive management activities, as warranted. The CSKT have also recognized the potential impacts of climate change and are committed to addressing effects as well as integrating TEK into their CSKT Climate Change Strategic Plan (CSKT 2013).

Hydrology

The NBR is located between the Jocko River and Mission Creek, just upstream from their confluence with the much larger Flathead River. The Mission Creek drains the north side of NBR, the Jocko River drains the south side, while the Flathead River flanks the western boundary of the NBR (Figure 3.2). There are 84 reported natural springs that occur on NBR, and approximately 40 of these

Dave Fitzpatrick/USFWS

Elk cross Mission Creek on the Nation Bison Range

have been developed into watering sites for bison and other wildlife. One solar well exists on the refuge and provides small quantities of water to a tank for wildlife use.

Most precipitation within the Mission Mountains and associated valleys falls as snowfall that leads to runoff peaks occurring during snowmelt. The headwaters of streams and creeks within the Mission Mountains, near the NBR, receive up to 60 inches of precipitation (Parrett & Jarrett 2000).

Surface Water

Lakes and streams cover approximately 100,000 acres of Lake County, or just under 10 percent of the total area. The most prominent surface water features in Lake County are the southern two-thirds of Flathead Lake (the largest, natural, freshwater lake in the western U.S.), the Flathead River, Swan Lake, the Swan River, Mission Creek, Post Creek, the Jocko River, and Lake Mary Ronan. Other sizeable lakes include McDonald, Loon, and St. Mary's Lakes. Lake County also contains several large reservoirs, including Pablo, Kicking Horse, Lower Crow, Mission, and Ninepipe, and numerous small reservoirs, which are important for wildlife and agriculture. The Flathead Indian Irrigation Project (FIIP) contains the largest irrigation project in Montana, and one of the largest BIA irrigation projects nationwide.

Major threats to the water resources of the Flathead Basin include non-point source pollution, where sediments and nutrients—in particular nitrogen, or nitrates, and phosphorus—end up in streams and lakes via stormwater runoff or groundwater contamination. Irrigation diversions have affected stream hydrographs and likely limit the amount of flooding and floodplain regeneration that can occur.

Mission Creek transects the northern portion of the NBR and is a meandering river that has a riparian corridor and floodplain approximately 750 -1,500 feet wide. The Mission Creek floodplain consists of several old meander bends and oxbows with interspersed forest and shrubs, pasture, and emergent wetlands. The smaller streams that are present throughout the NBR contain limited riparian corridors. Mission Creek has three primary tributaries that originate in the Mission Mountains to the east (Figure 3.3). The northernmost tributary, known as Dublin Gulch, joins Mission Creek within the NBR boundary. The eastern tributaries are divided into a northern and southern fork; the north fork is known as Post Creek, and the southern fork is known as Dry Creek. The primary channel of Mission Creek also originates in the Mission Mountains and is located in between these two eastern tributaries. All of these creeks drain the western side of the Mission Mountains—consisting of steep alternating sections of bedrock, alluvial deposits, and boulder-filled V-shaped channels (Parrett & Jarrett 2000).

Dave Fitzpatrick/USFWS

A wide variety of wildlife and fish utilize the riparian corridors along the refuge.

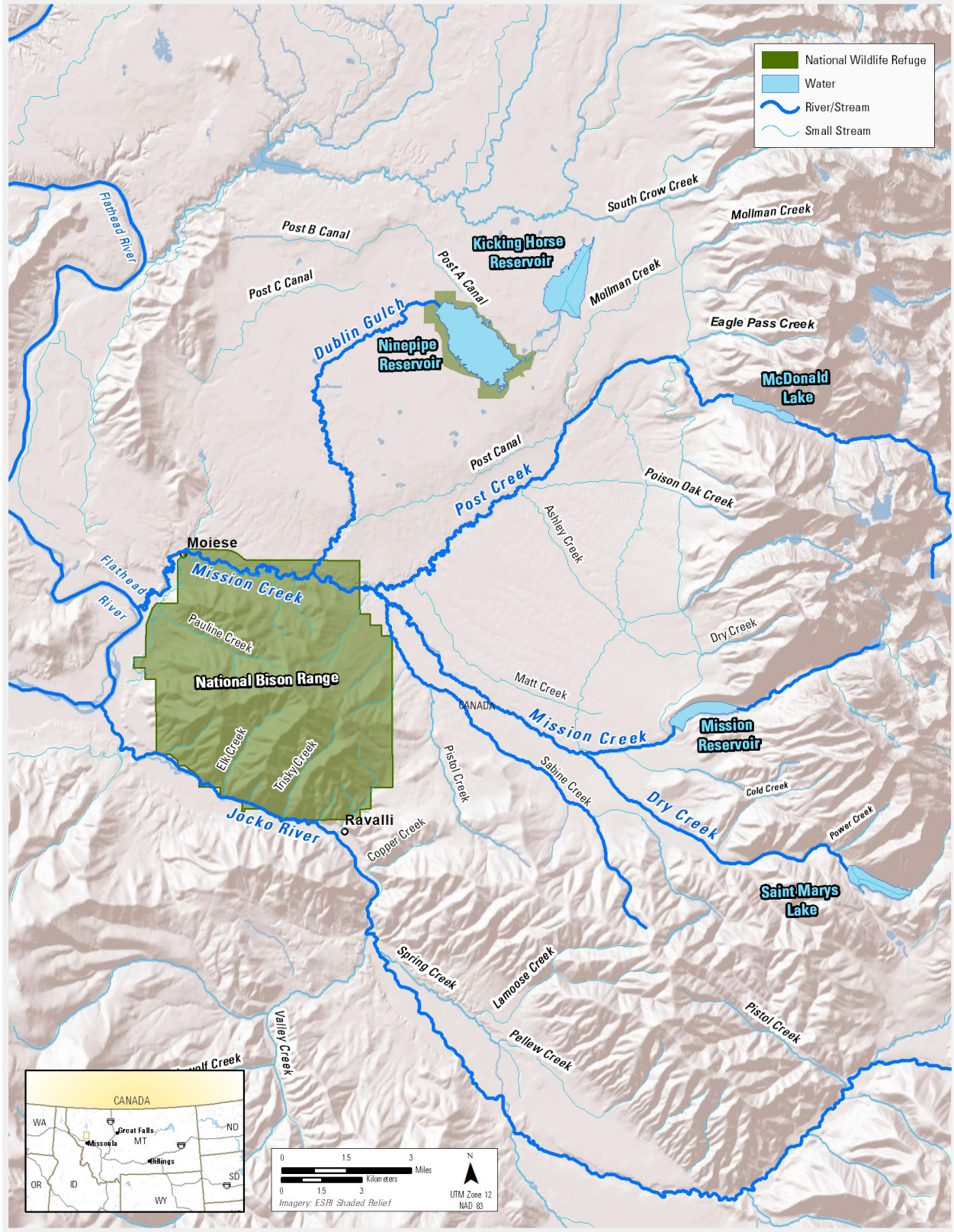

Figure 3.2. Regional hydrology of the National Bison Range

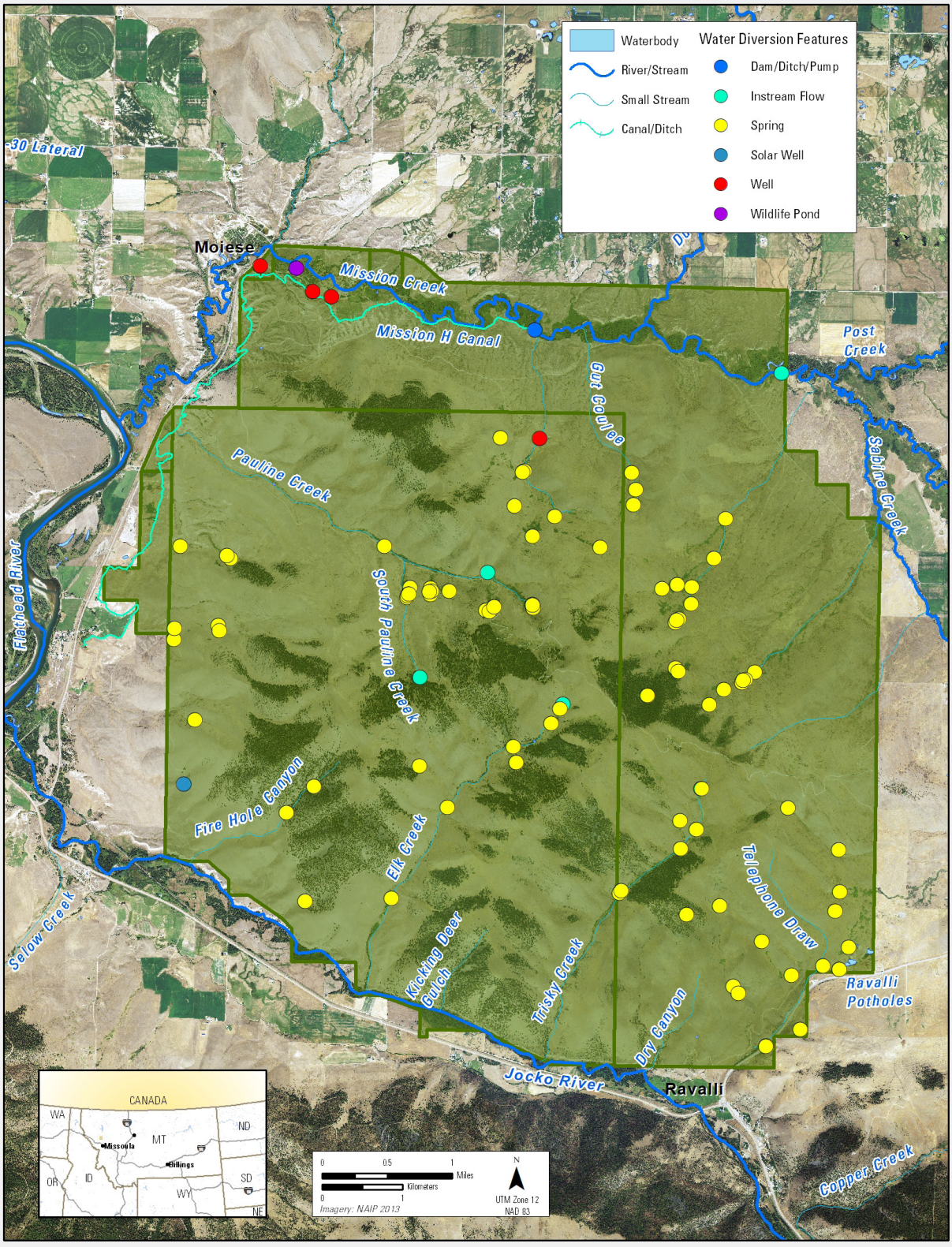

Figure 3.3. **Local hydrology of the National Bison Range**

The main stem of Mission Creek and each of its tributaries possess a dam and reservoir located where the stream flows out of the Mission Mountains. Each of these reservoirs is believed to have been a natural lake formed due to glacial processes that has been enhanced with a man-made structure for the FIIP. Mission Creek was dammed in its headwaters in 1930 to create the Mission Reservoir. The Tabor Dam was built on Dry Creek in 1935 to create East Saint Mary's Lake, and the dam on Post Creek was built in 1920 to create McDonald Lake (USACE 2018).

Dublin Gulch is fed by the Ninepipe Reservoir and the Kicking Horse Reservoir that are also part of the FIIP. Both Ninepipe and Kicking Horse Reservoir appear to be remnant glacial pothole lakes that have been flooded with man-made dams. Ninepipe dam and reservoir was constructed in 1910 and was established as a National Wildlife Refuge in 1921. Kicking Horse dam and reservoir was constructed in 1930. The current contribution to Mission Creek streamflow from Dublin Gulch is thought to be small due to large irrigation diversions occurring upstream. Historically, the stream likely contributed similar streamflow as that of the other Mission Creek tributaries based on the watershed area, floodplain size, and historic channel meandering visible in aerial imagery.

These dams and reservoirs have significantly altered the hydrograph that would have historically occurred on the Mission Creek located within NBR. The noticeable changes in the river systems that may be present at the NBR include disconnected portions of the Mission Creek historical flood plain due to reduced peak discharges, incised river channels due to reduced sediment loads, increased water temperatures due to solar gain at the reservoirs, and increased nutrient concentrations due to irrigation return flows.

The Jocko River to the south of the NBR is a meandering river that has a floodplain and riparian corridor that is about 1,000–3,000 feet wide along the NBR border. The NBR southern border crisscrosses the Jocko River and several small sections of the river and riparian corridor are present within the NBR's boundary. The Jocko River flood plain is separated from the rest of the NBR by a steep bluff, with a 100-foot- drop leading to the river. The Jocko River has its headwater to the south of the NBR. On-stream dams on the Jocko River are high up in the mountains and include the Lower Jocko Lake, Black Lake, and Upper Jocko Lake. These reservoirs and lakes also appear to be enhanced atural water bodies that were likely created by glacial actions several thousands of years ago.

Few modern hydrologic measurements are available regarding the discharge of either Mission Creek or Jocko Creek in the sections that flow past the refuge. However, several historic gauges were located on the sections that pass through the NBR, or on the tributaries directly upstream of the NBR boundary. These historic USGS stations were used to compile hydrographs (Figure 3.4) that represent the streamflow conditions expected at the NBR. The streams are strongly snowmelt driven, with peak runoff occurring in late May and early June. The streams maintain relatively constant base flow outside of spring with the Mission Creek having about 50–100 cubic foot per second (CFS) and the Jocko River having about 130–200 cfs on average from September through April. Peak streamflow is estimated to be as high as 2,000 cfs on the Mission Creek and has been measured as high as 7,500 cfs on the Jocko River (USGS 2018a-f).

The only gauging stations that are actively operating within the Mission Creek and Jocko River watersheds are Site Number: 12377150 (Mission Creek above Mission Reservoir, near St. Ignatius MT) and Site Number: 12381400 (South Fork Jocko River near Arlee MT). The flow characteristics from these sites are measuring less than half of the total flows that are expected to pass through the NBR and only the relative timing of flows can be inferred from these stations.

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Trumpeter swans and other migratory birds utilize the refuge.

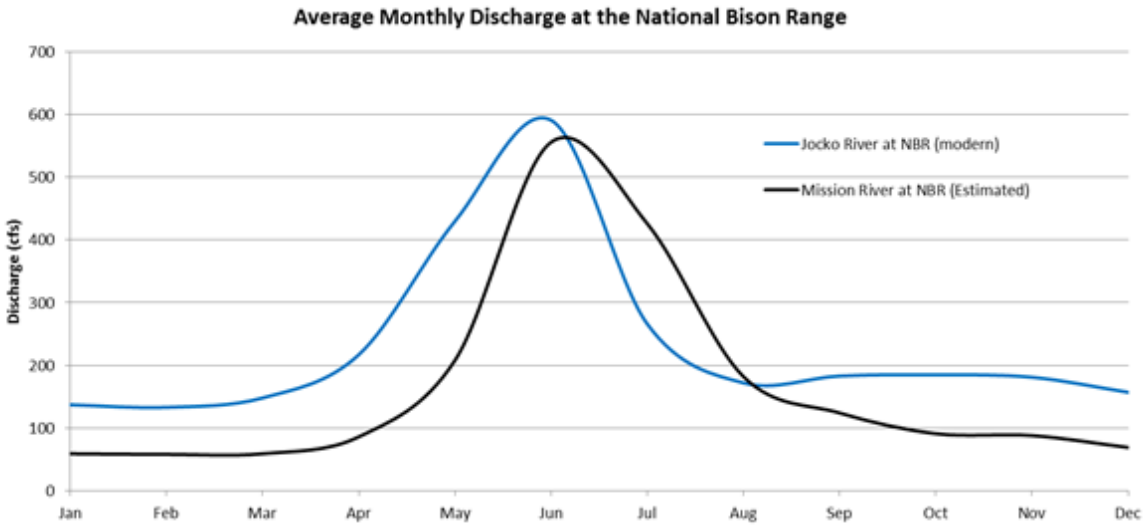

Figure 3.4. Average monthly discharge for the Jocko and Mission Rivers as they pass through the NBR. The USGS Gauge 12388200 (Jocko River at Dixon MT) with data from 1990 – 2010 was used for the Jocko River. The USGS gauging stations 12379500 (Post Creek near St. Ignatius MT) with data from 1911 – 1917 and 12378000 (Mission Creek near St. Ignatius MT) with data from 1906 – 1917 was used to estimate the discharge occurring at the NBR.

Groundwater

Aquifers occur in the deep valley-fill sediments and in zones of secondary permeability where bedrock is fractured. Direction of groundwater flow in the valley is to the west and southwest from the Mission Mountains. The metamorphic rocks that compose the NBR act as an impediment to regional groundwater flow, and groundwater from the Mission Valley to the east flows around the NBR in a northwest direction (Slagle 1988). The most widely used aquifers in the watershed are intermediate or deep alluvial aquifers lying in unconsolidated Quaternary deposits (LaFave et al. 2004). Most of the major communities rely on groundwater from local aquifers as their municipal water supply. Rural residences also rely on groundwater, and groundwater is frequently used for irrigation (Patton et al. 2003). An in-depth discussion of regional groundwater is presented in LaFave et al. (2004) and a synopsis is presented in Patton et al. (2003).

The springs present on the NBR provide a crucial source of water for the management of the bison herds. The mountain that composes the NBR is considered part of the Ravalli Group, which consists of six other geologic formations. These geologic formations are composed of several different types of metamorphic and meta-sedimentary rocks that still possess some of their sedimentary features. The predominant rock types include argillite, siltite, quartzite, and small amounts of limestone (Vuke et al. 2007). It is likely that the springs at the NBR are fed from snowmelt and precipitation on the higher mountain peaks with springs appearing where a low-permeability layer of metamorphic rock prevents downward migration of water. Additionally, springs may be present where fractures and faults within the metamorphic rocks provide a preferred flow path that eventually terminates at the surface.

Water Rights

The Service and the Montana Reserved Water Right Compact Commission negotiated a compact quantifying the Service's federal-reserved water right for NBR. The Compact was ratified in 2009 by the Montana State legislature and approved by the Montana Water Court in July of 2014 (Montana Code, Annotated [MCA] § 85-20-1601, http://dnrc.mt.gov/divisions/reserved-water-rights-compact-commission/divisions/reserved-water-rights-compact-commission/approved-compacts#RWRCCBison). The Compact quantifies consumptive and non-consumptive use of water for wildlife, stock, institutional, and administrative purposes. The Compact also provides instream flow rights for wildlife. The Service currently has a pending well application with the Montana Department of Natural Resources and Conservation and holds a Groundwater Certificate for a domestic and stock well. The Service has a state-based water right claim for irrigation and fire protection that will be adjudicated when the Montana Water Court issues the Preliminary Decree for Basin 76L.

3.2 Habitat

The Service manages refuge habitats with an objective to maintain, and restore when possible, the biological diversity and integrity of this landscape and to provide habitat for a diversity of native fauna. Grasslands dominate the landscape at lower elevations, dotted with wetland and riparian vegetation along seasonal drainages and around seeps and springs. The Jocko River and Mission Creek form riparian and wetland corridors along the north and south boundaries of the refuge. Several drainages originate from the upper elevations, where 3,700 acres of mixed-conifer forests are interspersed with the grasslands, and several smaller wetlands and streams provide critical environments (Figure 3.5).

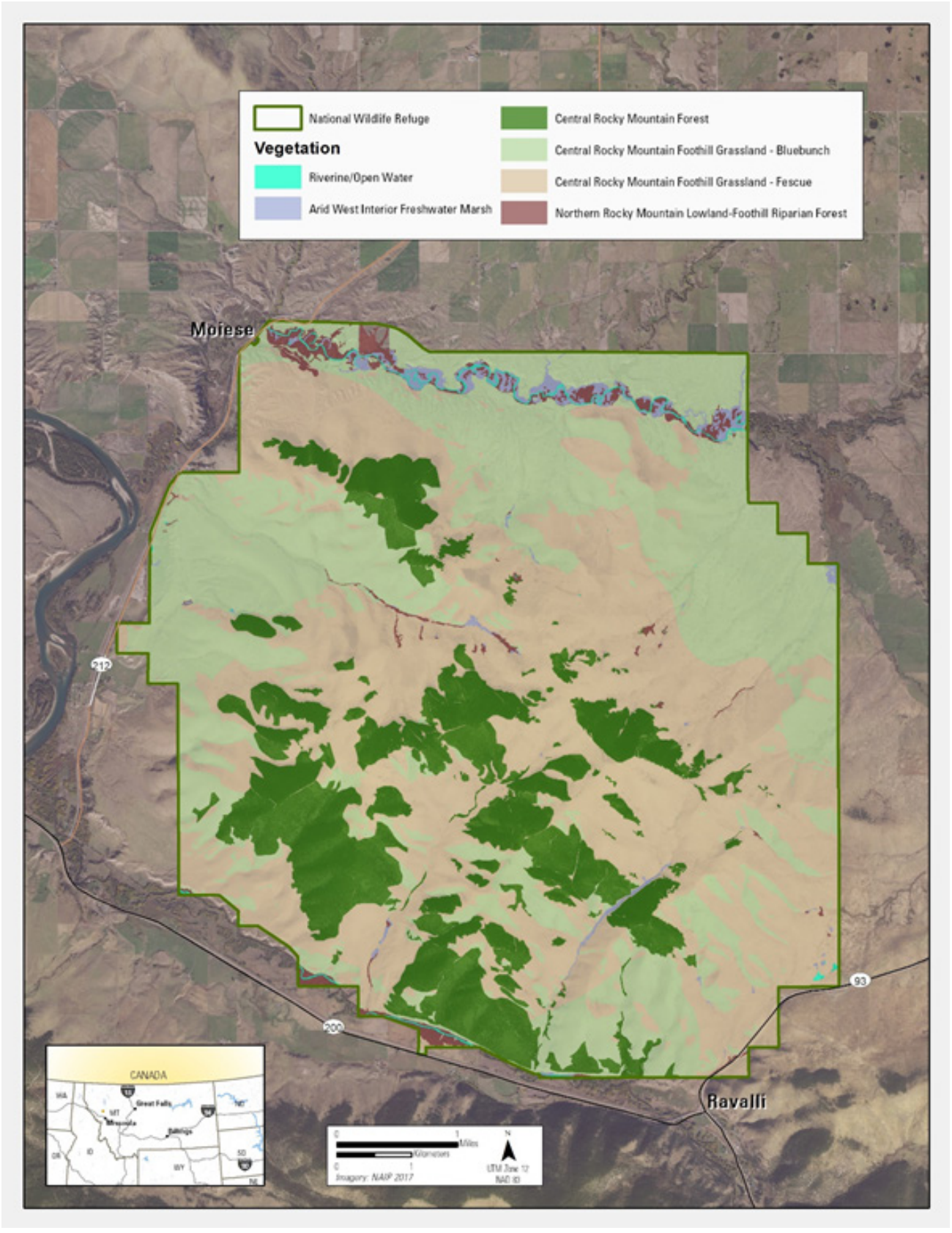

Figure 3.5. Vegetation community map of the National Bison Range. Grasslands cover the majority of the refuge and the historic climax plant community (HCPC) was either a bluebunch dominated community or fescue dominated (Marlow et al 2014). Wetland and riparian systems were mapped by the Montana Natural Heritage Program (MTNHP 2017). Forest and woodland communities were digitized using Google Earth imagery (2017).

Grasslands

Grassland communities cover approximately 75 percent of NBR and comprise one of the largest remaining tracts of bunchgrass prairie (Belovsky and Slade, in prep). Once covering intermountain valleys from the Rockies west to the Cascades and from southern Alberta/British Columbia south to northern Utah/Nevada, these prairies are now restricted to less than 100,0000 hectares by agriculture and overgrazing (Dice 1962, Shelford 1963, Daubenmire 1970). Prairies, other grasslands, and savannas have dwindled throughout the United States because their soils are typically fertile and tillable; remnant native grasslands are obvious priorities for protection (Noss et al. 1995).

Reconstruction of the pre-European grassland complex indicated that bluebunch wheatgrass would have dominated the lower elevation grasslands within the refuge while rough and Idaho fescues would have dominated the non-forested environments at higher elevations (Marlow et al. 2014). Other common grass species include prairie junegrass, western wheatgrass, green needlegrass, red three-awn and Sandberg bluegrass. Shrubs on this landscape include western snowberry and Woods' rose. A wide array of native wildflowers including, but not limited to, sticky geranium, showy golden aster, balsamroot, yellow paintbrush, prairie smoke, silky lupine, bee balm, and yellow bells occur on the refuge.

While refuge grassland communities still contain native components and continue to be productive habitats capable of supporting bison, birds and other ungulates, their departure from climax conditions has been researched and documented. Repeat sampling of the 1988 NRCS range condition survey sites in 2009-10 indicated that the level of climax grassland dominant species was well below the reference levels described in the ecological site descriptions. The apparent decline in ecological condition since 1988 was corroborated through trend analysis of a long-term vegetation monitoring dataset collected by refuge personnel since the late 1960s. Comparison of frequency measures for dominant species revealed a downward trend in climax dominants, a decline in palatable introduced perennials grasses, and an increase in annual grasses. Further comparison of these data with historic plant community composition records recovered from the Dr. Mel Morris archives at the University of Montana suggest that departure from "reference" conditions, as described in the ecological site descriptions, began over 50 years ago. This gradual decline occurred despite recognition of a changing environment by refuge staff and subsequent efforts to establish and strictly adhere to stocking rates.

Herbivory, along with wildfire, shapes the vegetation community through modification of the influence of precipitation, soils, and landform on plant survival and reproduction (Marlow et al., 2014). Refuge grasslands evolved with only periodic, relatively low-intensity grazing throughout the year. Although the bison on the refuge are managed as wildlife, the constraints of managing a fenced population mean that movement and grazing patterns of the refuge herd are different than wild populations historically. If too much of a preferred plant species is removed too frequently by grazers, the plant species population loses its competitive advantage in the community and begins to decline. Other plant species then gain a competitive edge for nutrients and water over the heavily used population and begin to dominate. Wildfire also has helped shape the environment through diversity maintenance, nutrient cycling, habitat composition, and plant-community organization and its reduction or removal as an ecological driver can have adverse effects (Steele 2007). The grasslands and forested areas on the NBR evolved through a regime of frequent, low-intensity surface fires at intervals of between 1 and 30 years primarily caused by lightning (Arno 1976, 1996, Smith and Arno 1999). Collectively, these changes in herbivory and wildfire can perpetuate a cycle of changing vegetative states across the landscape.

This bunchgrass ecosystem has also experienced an increase in average temperature over the past 101 years, which has intensified over the past 32 years, while annual precipitation also declined. Fall moisture is necessary for regrowth and sustainability of the cool season grasses that should dominate these grasslands. Climate changes (past century) are accelerating and already have substantially, and often unexpectedly, changed this ecosystem from what early Euro-American explorers and settlers chronicled (Belovsky and Slade, in prep).

Forests

Forest stands on the NBR occupy approximately 20 percent of the acreage. Black cottonwood and Rocky Mountain juniper are common along Mission Creek, while a mixed-conifer forest covers

Dave Fitzpatrick/USFWS

Great horned owls and many other birds dwell in the refuge's forested habitats.

approximately 3,000 acres of the upper elevations. Conifer species include ponderosa pine on open, southern exposures, with a gradual transition to a ponderosa pine/Douglas fir mix on or near the ridge tops, and Douglas fir on the northern aspects. Both the ponderosa pine and the Douglas fir are encroaching into the grasslands.

Western Montana forests composed of ponderosa pine were shaped by surface fires that swept through these forest stands at intervals of between three and 30 years (Arno 1976). Most of those fires were not hot enough to kill mature trees but they did thin out the forest understory. The result was an open forest with widely spaced old growth trees (Pyne 1982). It also was common to find trees mostly in rocky areas and other locations where little ground fuel was present (Miwa 1992). The result was open forest dominated by widely spaced old growth ponderosa pine with predominantly grass undergrowth (Vance and Luna 2017, Fisher and Bradley 1987, Pyne 1982).

Wildfires have been fully suppressed for many decades and prescribed fires have been used only sparingly. As a result, plant succession, fuel accumulations, structure and composition of vegetation, insect and disease populations, nutrient cycling, productivity, diversity, and habitats for wildlife are being affected. Longer fire return intervals result in Douglas fir regeneration establishing as thickets of saplings and poles creating a fuel ladder that increases the chance of stand-replacement fire. This result can be seen currently on the refuge. Some stands of Douglas fir are infested with mistletoe and insects and several stands have a thick understory composed primarily of young trees commonly described as dog-hair.

Wetland and Riparian Areas

Making up only 5 percent of the refuge, wetlands and riparian areas provide valuable habitat for refuge wildlife. Productive, stable wetland and riparian areas occur along all major riverine systems within NBR, including the Elk, Mission, Pauline, Sabine, and Trisky Creeks and the Jocko River. Many seasonally flooded stream channels, and areas around seeps and springs, also provide riparian habitat.

Black cottonwood and Rocky Mountain juniper are common along Mission Creek. Juniper dominates this stretch due to alterations in seasonal flooding along its banks and a lack of wildland fire. Other common plant species at these sites include shrubs and trees such as hawthorn, chokecherry, and serviceberry as well as many forbs, sedges, and rushes. The vegetative components of the riparian areas act as buffer zones which provide a number of benefits, including improved water quality, for wildlife and humans alike.

The NBR wetlands are classified as freshwater emergent and freshwater forested/shrub by the National Wetlands Inventory (2017). There are also several created wetlands that resulted from check dams on drainage ways that provide a source of water for wildlife. Seeps and springs occur on the refuge and have also been developed as water sources for wildlife; these areas are generally believed to be in good, functioning condition across the refuge.

Invasive Plant Species

Invasive plant species are recognized as a significant factor affecting ecosystem function and health across this landscape. Invasive species management using best management practices, based on current science, is a priority in all habitat types (Table 3.1). Integrated management techniques, including chemical, biological, and mechanical methods, are used to address problems with invasive species. Partnerships are an integral part of the effort to manage invasive species.

Invasive plants threaten the health and quality of the habitat by altering ecological processes such as community productivity; soil, water, and nutrient dynamics; plant community successional patterns, and disturbance cycles. Invasive plant monocultures change the physical structure of the native communities by reducing species diversity, increasing soil erosion resulting in changes in soil structure and chemical composition, and altering the microclimates. Invasive plants can detrimentally affect native communities through competitive exclusion, altering behaviors of insect predation and hybridization with native plants.

Invasive forbs have been documented on the NBR for many decades, while managers combatted them with herbicides, biological agents, and/or mechanical methods. The annual narratives reported invasions of St. John's-wort on up to ten thousand acres in the 1920s, where today, credit for cyclical control can be given to the nearly 60 years of coordinated efforts using biological control agents. Several invasive forbs that historically threatened the integrity of these ecosystems have now been reduced to "acceptable" levels, where they exist but are no longer the dominant species. Still new threats are always on the horizon, and efforts are continually confounded by variables such as climate change, precipitation patterns, and a simple lack of information. Currently, winter annual grasses (e.g. cheatgrass and North African wiregrass) are among the most aggressive competition for native bunchgrasses on the NBR and are extremely challenging for managers to control. At present, North African wiregrass is vigorously invading the refuge and many other areas across western Montana. NBR staff are working with scientists to develop a coordinated plan of action and treatments are underway, however it is expected to be a long-term battle.

Table 3.1. Invasive Plant Species Currently Identified as Priorities on the NBR

Invasive Plant Species	Invasive Plant Species
Canada thistle (*Cirsium arvense*)	Spotted knapweed *(Centaurea maculosa)*
Cheatgrass (*Bromus tectorum)*	St. John's-wort *(Hypericum perforatum)*
Dalmatian toadflax (*Linaria dalmatica)*	Sulpher cinquefoil *(Potentilla recta)*
Hawkweed (*Hieracium caespitosum)*	Teasel *(Dipsacus fullonum)*
Houndstongue *(Cynoglossum officinale)*	North African wiregrass *(Ventenata dubia)*
Leafy spurge *(Euphorbia esula)*	Whitetop *(Lepidium draba)*
Poison hemlock *(Conium maculatum)*	Yellow toadflax *(Linaria vulgaris)*
Russian olive *(Elaeagnus angustifolia)*	Yellowflag iris *(Iris pseudacorus)*

3.3 Wildlife

The NBR habitats provide cover, food, water, and sufficient space for numerous native wildlife species. This section provides details regarding federal trust species and other wildlife, federally protected species, and Montana species of concern.

Bison

The NBR grasslands support a healthy population of plains bison that are managed as wildlife with significant genetic conservation value to the USFWS (Halbert and Derr 2008, Dratch and Gogan 2010), while also providing public viewing opportunities in a natural setting.

Following the development of new molecular techniques to describe the genetic diversity and integrity of bison (Halbert and Derr 2006, Halbert and Derr 2008), the DOI established the Bison Conservation Initiative which set the goal of restoring bison herds to their appropriate ecological and cultural role, including specific emphasis on disease and genetic health (DOI 2008). Additional guidance was provided by the DOI Bison Conservation Genetics Workshop Recommendations Report in 2010, highlighting DOI bison as a critical genetic resource to support future bison conservation and restoration efforts (Dratch and Gogan 2010).

Genetic diversity provides the foundation for adaptive capacity on the evolutionary pathway of bison. Low genetic diversity results in reproductive failure, poor recruitment, and lack of disease resistance—obstacles that have plagued many species conservation efforts (Halbert et al. 2004, Giglio et al. 2016). NBR bison contribute significant and unique components to the NWRS and DOI bison herd genomes (Halbert and Derr 2008, Dratch and Gogan 2010). Although population size is the most important factor in the rate of genetic diversity loss, NBR is unable to maintain population numbers high enough to independently conserve bison (Gross et al. 2005, Hedrick 2009). Management of all bison refuges together as a metapopulation allows all herds to contribute to long-term conservation of bison, and periodic movement of bison among refuges supports gene flow across large landscapes. Work has begun on developing a science-based to expand NWRS bison metapopulation management to a DOI-wide scale to more effectively manage genetic diversity in bison.

Careful management of genetically diverse bison herds is essential to ensure long-term species conservation (Hedrick 2009, Gates and Ellison 2010). Geneticists recommend maintaining an even sex ratio, minimizing variation in population size, maximizing effective population size, and maximizing generation time as indirect methods to mitigate the effects of genetic drift (Gross et al. 2005, Dratch and Gogan 2010). Results from recent population modeling suggests that using genetic data to support population management results in maintaining higher levels of genetic variation than selecting bison for surplus randomly. Including the indirect methods described above, within 200 years, heterozygosity may decline below 0.5 and within 500 years more than 1/3 of gene diversity may be lost through random removal (Giglio et al. 2016, Traylor-Holzer 2017, Giglio et al. 2018). The rate of diversity loss varies between herds, and herds with higher starting diversity, such as NBR, have a higher rate of loss (Giglio et al. 2018).

An "all allele conservation strategy" was implemented as part of NBR's annual bison population management activities from 2008-2014 in an effort to conserve genetic diversity by retaining all microsatellite alleles of the loci identified by Halbert and Derr (2008). However, conservation of bison genetic diversity is better achieved using genome-wide estimates of mean kinship derived from these microsatellites where loss of only ¼ of gene diversity over 500 years is an achievable goal (Giglio et al. 2016, Giglio et al. 2018). Animals with highest mean kinship values are genetically over-represented in the population (Ballou and Lacy 1995) and are therefore most appropriate for surplus to minimize inbreeding (Giglio et al. 2016).

Geneticists agree that conserving diversity is the highest genetic priority and that low levels

of introgression of domestic cattle genes are much less significant for bison conservation (Hedrick 2009, Gates and Ellison 2010). Currently, NBR bison are tested for the presence of cattle introgression in both nuclear and mitochondrial DNA (mtDNA), and NBR has one of the lowest levels of cattle introgression within DOI (Halbert and Derr 2006; Dratch and Gogan 2010). Based on recommendations by geneticists (Hedrick 2009, Derr et al. 2012), removal of a small number of bison with known cattle mtDNA introgression at NBR was completed several years ago due to the potential metabolic effects of cattle mtDNA in bison. No mtDNA introgression has been detected in the past decade. Until more sensitive techniques are developed to detect nuclear cattle gene introgression, we do not manage cattle introgression at NBR (Dratch and Gogan 2010).

Bison are captured annually as needed to remove offspring that exceed NBR ecological carrying capacity, which can support approximately 285-300 overwintering bison. Live bison capture and removal supports conservation efforts of partners such as Tribes, states and non-profit bison conservation organizations, assists in the restoration of self-sustaining herds on Tribal lands, and ensures that the ecological needs of other species are met on limited-size NWRS units. In order to select and deliver live excess bison to our partners from each refuge, the animals must be gathered and brought into handling facilities, and the welfare of each bison is considered during this capture and handling period.

The portion of the NBR herd that is handled during bison captures operations averages 90-95 percent. Mature animals that are reluctant to be moved towards the handling facility are left alone in the field. Low-stress handling techniques are used to separate animals by age, sex and behavior early in the handling process to prevent injury and small groups of bison are more easily handled than larger groups. Appropriate position and posture of personnel is essential to safe and efficient bison movement through a facility. Stimuli begins at the lowest level possible by simply opening up access to the area to which the animal needs to move and allowing time for the bison to recognize and move into that area without additional stimuli. Use of additional visual stimuli, including the use of modified personnel posture, is added only if needed. Flags are used as additional visual stimuli only if animals do not respond to modified personnel position and/or posture. Use of audio stimuli, including the use of voice, rattles or other noise, is added only if lower-level stimuli are ineffective. Tactile stimuli is reserved for use only when absolutely necessary. Each additional stimulus is provided with adequate time for the animal to respond.

Animal identification is achieved through the use of subcutaneous microchips (also called "pit tags") inserted at the base of the ear of calves. We may also use a small, metal "brite tag" approved by USDA as part of the national identification system required for interstate animal transport. Branding was phased out more than a decade ago due to the development of microchip technologies, which allow for the identification of specific individuals, and concerns over humane treatment of the animals.

We have streamlined our protocols to reduce handling stress and the handling process and facilities are reviewed annually to identify potential areas for improvement:

- Herd health sampling activities associated with the annual population management captures are limited to younger age classes, with all calves handled to collect genetics and health samples and for microchip insertion. Most yearlings, and some 2 or 3 year olds, are handled as part of the annual population management process for removal from the herd; these animals are prioritized for sampling as part of the health surveillance program to minimize handling of adults. (See wildlife health below for more detail).
- Weak or injured animals are ideally left in the field, but if captured are handled as little as possible until they can be released out of the facility.

Animals for which identification and/or genetic information is unknown, such as older bulls with a damaged or missing microchip, may be sampled using a small remotely delivered tissue biopsy to better inform herd genetic composition.

Other Ungulates

The NBR supports populations of elk, mule deer, white-tailed deer, bighorn sheep and pronghorn. Elk population targets (Table 3.2) are not currently maintained through natural predation and, therefore, management efforts are implemented to remove surplus elk when necessary to meet objectives.

Mule and white-tailed deer population targets (Table 3.2) are maintained naturally through predation. Movement by deer across the exterior boundary fence is common and the number of each species on the refuge varies seasonally.

While movement across the exterior boundary fence has been documented in both the bighorn sheep and pronghorn populations, they are primarily a resident population on NBR. In recent years, the bighorn sheep population has experienced a pneumonia-related die-off reducing the population by 80 percent and triggering refuge-supported research efforts. The pronghorn population has experienced a substantial decline in population size over the last several years due to heavy fawn predation by coyotes. After several years of no recruitment, efforts to reduce predation within the pronghorn fawning areas have been re-initiated.

Table 3.2. The Species and Estimated Populations of Bison and Other Native Ungulates on the National Bison Range, Montana, in 2018

Species	Estimated current population
Plains bison	285-300
Rocky Mountain elk	150
Mule deer	200
White-tailed deer	200
Rocky Mountain bighorn sheep	32
Pronghorn	34

Birds

The grasslands also support a diversity of native birds, with more than 200 species recorded on NBR since its establishment. Birds provide a variety of ecosystem services that are vital to ecosystem function (Whelan et al. 2008). Birds aid in seed dispersal through direct means such as seed ingesting and then defecating (endozoochory) and caching (synzoochory). Clark's nutcracker is particularly well known for dispersing seeds of several pine species and is present on the NBR. Raptors also secondarily contribute to seed dispersal by consuming primary seed-eaters, and some birds play a role in pollination. Birds control the presence of pest species by eating seeds of weedy plant species and by hunting herbivorous insect and rodent species that consume human crops. Scavenging bird species such as turkey vulture, golden eagle, and black-billed magpie dispose of carcasses on a landscape and prevent spread of diseases. Birds are also prey species to larger predators. While an individual bird does not contribute to an ecosystem on the same scale as an individual charismatic megafauna, the sum of their contributions has major impacts on ecosystem function.

Several species of conservation concern in Montana breed in the diverse habitats of the NBR, driving the designation as an Important Bird Area (IBA). The IBA program, started in Montana in 1999 and coordinated by BirdLife International, is a global effort to identify and conserve areas vital to birds and biodiversity. Some of the species that qualified the NBR for this designation are **indicated in bold below** (https://www.audubon.org/important-bird-areas/national-bison-range).

Grassland bird species are of particular conservation significance because of the relative scarcity of intermountain grasslands remaining in western Montana and include **grasshopper sparrow**, clay-colored sparrow, long-billed curlew, and western meadowlark.

Wetland, riparian, and edge habitats support a diverse suite of species including western and mountain bluebird, **lazuli bunting**, yellow warbler, yellow-breasted chat, and **willow flycatcher.**

Dave Fitzpatrick/USFWS

Bighorn sheep, deer, and other large ungulates share refuge resources and habitats.

Forest habitats provide breeding and refuge for species such as the Townsend's solitaire, **red-naped sapsucker**, and **Lewis's woodpecker.**

Upland game bird species include ring-necked pheasant, gray (Hungarian) partridge, dusky grouse, and ruffed grouse.

Common raptors include **bald eagle**, golden eagle, American kestrel, northern harrier, red-tailed hawk, short- and long-eared owl, and great-horned owl, all which forage or nest on the NBR. In some years, the Mission Valley supports high densities of wintering rough-legged hawks.

Waterfowl, such as canvasback, goldeneye, mallard, and American wigeon, are abundant on the wetlands and rivers of the NBR. The largest concentrations of waterfowl occur on Mission Creek in the winter, but many species nest on the managed and natural wetland basins. Trumpeter swans spend the winter on waters that do not freeze and are regularly observed on Mission Creek and its associated sloughs.

Avian health is an integral part of the NBR monitoring program, and surveys are conducted based on perceived refuge-specific concerns or threats identified by local, state, Tribal, and federal officials.

Other Mammals

Large carnivores such as badger, bobcat, coyote, black bear, and mountain lion are year-round residents that reproduce on NBR. Wolves are sporadically reported on or near NBR; in the winter of 2012 and again in 2013, a lone wolf was documented on the refuge. Similarly, grizzly bears are not considered year-round residents but have been increasingly reported on NBR in recent years, and have been photographically documented each year since 2012.

Small mammals such as Columbian ground squirrel, yellow pine chipmunk, and voles are common and cyclical and are an important forage base for carnivorous mammals and raptors. Muskrats are regular inhabitants of wetland potholes. Although not considered common, mink and long-tailed weasel have also been recorded. Three bat species of concern are documented to occur on the refuge, the fringed myotis, hoary bat, and Townsend's big-eared bat.

Fish, Reptiles, and Amphibians

Mission Creek and the Jocko River are the only bodies of water that support cold-water species, such as rainbow trout and brown trout, on NBR. Historically bull trout, a threatened species, occurred along the entire length of Mission Creek and the Jocko River. Reduced stream flows, increased sedimentation, non-native fish, and reductions in the amount and quality of riparian habitat, particularly off the refuge, have affected this species' ability to survive (USFWS 2015).

NBR is known to support prairie rattlesnake, rubber boa, bullsnake, eastern racer, and garter snake. Painted turtles are common in wetlands and ponds. Amphibians documented on the NBR include Columbia spotted frog, long-toed salamander, Pacific treefrog and western toad (MTNHP 2018). The non-native, invasive American Bullfrog (*Lithobates catesbeianus*) has been documented near the refuge in Sanders County.

Wildlife Health

In 2004, the NBR developed and implemented a comprehensive health surveillance program that remains an integral part of wildlife management today. This program allows the NBR and the USFWS to aid in research of zoonotic pathogens and assist with early detection on a landscape scale, while also monitoring and maintaining healthy local populations. The Service's Natural Resource Program Center Wildlife Health Office takes a lead role in assisting refuges nationally to identify risks, recognize signs, develop monitoring and sampling protocols, and implement management efforts.

Dave Fitzpatrick/USFWS

Pronghorn graze along the refuge's grassland habitats.

Although some level of disease and parasites is considered to be part of natural selection in a normally functioning ecosystem, the risks from emerging infectious diseases such as Mycoplasma bovis (Janardhan et al. 2010, Woodbury 2012, USDA 2013), combined with the risks of well-known introduced livestock diseases, such as brucellosis and tuberculosis, require robust health surveillance and monitoring protocols to effectively conserve small populations of bison. Additionally, management of bison as a metapopulation across the NWRS requires adherence to a variety of interstate transport regulations that frequently change from year to year in response to changes in the animal health concerns within each state.

Consistent with the paradigm shift to managing bison as wildlife, veterinary intervention has been substantially reduced in recent years. Vaccination and disease-specific treatments are no longer routinely applied, although mitigation for the exacerbation of an existing disease condition due to handling or other management activities is considered if a large portion of the herd is affected and if little to no additional stress to the animal is expected.

Disease surveillance is conducted at NBR throughout the year, and includes the following:

- Morbidity and mortality surveillance is a very effective way to evaluate disease status. Methods include general animal health observations performed during routine refuge management activities, along with conducting necropsies on mortalities found in at least good post-mortem condition. The Wildlife Health office provides guidance on targeted sampling options that are appropriate for situations where post-mortem condition or other issues prevent a full necropsy.

Dave Fitzpatrick/USFWS

Bears can be found utilizing all habitats on the refuge.

- Body condition is scored during the bison-handling process using standard criteria established by the Wildlife Health office. A decrease in body condition scores results in further evaluation of herd health, habitat condition, animal densities, and distribution.
- Fecal parasite counts are evaluated in bison annually relative to population density and distribution from samples collected in the field during the summer. If necessary, habitat management is implemented, such as the use of prescribed fire, to improve animal distribution. Anthelmintic treatment would only be considered by the Wildlife Health office if habitat management options failed to reduce excessive parasite burdens.
- Johne's disease was historically detected in NBR bison and has been evaluated based on serology, targeted necropsies and fecal culture, but morbidity and mortality surveillance is a very effective method to detect this disease. In addition to necropsy of bison mortalities and targeted serologic surveillance, polymerase chain reaction testing of fecal material may provide an additional method of surveillance for this disease within a herd (Youssef et al. 2014). No evidence of Johne's Disease has been detected in NBR bison since 2006.
- During the annual population management captures, young bison that are handled for genetic sampling or for surplus removal are tested for several diseases, including tests required for interstate transport. This annual surveillance generally results in statistical detection probabilities for disease at 7 percent prevalence with 90 percent confidence in most cases, but surveillance efforts may vary from year to year depending on the health of surrounding wildlife, livestock, or on other factors driven by regional animal health concerns. A small number of additional adult animals may occasionally be handled for specific disease sampling based on clinical presentation, body condition, or past disease test results.

Disease response is considered on a case-by-case basis, depending on the disease(s) involved, species affected, severity of the outbreak, transmission cycles that may involve vectors, area livestock and risk to the genetic resource. Risks to resources outside of the refuge and ongoing consultation with partners is a priority. Response using habitat management is considered first, including encouraging animal distributions that reduce density. Use of veterinary treatments is generally reserved, unless the bison genetic resource is at risk, to allow disease resistance to develop naturally in NWRS bison herds.

3.4 Threatened and Endangered Species and Species of Conservation Concern

As of April 2018, we have identified four listed species that may occur on NBR: bull trout (threatened), grizzly bear (threatened), yellow-billed cuckoo (*Coccyzus americanus*; threatened) and Spalding's catchfly (*Silene spaldingii;* threatened):

- Bull trout may occur in the portions of Mission Creek and the Jocko River that flow through the NBR. The entire area is located within the Columbia Headwaters Recovery Unit in the Lake Pend O'Reille (A) core area (USFWS 2015). The stretch of the Jocko River that flows through the refuge has been designated critical habitat (FR 75 63898, October 18, 2010).
- Grizzlies are known to occur regularly and seasonally throughout the Mission Valley. The NBR lies within the demographic connectivity area for the Northern Continental Divide Ecosystem (NCDE) grizzly bear population (USFWS 2013). The CSKT Wildlife Management Program is the local manager of grizzly bears within the exterior boundaries of the Flathead Indian Reservation and they work cooperatively with all property owners to effectively manage grizzly bears. Grizzlies have been reported by NBR visitors over the years and have been documented photographically in recent years. No evidence of denning activity is known on the NBR. All grizzly sightings are reported directly to CSKT bear management biologists, who lead trapping, tracking, and movement efforts within the Flathead Reservation.
- Spalding's catchfly has not been documented on NBR but suitable habitat is thought to exist, and surveys have been conducted periodically in the past.
- The yellow-billed cuckoo has not been documented on NBR but suitable habitat is thought to exist.

There are 41 animal and 2 plant species documented on the NBR that are designated as species of concern by the Montana Natural Heritage Program (Appendix G, MTNHP 2018). The wildlife species of concern have also been designated as priorities in the Montana State Wildlife Action Plan (MTFWP 2015b). Partners in Flight (2017) has also designated 10 of the bird species of concern on NBR as species of continental concern. Canada lynx (threatened) (*Lynx canadensis*) and wolverine (proposed threatened) (*Gulo gulo*) are wide-ranging species that also occur in Lake County and Sanders County.

Dave Fitzpatrick/USFWS

Golden and bald eagles hunt, feed, and rest at the refuge.

3.5 Cultural Resources

Although people have lived in the region for thousands of years, relatively few cultural resource investigations have been conducted, and accordingly, few sites have been formally recorded. This is not necessarily due to a lack of cultural resources on the NBR, but rather, is likely a reflection of the limited amount of previous work completed. Twenty-four cultural resource reviews have been conducted for the NBR in association with Section 106 compliance under the NHPA. These projects took place between 1991 and 2017 and consist of 14 modifications to buildings or structures, eight projects with potential ground disturbance, one project with both modifications to a building and ground disturbance, and one land exchange.

In the future, undertakings that might reasonably be anticipated on the NBR would generally involve minimal associated ground disturbance, and might include removal, replacement, installation of fencing, prescribed burns, herbicide application, revegetation measures (i.e. seeding or planting), wetland restoration, enhancement projects, removal of abandoned structures, modification of existing water control structures and ditches, and development or maintenance of infrastructure (e.g. utilities or roads). Projects should be reviewed under Section 106 of NHPA and as well as coordinated with the CSKT Tribal Historic Preservation Office (THPO).

Eight cultural resources have been previously documented on the NBR. These consist of two pre-contact sites, two historic resources, and four resources that are of uncertain age or affiliation. With the exception of one of the historic sites, all of these sites are considered potentially eligible for the National Register of Historic Places. In addition to the probable existence of numerous pre-contact sites, there are several historic buildings and structures, primarily associated with the Civilian Conservation Corps or the Works Progress Administration, that have not been formally recorded. Additional information concerning cultural resources at the NBR may be on-file at the CSKT THPO.

It is anticipated that a wide-range of cultural resource types are located on the NBR but have yet to be documented. These could include, but would not be limited to, precontact or protohistoric open camps, stone circles and alignments, cairns, lithic scatters, rock shelters, trails and roads, drive-lines, kill (i.e. jump or pound) sites, hunting blinds, eagle traps, fasting beds, and rock imagery, as well as historic buildings and structures associated with the mission and operation of the NBR.

Refuge Resources Important to Tribes

Consultation regarding cultural resources and the traditional uses of NBR natural resources should be pursued with CSKT and other interested Tribes. These discussions would help identify and protect important resources, including burial locations, plant-gathering areas, and ceremonial locations, and ensure appropriate access. Tribes that are interested in collecting small quantities of plants or other natural resources need to contact the refuge manager and obtain a special use permit before collecting materials. Bison are a managed species on NBR, and many Tribes still consider them as central to their culture. The CSKT view all native species as ecologically and culturally important and value the existence, well-being and ecological role of each. Many Tribes also use eagle feathers and parts today for ceremonial purposes. The Service provides salvaged eagles and eagle feathers to Tribal members through the National Eagle Repository located in Colorado.

3.6 Socioeconomics

This section describes the social and economic aspects that the alternatives may affect, including population, demographics, and employment; public use of NBR; and baseline economic activity.

NBR has been part of the surrounding communities for more than 100 years. Most local community members have come to enjoy and appreciate the resources and public use activities available to them. Besides local and State residents, visitors come from all over the country and the world to visit NBR and experience this iconic refuge. The NBR is located along a major State highway that is also adjacent to the main highway leading to Glacier National Park, approximately two hours north. The NBR is well identified by directional signage on the highway. NBR is listed as one of the top ten tourist attractions in Montana by the Institute for Tourism and Recreation Research (Grau et al. 2013) and is considered one of the top three tourist attractions for visitors to Lake and Sanders County (T. McDonald, personal communication).

Natural resources destinations, like NBR, bring many visitors to the State. The most frequently

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Bison as well as cultural and natural resources are important to all the residents of northwest Montana.

cited activity was scenic driving. Day hiking, nature photography, and wildlife watching were the second, third, and fourth most popular activities engaged in by 52, 51, and 50 percent of vacationers, respectively. Most of NBR is open to recreational activities, such as scenic driving, day hiking, nature photography, and wildlife watching. These recreational opportunities attract nonresident visitors who spend hundreds of thousands of dollars in the local communities. Total tourism spending brings an estimated $3.98 billion annually to the State, contributing substantially to the local economies, including lodging, food, gas, and tourism industries (Grau et al. 2013).

Population, Demographics, and Employment

NBR is located in Lake and Sanders Counties. The largest community in this area is Polson, Montana, which is the Lake County seat and has an estimated population of 4,674 (U.S. Census Bureau 2010). The remaining communities in Lake County are Arlee, Big Arm, Charlo, Dayton, Dixon, Elmo, Pablo, Ravalli, Ronan, St. Ignatius, and Swan Lake. The communities in Sanders County are Thompson Falls, Dixon, Heron, Hot Springs, Lonepine, Noxon, Paradise, Plains, and Trout Creek, with the closest being Dixon, Hot Springs, and Plains. Thompson Falls is the Sanders County seat and has an estimated population of 1,153 (U.S. Census Bureau 2010).

The largest communities within 100 miles of the refuge are Missoula, Montana (50 miles south), with an estimated population of 70,117, and Kalispell, Montana (80 miles north), with an approximate population of 21,619 (U.S. Census Bureau 2010).

Lake County and Sanders County Population and Demographics

Lake County is Montana's ninth most populous county, with an estimated population in 2017 of 30,273—almost 3 percent of the State population, estimated at 1,050,493. Between 2007 and 2017, the number of people living in Lake County increased by 7.1 percent, which was lower than the State growth rate of 11.0 percent (U.S. Census Bureau 2017). Future population projections for the study area and the State overall are expected to follow historical trends, increasing slowly.

In 2017, the population density for Lake County was 20.3 people per square mile, much higher than the State population density of 7.16 people per square mile (Wagner 2017). Approximately 25 percent of Lake County's population lives within the incorporated communities of Polson, Ronan, and St. Ignatius. In 2016, the median age in the County was 42.4. In 2016, 68.1 percent of the Lake County population was White and 25.3 percent were American Indians or Alaska Natives (U.S. Census Bureau 2017).

Sanders County is Montana's seventeenth most populous county, with an estimated population of 11,711 in 2017—almost 1 percent of the State population. Between 2010 and 2017, the population of Sanders County increased by 2.6 percent, which was lower than the State growth rate of 6.2 percent during the same time period. Future population projections for the county are expected to follow historical trends, increasing slowly.

In 2017, the population density for Sanders County was 4.2 people per square mile, lower than the State population density of 7.16 people per square mile (Wagner 2017). In 2016, the median age in Sanders County was 51.9, compared with the State median age of 39.8. In 2016, 91.9 percent of the study area population were White, 3.8 percent were American Indians or Alaskan Natives, and 4 percent were other ethnic groups, including 2.6 percent Hispanic (U.S. Census Bureau 2017).

The median household income and per capita income in Lake County in 2016 were $39,898 and $23,191, respectively. The percentage persons living below poverty in 2016 is reported at 21.4 percent. In Sanders County, the median household income and per capita income in 2016 were $34,336 and $20,810, respectively, slightly lower than in Lake County. The percentage of persons living below poverty in 2016 was 22.3 percent (U.S. Census Bureau 2017).

Lake County and Sanders County Employment

The Lake County economy, similar to the State of Montana, has changed substantially over the past 40 years. In 1970, half of Montana's workers were employed in the farming and ranching industries, the Federal government, forestry, manufacturing, mining, and tourism. By 1997, only one-quarter of Montana's workers were employed in these industries. In Lake County, farming and ranching are still major contributors to the economy, along with local and Tribal governments and services. The service sector employs more workers and produces more personal income than any other sector in Lake County. Services do not typically

make a "product," but use knowledge to generate income. Some examples are medical care, auto repair, legal representation, and tourism. This sector now employs one out of every three workers in Lake County. Some of the largest employers in the community surrounding NBR include CSKT, Jore Corporation, St. Luke Community Healthcare, and the school districts. CSKT employs an average of 1,100 workers, including seasonal employees, in several Tribal programs. An additional 250 employees work at the Tribal college, S&K Technologies, and the KwaTaqNuk Resort. Of these CSKT employees, approximately 75 percent are Tribal members. In 2016, the labor force in Lake County was estimated at 12,982, and the unemployment rate was 8.8 percent (U.S. Census Bureau 2017).

In Sanders County, farming and ranching are still major contributors to the economy along with local and Tribal governments and services. The labor force in Sanders County in 2016 was estimated at 4,514, and the unemployment rate was 9.3 percent (U.S. Census Bureau 2017). Services such as education, health care, and social services account for most (21.6 percent) of the employment opportunities (City-Data.com 2016). The other major employment industries are agriculture, forestry, fishing and hunting, and mining (12.8 percent) and construction (11.0 percent). The largest employers in the study area include Clark Fork Valley Hospital; Avista Corporation; Quinn's Hot Springs Resort; Thompson River Lumber; and schools, banks, and grocery stores.

NBR employs 7 permanent, full-time employees, and 1 career-seasonal employee. All the staff at the NBR are permanent residents in the surrounding communities (primarily Lake County), owning or renting homes and purchasing goods from local businesses.

Visitor Services on the National Bison Range

Providing a high-quality visitor experience is important at the NBR. Annual visitation to the NBR is most heavily concentrated during spring through fall, when the full length of the Red Sleep Mountain Drive is open. Wildlife observation, photography, and hiking account for an estimated 94 percent of visits to the NBR (USFWS 2017a).

Visitors come from all over the country and other parts of the world to learn about NBR and enjoy a variety of wildlife-dependent recreational activities (Figure 3.6). In 2017, NBR welcomed approximately 180,000 visitors (USFWS 2017a). Visitors participate in wildlife observation and photography, environmental education and interpretation, and fishing. The estimated number of visitors is derived from the car counter located at the entrance to the NBR. The number of vehicles recorded entering the NBR is then multiplied by 3.4, the approximate average number of occupants per vehicle.

Dave Fitzpatrick/USFWS

The refuge's existence and activities contribute to a bright future for the residents of northwest Montana.

Brochures containing area maps, public use regulations, fish, wildlife and plant species, and general information are available for the NBR. Birding is a popular activity, given the abundant species of waterfowl, songbirds, and raptors that use the lands and waters on the NBR.

The NBR is generally open from dawn to dusk, with the opening and closing times posted at the front gate. The Visitor Center is open May-October, seven days a week, 9am-5pm. The most popular activity for visitors is driving the Red Sleep Mountain Drive, which offers spectacular scenery and opportunities to view and photograph wildlife. In the winter, all but 7 miles of the Red Sleep Mountain Drive are closed due to snow drifts blocking the road. The Visitor Center is closed in the winter.

During the summer season, as authorized by the Federal Lands Recreation Enhancement Act (16 USC § 6801), the Service collects an entrance fee from visitors who use Red Sleep Mountain Drive. These collected fees are used for visitor service programs and facilities on the NBR. The NBR sells a refuge-specific pass and the America the Beautiful (ATB) passes. The refuge-specific pass gives visitors access to the 19-mile Red Sleep Mountain Drive auto tour route. This fee is collected during the months the Red Sleep Mountain Drive auto tour route is open (mid-May through early October). The refuge determines the price of these passes, and the fee can be adjusted in accordance with Service policy and regulations.

The ATB pass program was created by Congress with the passage of the Federal Lands Recreation Enhancement Act in December 2004. As with the refuge-specific (auto tour route pass), the ATB passes are sold when the Visitor Center is open. The cost of the ATB passes are determined nationally. Other passes which are part of the ATB Pass Program, that are no cost to qualified visitors,

are the Access, Military, Volunteer, and Every Kid in a Park (EKiP 4th-grade) passes.

We do not allow camping on the NBR; however, there are several privately-owned campgrounds, including recreational vehicle (RV) campgrounds, in the surrounding communities. There are also several motels, restaurants, and gift shops located within 35 miles of the NBR.

Hunting

Hunting is not allowed on the NBR (see Section 2.7).

Fishing

Fishing is allowed on designated areas of the NBR in accordance with joint State and CSKT regulations. In addition to the joint State and CSKT regulations, the NBR has the following refuge-specific fishing regulations,

- We allow public access by walk-in only. All anglers must remain with 100 feet (30 m) of the creek, except they may use the canal road to access the creek.
- We prohibit the use of lead or lead-based lures or sinkers.
- Excellent fishing opportunities exist on the NBR, but a relatively low number of the total visitors participate in fishing. Anglers visiting NBR enjoy fishing for cold-water species, such as rainbow and brown trout, along parts of the scenic Mission Creek and Jocko River. Fishing on Mission Creek is open seasonally, spring through fall. Fishing on the Jocko River is open to catch-and-release trout fishing year-round. Fishing seasons and creel limits are set by joint State and CSKT regulations.

Wildlife Observation and Photography

Opportunities for wildlife observation and photography are abundant within the NBR; it is the primary reason visitors come to the NBR (Carver and Caudill 2013, USFWS 2017a). The most popular activity for visitors to NBR is the Red Sleep Mountain Drive that takes visitors through a variety of wildlife habitats (Carver and Caudill 2013, USFWS 2017a). In the winter, the upper road portion of Red Sleep Mountain Drive that traverses Red Sleep Mountain is closed, but a shorter 7-mile winter route is kept open October through May, weather and road conditions permitting.

NBR has a day use area and nature trail near the visitor entrance gate. There are picnic tables, a covered pavilion, and several vault toilets. The area receives substantial use during the summer, especially on weekends and holidays. Often, visitors begin or end their visit at the day use area. Foot access at the NBR is restricted to a few designated trails to reduce the risk of visitors coming into close contact with bison.

Wildlife photography is also popular on NBR. Many photographers come to the refuge to capture the landscape of the Mission Mountains, the NBR itself, and the wildlife species. The most popular species for wildlife photographers are the large mammals, including bison, elk, deer, pronghorn, bighorn sheep, and black bear. Elk are popular during the rutting season in the early fall months (Carver and Caudill 2013, USFWS 2017a).

Environmental Education

The diversity of habitats and wildlife found throughout the NBR makes it an ideal classroom for the area's environmental education needs. Numerous educators and students, from preschool to university level, use the NBR for field trips. These visits are largely self-guided.

School groups can check out various field kits, which can include activity sheets on different topics, field guides, and collection tools for wetland fauna. School groups use the day use area and nature trail for environmental education activities, staging, and eating.

Interpretation

The Visitor Center has interpretive displays and an orientation video. Here, visitors can obtain brochures with maps, public use regulations, bird lists, and general information for the entire NBRC. The displays focus on the wildlife found on the NBR, particularly the bison. The displays show both the importance and the conservation history of bison. There is also a display developed by CSKT on the cultural importance and uses of bison.

There are several interpretive kiosks throughout NBR. These kiosks orient visitors and provide information on the management and natural history of the NBR. In cooperation with CSKT's Division of Fire, refuge staff installed an interpretive kiosk at the Visitor Center that highlights the historical importance of fire on the landscape in the Mission Valley.

Communication and Outreach

Staff also provide local newspapers with information on NBR activities and informative articles about the values and protection of the area's natural resources. NBR's web site (https://www.fws.gov/refuge/national_bison_range/) provides information about the area's natural resources, programs, and regulations. Our Facebook page provides highlights and updates on annual events, activities, and public use opportunities on the NBR.

Baseline Economic Activity

NBR affects the economy through the resident and nonresident visitor spending it generates, the employment it supports, and the value it adds to surrounding property values.

NBR employs 7.5 permanent, full-time Federal employees. Using the Bureau of Labor Statistics Consumer Expenditure Survey data for individuals in these income categories, roughly 79 percent of annual income is spent locally. Under this assumption, NBR contributes $230,790 to the local economy in employee spending.

Visitors to NBR, particularly non-residents, contribute substantially to the State and local economy. It is estimated that non-residents spend an average of $128.12 per day (Carver and Caudill 2013). The 2013 Service publication Banking on Nature estimated that approximately 83 percent of all visitors to the NBR were non-residents, meaning they traveled over 50 miles to visit the NBR. Based on these estimates, of the visitors to the NBR in 2017, approximately 149,400 were nonresidents and contributed more than 19 million dollars to the State and local tourism economy. These expenditures primarily include food, gas, transportation, souvenirs, lodging, and associated supplies (Carver and Caudill 2013).

In addition, the presence of the refuge adds value to neighboring and surrounding landowners. The presence of natural areas like wildlife refuges near residential areas is a desirable trait for most buyers, particularly in Montana. The presence of NBR adds value to the associated communities and private lands.

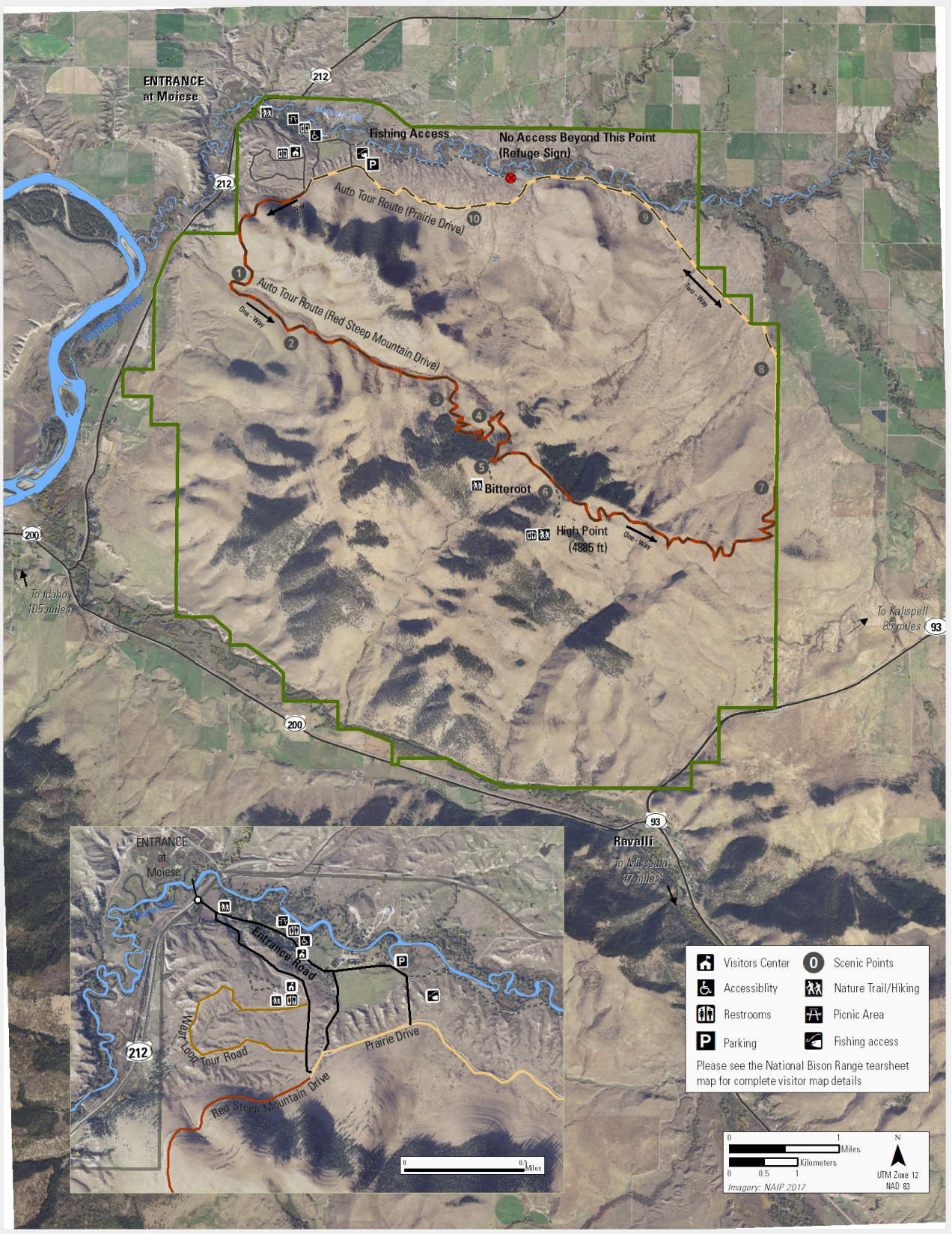

Figure 3.6. Public use map for National Bison Range. Numbered locations along the auto tour route are scenic locations.

Chapter 4 Environmental Consequences

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Rocky Mountain big horn sheep

This chapter describes the potential environmental consequences of implementing the No Action Alternative and the two NBR CCP management alternatives. It is organized by resource topics, as described in Chapter 3. These include the physical environment, habitat, wildlife, threatened and endangered species, cultural resources, and socioeconomics and visitor services.

According to CEQ regulations, NEPA directs us to study effects that affect the human environment, as described below (40 CFR 1508.14):

Human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment. This means that economic or social effects are not intended by themselves to require preparation of an environmental impact statement. When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment.

Potential cumulative effects for the resources presented below, including past, present, or reasonably foreseeable actions that may provide impacts related to the implementation of the NBR CCP, are described at the end of this chapter.

As described in previous Chapters, the Federal Action that USFWS is proposing is to implement the NBR CCP. The CCP is a long-term planning document that reflects the Service's commitment to conserve, protect, and enhance natural resources on the NBR. Since the CCP is considered a planning document, objectives and strategies for each alternative (see Appendix F) described in this EIS are analyzed programmatically; specific projects may require additional NEPA analysis prior to implementation if the scope of the project changes from what is currently known. In addition, the Service will coordinate with the appropriate agencies and key stakeholders, as appropriate at that time.

4.1 Analysis Approach

Resource impacts are discussed in terms of the context of the intensity, duration, and type of impact. Some of the important NEPA concepts for this analysis are defined as follows:

- **Direct effect**–caused by the action and occurs at the same time and place.
- **Indirect effect**–caused by the action, is later in time or farther removed in distance, but is still reasonably foreseeable.
- **Cumulative effect**–the incremental effect of the action when added to other past, present, and reasonably foreseeable actions. These effects are discussed in Section 4.8, Cumulative Effects.

The duration of impacts is also considered. In this case, all alternatives describe NBR management with a term of 15 years. Therefore, short-term effects are those that would occur immediately following the implementation of a management plan and up to about one year afterward. Long-term effects are those that would occur after the

CCP is fully implemented, or between about 2 and 15 years (also referred to as the full term of the CCP).

The intensity of effects is also described on a scale of severity that can range from negative (adverse) to beneficial, as described in the Service's NEPA Handbook for National Wildlife Refuges (USFWS 2014):

- **Negligible**—effects would be barely detectable, and resource conditions would not appreciably change
- **Minor**—effects would be detectable but of little consequence to the resource as a whole
- **Intermediate**—effects would be readily detectable and localized in consequences to the resource; mitigation could be needed to offset negative impacts
- **Major**—effects would be obvious and result in substantial consequences to the resource; mitigation would be required to offset negative impacts

The Service is currently realigning the refuge program in the Mountain-Prairie region, and the NBRC will be part of the Western Montana Complex (USFWS 2017b), as described in Section 2.2. This realignment process and final plan is occurring outside of the scope of this EIS and would apply to all the of the CCP alternatives being presented. USFWS staff resources would be flexible and adapted to meet the needs of the entire WMTC, including NBR.

Regulatory Effects

As described in Chapter 1, we must follow Federal laws, administrative orders, and policies in the development and implementation of our management actions and programs. Among such mandates are the Improvement Act, the Endangered Species Act, the Clean Water Act of 1977, and compliance with Executive Order 11990—Protection of Wetlands and Executive Order 11988—Floodplain Management. The implementation of any of the alternatives described in this final CCP and EIS would not lead to a violation of these or other mandates (refer to Appendix C).

Environmental Justice

Within the spirit and intent of Executive Order 12898—Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, no actions being considered in this final CCP and EIS would disproportionately place any adverse environmental, economic, social, or health effects on minority or low-income populations when compared with the public.

We are committed to ensuring that all members of the public have equal access to the Nation's fish and wildlife resources, as well as equal access to information that would enable them to take part meaningfully in activities and policy shaping.

Climate

The actions proposed in this final CCP/EIS would conserve or restore land and habitat, thus retaining existing levels of carbon sequestration throughout the refuge. Although negligible, this would contribute positively to efforts to mitigate human-induced global climate change. The use of prescribed fire, which releases carbon dioxide, should result in no net loss of carbon because new vegetation would replace the burned-up biomass. Overall, there should be little to no net change in carbon sequestered on the refuge from any of the management alternatives. As it relates to global climate change, documenting the long-term changes in vegetation, species, and hydrology is an important part of research and monitoring. Invasive species may also become more prolific and widespread and more difficult to control in the wake of climate change. Management adjustments may be necessary over time to adapt to climate change. NBR would continue to reduce its carbon footprint by using renewable energy where feasible (for example, wind and solar energy) and green technologies in the development of any new facilities.

4.2 Physical Environment

Anticipated effects of the no action alternative and CCP alternatives on the physical environment at NBR are described below.

4.2.1 Topography and Soils

The analysis area for impacts on topography and soils under all alternatives is primarily limited to the land within the NBR boundary.

Alternative A

Overall, Alternative A would have short-term, negligible, adverse impacts to topography and soils.

Direct

Under the current management activities, a new NBR headquarters/Visitor Center is scheduled to be constructed and would result in localized disturbance to soils (Environmental Education, Interpretation and Outreach Objective 1A, Facilities Objective 1A). Demolition of the existing Visitor Center and construction of the new building would be expected to directly affect the soils as a result of grading, excavation, placement of fill, mixing, or augmentation necessary to prepare the site for development. The soils on this site would be subject to compaction given the construction activities associated with constructing a new building. However, the soils on the site are already compacted due to the existence of the original Visitor Center. If a new site location is selected, rather than building on the original Visitor Center site, impacts from soil disturbance and compaction would likely be greater as the land would have been previously undisturbed. Soil exposure, disturbance, and compaction would increase the overall potential for erosion and surface runoff. Construction of the new Visitor Center would have temporary, short-term, minor, adverse impacts to soils and topography. It is anticipated that construction of a new Visitor Center would be the subject of follow-on NEPA documentation when the decision to construct moves forward.

Prescribed burns/patch burning would continue to be implemented in forest, grassland, and wetland/riparian habitats at NBR (Grassland Objective 2A, Forest Objective 2A, Wetland/Riparian Objective 1A). Without prescribed burns, uncontrolled, high-intensity wildfires are more likely to occur and would exacerbate the effects of fire on soil, specifically decreasing soil productivity by the loss of more nutrients with higher temperatures, over an uncontrollable and undesirable span of time and land (DeBano 1990). The prescribed fires/patch burning would lead to soil exposure due to the removal of vegetation and surface layer organic matter, temporarily accelerating surface runoff and erosion. Surface erosion by wind would also increase when ground cover or surface litter is removed. Soil fertility is expected to increase after low intensity fires due to the conversion of nutrients bound in dead plant tissues and the soil surface to more available forms. By following best management practices, adverse impacts to the soil would be reduced. Therefore, in the short term, prescribed fire would result in localized, minor, adverse impacts. In the long term, the use of prescribed fire on NBR would result in minor, beneficial impacts by reducing catastrophic wildfires and improving nutrient cycling.

The continued practice of herbicide application, to manage the existence and spread of invasive vegetation, would be expected to affect soils based on soil composition and climatic variables (Grassland Objectives 2A-4A, Forest Objective 2A, Wetland/Riparian Objective 1A). Medium- and fine-textured soils with a high organic matter content, such as those found at NBR, would be expected to bind or hold herbicides more than coarse-textured soils with a lower organic matter content (Curran 2001). Herbicides lingering and binding to soil particles after application would be beneficial to target areas by preventing new invasive, harmful, or unwanted plant growth. Yet, this also has the potential to harm new and existing non-target plants since the herbicides would stay embedded in the soil longer. Climate plays a vital role in herbicide breakdown, with most herbicide persistence strongly related to rainfall amounts and frequency. Herbicide degradation rates generally increase as temperature and soil moisture increase; therefore, an herbicide's persistence in soil would be greatest in drought conditions (hot and dry). NBR staff would continue to strictly follow Service guidance of pesticide application on refuges, including the Fish and Wildlife Service Integrated Pest Management guidance (569 FW 1), Hazard Analysis and Critical Control Point planning (750 FW 1), Departmental Integrated Pest Managment (IPM) (DM 517 1), and pesticide use safety (242 FW 1). We will also refer to manufacturer's recommendations and U.S. EPA labeling instructions, spraying guidelines, and timing recommendations; finally, we will only use herbicides approved for site soil conditions and water applications in or near areas containing open water. These best management practices would reduce adverse impacts to soil. Therefore, herbicide application would be expected to have minor to negligible, long-term, adverse impacts to soils.

Magnesium chloride is applied once a year, in the spring, for dust control along the auto tour route (Facilities Objective 1A). Magnesium binds fine dust particles to keep roads stabilized and to slow the loss of aggregate. This approach to dust abatement provides beneficial effects to soils by reducing erosion. The chemical constituents of the dust suppressant can sometimes react with and leach toxic components out of the soils at the application site (Piechota et al. 2004). At NBR, the single, annual application is limited to the roads, which are already compacted and covered with a layer of gravel and small stone. Therefore, dust control activities would be expected to have minor to negligible, long-term, beneficial impacts to soils.

Selective tree removal on NBR would continue to have short- and long-term, minor, adverse impacts on soil by increasing wind erosion, soil compaction, rutting, and puddling (Grassland Objectives 2A-4A, Forest Objective 2A). Soils with fine or medium texture, such as the loamy soils found on NBR, would be more susceptible to soil compaction and rutting. Rutting from heavy machinery can reduce aeration, water infiltration, root penetration, and dam surface water flows which can increase soil saturation and create soil erosion. Rutting would most likely occur under wet conditions when the soil strength is not sufficient to support pressure

from equipment. Puddling is expected to occur with wet, fine-textured soils. Tree removal in the winter when soil is frozen or in a dry period when soil moisture is low would minimize impacts from soil compaction, rutting, and puddling (NCASI 2004); however, dry conditions would exacerbate impacts from dust (see Air Quality). Removing tree cover would increase the risk for sheet flow, which is storm water flowing over the ground surface. This sheet flow moves quickly when there is limited vegetation, such as trees, allowing the movement of sediment and promoting soil erosion. Once the trees have been removed, it is anticipated that grassland and scrub/shrub habitat will recolonize into these areas. The leaf cover and root systems associated with these habitat types will support soil retention, once established. Thinning out the tree stands would still provide leaf cover in these areas, reducing the volume and energy of rain reaching the forest floor, leaving less water to contribute to surface runoff. Therefore, tree removal activities would have minor to negligible short-term, adverse effect to soils and topography.

Occasional use of all-terrain vehicles (ATVs) and horses for field research and the annual bison capture operations would temporarily cause fugitive dust and sporadic compaction of the soil but would not alter NBR's topography over time from excessive force on the natural landscape (Bison Objective 1A, Research Objective 1A, Facilities Objective 1A). Similarly, bison herd movement within the boundaries of NBR creates fugitive dust and slowly compacts the soil by creating wallows and trails across the landscape. Bison, horses, other ungulates, and off-road vehicles would have short-term, negligible, adverse impacts on topography and soils. It is anticipated that construction of a new Visitor Center would be the subject of follow-on NEPA documentation when the decision to construct moves forward.

Dave Fitzpatrick/USFWS

Recent prescribed burn on the refuge

Indirect

There would be no indirect impacts on topography and soils under Alternative A.

Alternative B

Overall, Alternative B would have short- and long-term, minor, adverse impacts to topography and soils.

Direct

The wildlife and habitat management actions described for Alternative A and their effects on soils and topography would be continued under Alternative B. In addition, there would likely be some long-term, minor, adverse impacts to soils and topography due to the upgrade of current roads and the possibility of increasing the trails within NBR to improve public access opportunities. In addition, existing gravel roads may be paved and new walking trails established under Alternative B (Wildlife Observation Objective 1B). This would cause increased soil degradation such as compaction, which facilitates soil erosion and surface runoff. Increasing impervious surfaces would have negligible, long-term, adverse impacts to soils and topography.

Additional construction projects planned under Alternative B, such as building vault toilets, rebuilding/repurposing housing space, and construction of new turn-off areas would increase impacts to soils due to soil compaction, disturbance, exposure, erosion, and surface runoff. These adverse impacts would be expected to remain short-term and minor by implementing erosion and sediment-control plans and by following best management practices during construction (Wildlife Observation Objective 1B, Facilities Objective 1B).

Indirect

There would be no indirect impacts on topography and soils under Alternative B.

Alternative C

Overall, Alternative C would have short-term, negligible adverse impacts to topography and soils.

Direct

The wildlife and habitat management actions described for Alternative A and their effects on soils and topography would be continued under Alternative C. In addition, Alternative C would have more frequent closures for select areas on NBR when use conflicts with priority species or habitat (Wildlife Observation Objective 1C). This

would result in negligible, long-term, beneficial impacts to soils as there would be less soil compaction due to decreased visitors and vehicles on paths, trails, and gravel roads.

Indirect

There would be no indirect impacts on topography and soils under Alternative C.

4.2.2 Air Quality

The analysis area for impacts on air quality is not restricted to the boundaries of NBR. Impacts were analyzed throughout the western Montana region, with a focus on the areas on and adjacent to NBR.

Alternative A

Overall, Alternative A would have short-term, minor, adverse impacts to air quality.

Direct

Under NAAQS, carbon monoxide and suspended particulate matter (PM_{10}) are the main criteria air pollutants that would experience short- or long-term effects with implementation of Alternative A. In this area of western Montana, vehicle emissions would be the greatest contributor to carbon monoxide. Persistent vehicle use on NBR roads contributes to the amount of carbon monoxide emitted, as visitors and Service staff will continue to drive on NBR throughout the life of this plan. The vehicular emissions from visitors and staff of the refuge would temporarily affect the air quality parameters, but would dissipate or would, for the most part, be absorbed by the vegetation of refuge habitats. In addition, carbon from automobiles and diesel engine exhausts, as well as dust associated with wind-blown talc and dirt from roadways, fields, and construction sites can all contribute to PM_{10}. Any activities that disturb the soil would increase the amount of dust generated, thus increasing PM_{10} in the air. Similarly, traveling on gravel roads would likely contribute the largest portion of PM_{10} on NBR. Road grading (occurs two to three times per year) would contribute temporarily to PM_{10} (Facilities Objective 1A). The dust generated by visitors and refuge management activities would also have a negligible adverse effect that would subside as the dust particles settle back to the ground. Therefore, the continued use of roads by vehicular traffic would result in negligible adverse impacts on air quality from dust and carbon emissions.

NBR would continue to perform dust control with magnesium chloride once a year in the spring, temporarily alleviating PM_{10}, resulting in beneficial effects to air quality (Facilities Objective 1A). Dust abatement eventually wears off by late summer/early fall, at which time impacts from dust would be anticipated to be greatest. Dust suppressants that adhere to soil particles can be re-entrained into the air with strong winds, potentially adding contaminants to the air in addition to particulate matter. Dust suppressants have little efficacy at suppressing small respirable dust that have the potential to be inhaled directly into the lungs. Dust suppressants are generally used to comply with PM_{10} regulations and improve visibility but could be potentially harmful since smaller dust particles (less than 10 micrometers) can be inhaled (Piechota et al. 2004). Since magnesium chloride would only be applied once a year and Service guidance as well as spraying guidelines/label instructions would be followed, the adverse impacts from magnesium chloride on air quality would be negligible.

Under Alternative A, the NAAQS for PM_{10} is not expected to be exceeded during the life of the plan. Air quality on a regional scale would be affected only when many acres were burned on the same day. The use of prescribed fire would reduce fuels and would potentially decrease the intensity and acreage of uncontrolled wildfires, ultimately reducing smoke emissions (Grassland Objectives 2A-4A, Forest Objective 2A, Wetland/Riparian Objective 1A). Therefore, prescribed burns/patch fires would have minor, short-term, adverse impacts on air quality as well as result in long-term, minor, beneficial impacts.

Herbicides can become suspended in the air as PM_{10}, or adhere to dust particles, and get carried by the wind to other areas, potentially contaminating them (Grassland Objectives 2A-4A, Forest Objective 2A, Wetland/Riparian Objective 1A). Herbicides applied to vegetation can volatize and may be blown by winds into nearby areas. Since NBR typically performs ground spraying techniques, the airborn effects would be minimal. Climatic variables would be considered when applying herbicides. Very hot or windy days would be avoided to reduce the probability of air absorption. NBR staff would continue to follow Service pest management guidance, spraying guidelines, timing recommendations, and EPA label instructions when applying herbicides, which would reduce adverse impacts. Therefore, herbicide application will have negligable, site-specific, short-term, adverse impacts on air quality.

Indirect

There would be no indirect impacts on air quality under Alternative A.

Alternative B

Overall, Alternative B would have short-term, minor, adverse impacts to air quality.

Direct

The effects on air quality under Alternatives B would be similar to but of somewhat greater magnitude than the effects under Alternative A because of the potential for increased visitation and

management activities. However, as described for Alternative A, vehicular and particulate emissions would quickly dissipate to the surrounding area under normal wind conditions and would be absorbed and sequestered by the refuge's vegetation or, in the case of dust, quickly settle back to the ground. Therefore, there would be short-term, minor, adverse impacts to air quality.

In addition to impacts outlined in Alternative A, Alternative B has potential for increase in vehicular traffic, potentially affecting carbon monoxide emissions and increasing dust. The use of heavy equipment for paving or repairing trails/roads would lead to more frequent and greater occurrence of dust and engine exhaust from earthwork and other maintenance vehicles (Facilities Objective 1B). If graveled roads become paved, specifically Red Sleep Mountain Drive, the amount of dust produced by vehicles and heavy use road maintenance equipment would be reduced (Wildlife Observation Objective 1B). Although Alternative B could result in an increase in vehicle travel and heavy use equipment, it would have minor to negligible, short and long-term adverse impacts on air quality.

The intentional use of prescribed fire to restore and sustain the original fire regime to the maximum extent possible, and the consideration of allowing some wildfires to burn, will reduce fuels more than under Alternative A. In addition, over time, it would potentially decrease the intensity and acreage of uncontrolled wildfires to a greater extent than Alternative A, ultimately reducing smoke emissions (Grassland Objectives 2B, Forest Objective 2B, Wetland/Riparian Objective 1B). Similar to the impacts outlined in Alternative A, prescribed burns and potentially allowing some wildfires to burn under Alternative B would have minor, short-term, adverse impacts on air quality as well as result in long-term, minor, beneficial impacts.

Indirect

Same as Alternative A.

Alternative C

Overall, Alternative C would have short-term, negligible, adverse impacts to air quality.

Direct

In addition to impacts outlined in Alternative A, Alternative C prioritizes wildlife species and habitat, and seeks to reduce maintenance on roads and trails by closing those areas that have minimal use or require significant repairs (Wildlife Observation Objective 1C). This would decrease carbon monoxide emissions and the amount of particulate matter in the air. With a possible decrease in public use and minimal maintenance of public roads, Alternative C would have negligible,

Jessica Zarate/USFWS

Treating invasive species on the refuge

adverse impact on air quality.

Air emissions impacts from wildfire and prescribed fire would be similar to Alternative B, but with a greater potential for minor, short-term adverse impacts on air quality due to how more wildfires would be allowed to burn under Alternative C (Grassland Objective 2C and Forest Objective 2C). However, there also is a higher potential for long-term, minor, beneficial impacts since Alternative C would result in the greatest reduction in fuels and potentially decrease the intensity and acreage of uncontrolled wildfires to the greatest extent as compared to Alternatives A and B, ultimately reducing smoke emissions.

Indirect

Same as Alternative A.

4.2.3 Hydrology

The analysis area for impacts on hydrological resources is not restricted to the boundaries of NBR. Impacts were analyzed throughout the western Montana region, with a focus on the areas on and adjacent to NBR.

Alternative A

Overall, Alternative A would have long-term, minor beneficial impacts to water resources.

Direct

The water resources present on NBR provide a crucial source of water for the management of bison herds, other wildlife, and vegetation while providing habitat for species of fish and birds. Continued habitat management activities and partnerships for riparian and aquatic restoration would have a short and long-term minor beneficial impacts on water quality and quantity both on the refuge and for users downstream of the refuge (Wetland/Riparian Objective 1A).

USFWS

Developed spring provides water for wildlife on the refuge

Construction and maintenance activities involved in developing facilities, structures, parking areas, viewing blinds, or other structures, in addition to existing public use activities, would affect water resources due to erosion, sedimentation, and contamination from soil disturbance and exposure. Construction and maintenance projects under Alternative A include replacing the existing refuge Visitor Center starting in 2020 and maintaining existing buildings, barns, residences, vault toilets, roads, parking lots, and bridges (Facilities Objective 1A). During heavy rain events or snowmelt, sedimentation via runoff from construction sites would have minor adverse impacts on water quality; effects would be negligible considering the relatively small amount of construction projects planned and likely distance from water. As such, impervious surfaces are not expected to increase substantially; therefore, runoff and infiltration of natural surfaces, which reduce shallow groundwater recharge over time, would not be affected. Therefore, construction activities would have minor, adverse impacts on water resources.

Invasive plant control measures, such as hand-removal of invasive vegetation along streambanks or in wetland areas, would create greater likelihood for sediment being released into the water, resulting in greater turbidity in the water (Wetland/Riparian Objective 1A). Ground application of herbicides would result in the introduction of the pesticide into the water either by broadcast or by rain runoff. NBR staff would continue to strictly follow Service pest management guidance, manufacturer's recommendations, and EPA labeling instructions, spraying guidelines, timing recommendations, and only use herbicides approved for water applications in or near areas containing open water. The avoidance of herbicide application during rain events and to areas with a shallow groundwater table or near streams and wetlands would reduce the risk of the herbicides from being entrained in runoff or leached into groundwater. Following these best management practices and guidelines will minimize adverse impacts, yet long-term, minor adverse impacts would still be anticipated.

Magnesium chloride, used for dust abatement in the spring, readily washes off the surface with rain/snow melt (Facilities Objective 1A). If the soil surface is not bound together well or if the rain event is extreme, dust suppressant treated soil particles can be carried by overland flow into stream, rivers, and ditches (Piechota et al. 2004). These types of rain events can lead to alterations in the movement of surface water flow which can change patterns of erosion on and off the application site. To minimize magnesium chloride runoff, application would be avoided before or after rain events, as well as avoided during considerable snow melt periods. Additionally, there is potential for magnesium chloride to leech chloride into drinking water wells from shallow groundwater sources or streams. Leeching can be minimized by applying magnesium chloride when soil moisture content is low and dry. These measures would be expected to reduce long-term impacts on NBR water resources; however, would still be expected to have short-term, minor, adverse impacts.

Activities related to riparian restoration, public use activities, and invasive species could result in short-term, negligible, adverse impacts on NBR water quality. By limiting the amount of bare soil, using soil erosion barriers, limiting the use of herbicides, and following other best management practices, the Service would reduce potential impacts on water quality.

Indirect

Magnesium chloride used for dust abatement in the spring would reduce the amount of airborne dust landing in surface waters on NBR. This would keep decrease turbidity levels, resulting in a long-term, minor, beneficial impact on water quality.

Alternative B

Overall, Alternative B would have long-term, minor beneficial impacts to water resources.

Direct

Hydrological impacts would be the same as Alternative A, with slight increase in impacts associated with siltation of streams/wetlands due to potentially greater use and maintenance of public roads and trails. Therefore, there would be short and long-term minor beneficial impacts on water resources. In addition to the construction projects discussed in Alternative A, paving existing roads and accessible trails, establishing new trails and pull-off areas, rebuilding/repurposing housing for bunkhouse needs, and constructing outdoor restroom facilities adjacent to the office/Visitor Center by 2025 are proposed activities under Alternative B (Facilities Objective 1B). These

construction projects would increase impervious surfaces on NBR, which would reduce water infiltration. During these activities, soils would be exposed, creating a temporary, increased potential for erosion and/or transport of sediments and surface pollutants via runoff.

Appropriate site-specific erosion and sediment control strategies would be prepared to reduce surface erosion and control runoff of pollutants, in compliance with all Federal and State regulations. Good housekeeping and best management practices would be used during construction to protect against sedimentation and erosion into receiving waterbodies. These measures would reduce adverse impacts, resulting in short-term, minor adverse impacts to water resources.

Indirect

Same as Alternative A.

Alternative C

Overall, Alternative C would have long-term, minor beneficial impacts to water resources.

Direct

Hydrological impacts would be the same as Alternative A, with long-term, minor beneficial effects on water quality due to decreased maintenance of roads and trails as well as more frequent closures of specific areas when use conflicts with priority species or habitat (Wildlife Observation and Photography Objective 1C). Any future management activities would be conducted when streams are dry or at minimal flow level to minimize turbidity or the direct introduction of sediments (Wetland/Riparian Objective 1C). Therefore, management activities would have negligible short-term adverse impacts but would have intermediate, long-term beneficial impacts on water resources. Road and trail closures would reduce soil disturbance and exposure, thereby reducing stormwater runoff, reducing sedimentation and nutrient pollution to NBR waterbodies (Wildlife Observation and Photography Objective 1C).

Indirect

Same as Alternative A.

4.3 Habitat

The analysis area for impacts on habitat under all alternatives is primarily limited to the land within the NBR boundary.

Under all alternatives, the Service would comply with applicable laws, regulations, and policies for management. Refuge policies promote the consideration and protection for the broad spectrum of fish, wildlife, and habitat resources. The Service would work proactively with the CSKT and other Tribes, particularly in the collection and application of TEK for the benefit of resources of mutual interest. Furthermore, the Service would continue existing partnerships to collect and share scientific and research information for the benefit of resources of mutual interest. Collectively, these all result in beneficial effects on all habitats at NBR.

4.3.1 Grasslands

The analysis area for impacts on grasslands under all alternatives is limited to the land within NBR boundaries.

Alternative A

Overall, Alternative A would have long-term, minor beneficial impacts to grasslands.

Direct

Under Alternative A, management actions, such as herbicide application and prescribed burns/patch fires, would result in some minor short-term reductions in the amount of available grasslands habitat, and could temporarily negatively affect some species that use this habitat for feeding, nesting, or resting. In the long term, these management actions, as well as other efforts focused on preserving and improving the grasslands habitat, would result in minor, beneficial impacts to grasslands.

Management of grassland communities under existing practices would continue to provide positive effects to the overall grassland habitat. The range condition survey for 14,000 acres of grassland (Grassland Objective 1A) would inform management and step-down plans over the 15-year planning period of the CCP. Considerations in grassland management include ecological carrying capacity for bison and other ungulates, preserving and restoring native grassland species, containing and reducing populations of invasive plant species, using prescribed fire as necessary, and suppressing wildfire, which are ongoing activities essentially the same as those that have been conducted in the past but with updated data (Grasslands Objectives 2A-4A). Grasslands would be managed to provide forage for bison and other ungulates within their carrying capacities (Bison & Other Ungulates Objectives 1A), which is based on how much forage each animal requires per month (or an animal unit month; AUM).

The ongoing integrated pest management approach for invasive plant management, including prevention, EDRR, and control strategies, would not be expected to have adverse impacts on grassland habitats when conducted with care and caution (Grassland Objective 2A-4A). Invasive species reduce native plant composition by outcompeting native plants and creating nonnative

Dave Fitzpatrick/USFWS

Arrowleaf balsamroot

plant monocultures. For the native grasslands of the NBR, this can lead to the degradation and loss of native grasslands, a decline in the ecological function and integrity of this ecosystem, and a reduction in the quality and availability of forage for bison and native ungulates. The invasive plant prevention strategies (e.g., inspecting equipment for invasive materials and limiting off-road driving), EDRR strategies (i.e., targeted surveys to effectively detect new invaders and new occurrences of known invasive species, and then rapid removal of these small infestations), and control strategies (i.e., contain large invasive infestations to prevent their spread) are essential to conserving and restoring the biological integrity of native grasslands. These strategies, when employed, would support the maintenance of wildlife habitat, particularly for bison and other ungulates, by providing habitat representative of historic grassland communities with improved ecological function and also potentially increased forage habitat quality and availability.

The removal and control of invasive species will promote the increase of native plant species cover and diversity by decreasing competition from invasive plants (Grassland Objectives 2A-4A). While invasive plant removal would be beneficial in the long term, ground disturbance associated with mechanical removal could have localized, adverse impacts on the areas undergoing treatment until native vegetation is restored. Generally, the areas actively treated would be relatively small and we would employ best management practices to minimize possible erosion and sedimentation.

Management of invasive species often has non-target effects to native forbs; therefore, care and caution would be employed when selecting and applying herbicides on established invasive plants in native grassland habitat types to avoid non-target plants. Adverse impacts may include herbicide drift onto, or accidental removal of, non-target plants during invasive species control activities, as well as temporary displacement of wildlife during invasive plant removal. However, these impacts will be outweighed by the benefit of targeted invasive species management and control followed by native plant voluntary repopulation. The Service would only use herbicide formulations that are appropriate for the target weed species, with appropriate consideration for the ecological site condition, application method, weather conditions, and timing, as specified according to the product label for each herbicide. The use of herbicides for invasive species treatment would have direct, long-term, beneficial effects on grassland communities, ranging from negligible to intermediate depending on the acreage effectively treated.

Ongoing prescribed fire management practices would continue to have beneficial effects on grasslands by restoring native grassland species and, in some cases, containing and reducing populations of invasive plant species (Grassland Objectives 2A-4A). However, prescribed fires can also exacerbate some species of invasive plants, creating a flush of invasives post-fire in certain grassland units. The Service would appropriately use prescribed fire so that the timing and intensity of the fires would provide long-term beneficial impacts to grasslands, when combined with follow-up treatment for invasive plants (DiTomaso et al 2013). Under Alternative A, all wildfires would be suppressed. The use of prescribed fire is discussed in more detail under *Forests*.

Dust abatement would occur annually, with a single treatment to the roadways in early spring. Magnesium chloride contains essential nutrients that assist with plant growth, however too much of either magnesium or chloride can harm a plant by disrupting normal water and nutrient uptake. Although chloride is an essential nutrient, only very small amounts are beneficial to plants. The chloride is considered to do more harm to vegetation than the magnesium. Under Alternative A, NBR limits magnesium chloride applications to a single application, once a year, minimizing the potential for chloride concentration build-up in trees and plants, resulting in minor long-term, adverse impacts to plant life located along the roadways being treated (Facilities Objective 1A).

The Service plans to construct a new Visitor Center during this CCP cycle (Environmental Education, Interpretation and Outreach Objective 1A, Facilities Objective 1A). Construction of a new facility would result in a long-term decrease of existing natural habitat at NBR. The anticipated footprint of this facility would represent a small portion of the available grassland that is available, and would, therefore, be considered a negligible, long-term, adverse impact. Additionally, new building construction and potential new roadways on grassland habitat on NBR has the potential to increase the spread of invasive species, resulting in long-term adverse impacts. It is anticipated that construction of a new Visitor Center would be the

subject of follow-on NEPA documentation when the decision to construct moves forward.

Indirect

Because grazing bison and ungulates would be managed within the forage-based carrying capacity of the ecosystem (Grassland, Bison, and Other Ungulates Objectives 1A), there would be indirect benefits to grasses and forbs as these areas respond positively to low-level, mixed-return interval disturbances. However, managing grasslands within the forage-based carrying capacities for bison and other ungulates (using AUM) could have indirect, long-term, negligible, adverse (or beneficial) effects because this does not factor in the uses and needs of other grassland-dependent species, such as birds. The possible impacts on other species are not well documented at NBR. See *Wildlife* for more discussion of impacts on wildlife species.

Forest management could have indirect, short-term, negligible, adverse effects on grasslands during and directly following treatment periods for removal of trees and could exacerbate short-term invasive plant issues (Forest Objective 2A). However, implementation of forest objectives would be expected to increase the acreage of total grassland in the long term using prescribed fire and/or mechanical removal of trees, which is a minor beneficial effect on grasslands. Wetland and riparian management would also have long-term, minor, beneficial effects by prioritizing invasive plant management in these areas, reducing potential spread into the surrounding grasslands (Wetland and Riparian Objective 1A).

Administration/operations, research, partnerships, monitoring, cultural resource, education and outreach objectives, in general, would also have indirect, long-term, negligible, beneficial effects on grasslands. Occasional use of ATVs and horses for field research and the potential annual bison capture operations could indirectly damage grasslands or vegetation, but this would be localized and likely negligible. Administration/operations, research, and partnership objectives would provide the daily management and collaborative support for long-term research on various aspects of habitat and wildlife at NBR. Monitoring objectives would provide better understanding of the species present and their abundance on grasslands, improving the understanding of ecosystem functions and overall management practices, and would also allow for continual observation and adjustment, as the latest information warrants. Cultural resource objectives would provide continued access via special use permits to sites, which promotes support for habitat resources and may provide a better understanding of rangeland management and uses with TEK and ethnobotanical information. Finally, general education and outreach would improve visitor knowledge of NBR resources, which has some indirect benefits on habitats by increasing understanding and appreciation of these resources.

Alternative B

Overall, Alternative B would have long-term, negligible, beneficial impacts to grasslands.

Direct

This alternative would include beneficial strategies, such as conducting a range condition survey to update vegetation and soil maps, and guide management strategies into the future with updated data (Grassland Objective 1B). Though maximizing the quality of visitor experiences has some potential for adverse impacts, as discussed in the following paragraphs, grasslands would overall be managed to support bison and ungulates based on forage-derived carrying capacity (in AUMs). Increased emphasis on visitor experiences would help to engage the public, expanding awareness and fostering further appreciation for habitat and wildlife at the NBR.

The short- and long-term impacts of mechanical and chemical treatment of invasive species are discussed under Alternative A; similar impacts would be expected under Alternative B (Grasslands Objectives 2B-4B). Grasslands that are the most visible, such as along road routes or trails, would receive priority for treating invasive species via mechanical or chemical means. Generally, transition areas along roadways are susceptible to colonization by invasives because they are more disturbed than less-traveled areas, and these areas also receive greater exposure to invasive pollen and seeds that are brought in on vehicles, shoes, and clothing of visitors. Therefore, under this alternative, in addition to prioritizing treatment in these highly visible areas, the Service would also use this treatment approach to support education and outreach efforts that address the effects of invasive species on the desired, native species, supporting prevention, early detection, and rapid response to invasive species encroachment. The Service would also consider adding a vehicle wash station for vehicles entering the refuge to help minimize the transfer and relocation of weeds and invasive species. Invasive species would be surveyed and treated on an annual basis in high-priority sites under this alternative. More frequent treatment would increase the use of herbicides, but the herbicides would still be used in relatively small quantities on targeted plants, which would have localized short-term, adverse impacts but long-term, beneficial impacts, as described under Alternative A.

Alternative B would likely include new walking trails and paved roadways, which could have direct, long-term, minor, adverse impacts to grasslands, depending on the ultimate level of new infrastructure and investments in visitor experiences (Wildlife Observation and

Photography Objective 1B). Upgrades to existing roads and new trails would likely result in a direct loss of some area of grassland, though the direct loss would be small when compared with the overall acreage of grassland available at NBR. It is also likely that, if added, new roads or trails would be in areas that offer the best visitor experiences, including the areas of grassland that are more than 50 percent native composition of bunchgrass communities. In addition, compacted soils would hinder plant nutrient uptake, resulting in disturbances to the plant communities along the trails. Emphasis on public outreach and potentially providing vehicle wash stations, as described above, would help minimize invasive species spread along new roads and trails, but these new areas of increased visitation would pose some risk for invasive species spread over time at NBR, possibly degrading those areas that are considered the best grassland communities. The Service would construct a new Visitor Center under Alternative B, which would be similar to the impacts discussed under Alternative A (Environmental Education, Interpretation and Outreach Objective 1B).

Similar to Alternative A, ongoing prescribed fire management practices would have long-term, beneficial effects on grasslands by restoring native grassland species (Grassland Objectives 2B-4B). However, prescribed fire can either help contain and reduce populations of invasive plant species or it can promote invasive plants, depending on the conditions (DiTomaso et. al 2013). Under Alternative B, each wildfire will receive a management response. All wildfire ignitions determined to be human caused will be full suppression. We would consider managing wildfires caused by natural sources for multiple objectives. When considering managing a wildfire for multiple objectives, evaluate the risks to firefighter and public safety, the circumstances under which a wildfire occurs including weather and fuel conditions, natural and cultural resource management objectives, values to be protected, and protection priorities. The use of prescribed fire is discussed in more detail under *Forests*.

As with Alternative A, the dust abatement application to roadways would have a long-term, minor, adverse impact to vegetation located in proximity to the treated roadways (Facilities Objective 1B).

Indirect

Indirect impacts under Alternative B would be similar to those discussed under Alternative A. Increased research, monitoring, education and outreach, and partnership opportunities under Alternative B could have more meaningful indirect benefits on priority habitats like grasslands by providing a greater level of public awareness and support through volunteers and funds and adding to the collective body of knowledge. See *Wildlife* for more discussion of impacts on wildlife species.

Alternative C

Overall, Alternative C would have long-term, major, beneficial impacts to grasslands.

Direct

Implementation of Alternative C would include similar objectives as described under Alternative A, except management foci would be species- and habitat-centric. This alternative would include a robust rangeland health assessment by 2021 (Grassland Objective 1C). The rangeland health assessment would consider the in-depth ecological health of the 14,000 acres of NBR grasslands, compared with the range condition survey as proposed under Alternatives A and B, which would primarily discuss grasslands in terms of forage allocations for ungulates. The findings of this rangeland health assessment would inform future habitat management and step-down plans for the duration of the CCP planning period and would provide a better understanding of the complex interactions of the species within the grassland community at NBR. Alternative C would manage native wildlife populations that depend on grasslands to promote function of the landscape, which is discussed in more detail under *Wildlife*.

Management of grassland that is considered to be in poor condition (less than 25 percent native plant species) would be focused on creating a novel ecosystem (Grassland Objective 4C), i.e., supporting a plant composition of native and non-native, non-invasive species providing improved ecological diversity, integrity, and resilience. This approach would place a priority on halting the spread of annual noxious grass and increasing the forage production for bison and also provide grassland birds with vegetative structure. This management approach has the potential to benefit higher quality grasslands on NBR by reducing bison forage use (or intensity levels) in these higher quality grasslands.

The short- and long-term impacts of integrated pest management of invasive species are discussed under Alternative A; similar short- and long-term impacts would be expected under Alternative C, but with greater benefits. Similar to Alternatives A and B, Alternative C would also prioritize invasive species management (Grassland Objectives 2C-4C). Specific strategies would include preventing new invasive invaders and reducing spread by prohibiting off-road driving for management activities, and promoting the concept of "clean, dry, and inspect" techniques for equipment to remove seeds and pollen (i.e. first cleaning, then drying, then visually inspecting to make certain that visible plant material has been removed). Early detection and rapid response efforts would provide benefits by identifying and removing small infestations of known invasive plants, or new invasive species on NBR, before these infestations spread and degrade the quality of native grassland

sites. In addition, efforts regarding invasive plant management are expanded under Alternative C, which would result in a greater improvement to native grasslands, their ecological function, and the capacity for increased quality and availability of wildlife forage habitat.

Alternative C would more actively use prescribed fire management practices to restore and sustain the original fire regime to the extent practicable, which would have long-term, beneficial effects on grasslands. Under Alternative C, each wildfire will receive a management response. All wildfire ignitions determined to be human caused will be full suppression. We would consider managing wildfires caused by natural sources for multiple objectives. When considering managing a wildfire for multiple objectives, evaluate the risks to firefighter and public safety, the circumstances under which a wildfire occurs including weather and fuel conditions, natural and cultural resource management objectives, values to be protected, and protection priorities. The use of prescribed fire is discussed in more detail under *Forests*.

As with Alternative A, the dust abatement application to roadways would have a long-term, minor, adverse impact to vegetation located in proximity to the treated roadways (Facilities Objective 1C).

The Service would construct a new Visitor Center under Alternative C; refer to discussion under Alternative A. The long-term impacts would be negligible relative to the overall grassland habitat and forage that would still be available.

Indirect

Indirect impacts under Alternative C would be similar to those discussed under Alternatives A and B. The Alternative C objectives and strategies would be more beneficial for priority habitats like grasslands by focusing on ecosystem and landscape-scale management. More so than Alternatives A or B, Alternative C would involve greater consultation and coordination with Service biologists, Tribes, and partners to conduct specific species assessments (Grassland Objective 1C), improve grasslands on a landscape scale (Grassland Objective 2C), and consult and annually meet with ethnobotany TEK to inform renovation of areas that exhibit a total departure of native grassland composition (Grassland Objective 4C). Indirectly, these kinds of partnerships could have long-term, beneficial effects over the life of the CCP on grasslands and all biological communities by introducing new strategies and management practices. See *Wildlife* for more discussion of impacts on wildlife species.

4.3.2 Forests

The analysis area for impacts on forests under all alternatives is limited to the land within NBR boundaries.

Alternative A

Overall, Alternative A would have long-term, minor, beneficial impacts to forests.

Direct

By 2021, the Service plans to complete a forest assessment to prioritize 3,700 acres of forests, which is roughly 20 percent of the habitat community on NBR (Forest Objective 1A). The findings of this forest assessment would describe species composition, stand density, insect damage, disease, fire evidence, age structure, forest ecology, and fire history, all of which would aid in determining the pre-contact-era forest condition to describe what achievable forest restoration should be on NBR.

Under Alternative A, the Service would treat 1,000 acres of forest using prescribed fire/patch burning, active thinning, and slashing, and coordination with the CSKT and other Tribal, state, and federal partners (Forest Objective 2A). Prescribed fire would have localized, short-term, adverse, negligible to minor impacts on the areas undergoing treatment from ground disturbance, habitat changes, and generation of smoke. Fire scars may make certain tree species susceptible to disease or invasion by insects in the short term, with increased tree vigor and spacing to combat infestations in the long term (USFWS 2002). Prescribed fire, along with possible effects of climate change, can promote invasive species, especially if the seed bank is already established. Fire is generally more effective at controlling invasive grasses and annual forbs, but can increase perennial invasive forbs (DiTomaso et al 2013). Generally, the areas actively treated would be relatively small, and NBR would employ best management practices to minimize impacts. Both Douglas fir and ponderosa pine are encroaching into the grasslands, which diminishes available area for grassland wildlife species and is not representative of historical flora compositions in this area. Historically, ponderosa pine forests were shaped by fires that were not hot enough to kill mature trees but did thin out the understory, resulting in open forest with widely spaced old-growth trees and grass undergrowth. Douglas fir stands under more frequent fire regimes were restricted to moist microclimates, rock outcrops, and talus slopes. Furthermore, in the event of a wildfire, NBR forests have heavy fuel loads from thick understories, which can cause larger and more damaging fires that burn hotter and are more challenging to safely control than prescribed burns. Therefore, prescribed fire would have direct, long-term, intermediate to major, beneficial effects on the forest and grassland communities by reducing Douglas fir densities and decreasing wildfire risks.

Dust abatement would occur annually, with a single treatment to the roadways in early spring (Facilities Objective 1A). Magnesium chloride contains essential nutrients that assist with tree growth, however too much of either magnesium or chloride can harm a tree by disrupting normal water and nutrient uptake. Although chloride is an essential nutrient, only very small amounts are beneficial to vegetation. The chloride is considered to do more harm to vegetation than the magnesium. Under Alternative A, NBR limits magnesium chloride applications to once a year, minimizing the potential for chloride concentration build-up in trees and plants, resulting in minor long-term, adverse impacts to vegetation located along the treated roadways.

Indirect

Management of forest communities under existing practices would have indirect, long-term, minor, beneficial effects on grassland habitat and its associated wildlife species by increasing the high-quality grassland available. See *Wildlife* for more discussion of impacts on wildlife species.

Alternative B

Overall, Alternative B would have long-term, intermediate, beneficial impacts to forests.

Direct

The Service would renovate 1,000 acres of forest under Alternative B to retain ponderosa pine overstory and reduce Douglas fir understory to provide a more native forest ecosystem for public viewing (Forest Objectives 1B-2B), which would have short- and long-term impacts similar to Alternative A. In addition to selecting areas that successfully meet the CCP habitat and wildlife goals, active forest management activities would focus on the areas most accessible to the public. A fire management plan would be developed to restore and sustain the original fire regime to the greatest extent possible while actively managing for NBR priority species. However, under Alternative B, each wildfire will receive a management response. All wildfire ignitions determined to be human caused will be full suppression. We would consider managing wildfires caused by natural sources for multiple objectives. When considering managing a wildfire for multiple objectives, evaluate the risks to firefighter and public safety, the circumstances under which a wildfire occurs including weather and fuel conditions, natural and cultural resource management objectives, values to be protected, and protection priorities. The long-term impacts of wildfire, in general, would be more adverse than prescribed fire because wildfires can be large-scale and high-intensity and also pose a higher risk to human safety and wildlife health due to the challenges of controlling wildfires. Determining when to extinguish wildfires could result in direct, long-term, major, adverse impacts on forest habitat from high-temperature wildfires burning accumulated fuels that replace old-growth ponderosa pine stands with undesirable plant species; however, it would also have similar, or possibly greater, beneficial impacts such as described under prescribed fire.

Dave Fitzpatrick/USFWS

Refuge provides wetland and riparian habitat for a variety of migratory birds.

Similar to Alternative B under *Grasslands*, increased focus on preferred visitor experiences could result in new trails and paved roads, which could have adverse impacts on forests, depending on the ultimate level of new infrastructure and extended visitor use (Wildlife Observation and Photography Objective 1B). Upgraded roads or new trails would likely result in a direct loss of some forested land, though the direct loss would be small when compared with the overall acreage of forest still available at NBR.

As with Alternative A, the dust abatement application to roadways would have a long-term, minor, adverse impact to trees located in proximity to the treated roadways (Facilities Objective 1B).

Indirect

Management of forest communities under Alternative B would have indirect, long-term, minor, beneficial effects on grassland habitat and its associated wildlife species, similar to Alternative A. See *Wildlife* for more discussion of impacts on wildlife species.

Alternative C

Overall, Alternative C would have long-term, major, beneficial impacts to forests.

Direct

Impacts under this alternative are similar to those described under Alternative A, though forested areas would be actively managed for priority species and maintaining forested corridors, where

appropriate (Forest Objectives 1C-2C). Under this alternative, the Service would also strive to manage forest resources at a larger landscape scale, where appropriate. Ponderosa pine would be used as an index species for management plans. Thick and diseased stands of Douglas fir would be removed mechanically or with prescribed burns while leaving snags or girdle for cavity-nesting birds and bats, as appropriate. Fire management would restore and sustain the original fire regime to the greatest extent possible while actively managing NBR targeted species.

Short- and long-term impacts associated with prescribed fire for renovating 1,000 acres of forest to retain ponderosa pine and reduce Douglas fir density would be similar to those described in Alternative A. Wildland fire, along with possible effects of climate change, can promote invasive species, especially if the seed bank is already established. Fire is generally more effective at controlling invasive grasses and annual forbs, but can increase perennial invasive forbs (DiTomaso et al 2013). Under Alternative C, each wildfire will receive a management response. All wildfire ignitions determined to be human caused will be full suppression. We would consider managing wildfires caused by natural sources for multiple objectives. When considering managing a wildfire for multiple objectives, evaluate the risks to firefighter and public safety, the circumstances under which a wildfire occurs including weather and fuel conditions, natural and cultural resource management objectives, values to be protected, and protection priorities. Therefore, determining when to extinguish wildfires could result in direct, long-term, major, adverse impacts on forest habitat from high-temperature wildfires burning accumulated fuels that replace old-growth ponderosa pine stands with undesirable plant species.

As with Alternative A, the dust abatement application to roadways would have a long-term, minor, adverse impact to trees located in proximity to the treated roadways (Facilities Objective 1C).

The use of wildland fire (wildfire and prescribed fire) in wetlands would have similar effects to those described in Alternative A.

Indirect

Management of forest communities under Alternative C would have indirect, long-term, major, beneficial effects on grassland habitat and its associated wildlife species, similar to Alternatives A and B. See *Wildlife* for more discussion of impacts on wildlife species.

4.3.3 Wetland and Riparian Areas

The analysis area for impacts on wetland and riparian areas under all alternatives is limited to the land within NBR boundaries.

Alternative A

Continued management of wetland and riparian areas under existing practices would have long-term, negligible, beneficial impacts on wetland and riparian habitat as well as associated wildlife.

Direct

Over the CCP planning life, the Service would maintain the 500 acres of existing riparian and wetland habitats by prioritizing invasive plant management in these areas and using prescribed fire in partnership with the CSKT (Wetland and Riparian Objective 1A). Prescribed fire is discussed under *Forests*. While invasive plant removal would be beneficial in the long term, ground disturbance associated with integrated pest management techniques and prescribed fire could introduce sediment into water bodies as well as lead to stream bank erosion. This would lead to, short-term, adverse impacts on the wetland and riparian areas undergoing treatment until native vegetation is restored. Generally, the areas actively treated would be relatively small, and the Service would employ best management practices to minimize possible runoff. The use of herbicides for invasive species control also carries some short-term risks on riparian and wetland areas while these chemicals are used, though the risks would be minimal considering the small quantities that would be on-site at any time. Furthermore, the Service would only use herbicide formulations that are specifically approved for aquatic use in wetlands areas, with appropriate consideration for the application method, weather conditions, and timing, as specified according to the product label for each herbicide.

Large numbers of bison, other ungulates, and other wildlife depend on the water sources associated with wetlands and riparian areas, which continues to have long-term, adverse, minor impacts on water quality. Wildlife, particularly large animals like bison, with unrestricted access along wetland and riparian areas can degrade streambanks by trampling and removing grassy cover and adding sediments into the water. In turn, this sedimentation can fill in gravel spawning areas important for fisheries. When water availability is lower during drier periods, the impacts would be greater because more wildlife would be using the available water, and drier soils would be more likely to be suspended and transported.

Dust abatement activities are accomplished annually, using magnesium chloride, which contains essential nutrients that assist with plant growth (Facilities Objective 1A). However, too much of either magnesium or chloride can harm a plant by disrupting normal water and nutrient uptake. Although chloride is an essential nutrient, only very small amounts are beneficial to plants. The chloride is considered do more harm to vegetation than the magnesium. Under Alternative A, NBR

limits magnesium chloride applications to once a year, minimizing the potential for chloride concentration build-up in trees and plants. The single application to roadsides, in early spring, are considered to be below the range considered to be deleterious to aquatic life based on previous research and standards set by Piechota et al. (2004), although limited and sporadic water quality monitoring at NBR may not accurately represent the pulses of maximum concentrations which could occur during, or directly following, precipitation events. Most of the roadways being treated are not located within wetlands or riparian areas, and NBR will take care to ensure that the direct application avoids wetlands or riparian areas. The effects of magnesium chloride application on roadsides adjacent to surface water resources are not fully known. Since NBR will limit application to once a year, the long-term adverse impacts to the wetlands and riparian areas would be minor.

Indirect

Continued management of wetland and riparian areas under existing practices would have indirect, long-term, beneficial, negligible effects on the wildlife dependent on this habitat. See *Wildlife* for more discussion of impacts on wildlife species.

Alternative B

Overall, Alternative B would have long-term, minor, beneficial impacts on wetlands and riparian areas.

Direct

Under Alternative B, the Service would enhance visitor opportunities in proximity to existing riparian and wetland habitat (Wetland and Riparian Objective 1B). In addition to the impacts identified under Alternative A, there would be beneficial impacts associated with educating visitors on the visual appearance, inter-relationships, function, and structure of vegetation that represent healthy, natural riparian and wetland communities. Reducing invasive species encroachment would be particularly valuable because, as discussed under *Grasslands*, Alternative B could increase visitation, which would correspondingly increase potential for invasive species' introduction and spread. The use of wildland fire (wildfire and prescribed fire) in wetlands would have similar effects to those described in Alternative A.

The Service would also reduce juniper growth by 50 percent on 50 acres along Mission Creek to enhance wildlife viewing and environmental education. Rocky Mountain juniper is a native upland species that has become dominant in many riparian locations, growing to an average of 18 feet at maturity. Juniper trees targeted for removal would not typically grow along the banks of creeks or rivers; therefore, their removal would have long-term beneficial impacts on the riparian areas. The process of mechanically thinning or removing juniper growth could have adverse impacts on wetlands from general site disturbance and sediment runoff, though all tree removal or thinning would target specific trees and would employ best management practices to minimize sedimentation and erosion and to ensure the protection of sensitive areas.

Riparian vegetation shading cold water streams and rivers is one factor in retaining cooler water temperature. The removal of juniper trees could result in slightly increased water temperatures along riparian corridors, which would be considered a short-term, minor, adverse impact until colonized by native vegetation large enough to provide shade. Riparian vegetation also provides valuable flood protection by reducing the force, height, and volume of floodwater. The removal of juniper trees could increase the volume and velocity of water in the stream channel during a storm event, until colonizing species grow large enough to resume passive flood control. These short-term impacts would be considered minor because the Service plans to conduct activities along 50 percent of 50 acres of Mission Creek, which represents a relatively small area in the context of the entire riparian area.

As with Alternative A, the dust abatement application to roadways would have a long-term, minor, adverse impact to wetlands and riparian areas due to runoff from treated roadways (Facilities Objective 1B).

Indirect

Similar to the indirect impacts for Alternative A, continued management of wetland and riparian areas under existing practices would have indirect, long-term, beneficial, negligible effects on the wildlife dependent on this habitat Additionally, removal of Rocky Mountain juniper could increase stream temperature and possibly increase sediment into Mission Creek, which could have indirect, short- and long-term, adverse impacts on cold-water fish species (e.g. trout species). However, improving wetland and riparian areas with native plant species would provide more suitable wildlife habitat for birds and other wildlife species in the long term, and shaded stream and river conditions would also slowly be restored along Mission Creek as vegetation grows to maturity.

Alternative C

Overall, Alternative C would have long-term, minor, beneficial impacts on wetlands and riparian areas.

Direct

Alternative A would involve maintaining existing habitats, while Alternative C would involve improving the habitat through reducing juniper by 50 percent on 50 acres of Mission Creek (Wetland

and Riparian Objective 1C). Impacts would be the same as discussed under Alternative B. In addition, collaboration with outside partners to evaluate and understand threats to wetlands and riparian habitats could also guide riparian and wetland management to be more suitable on a landscape scale.

As with Alternative A, the dust abatement application to roadways would have a long-term, minor, adverse impact to wetlands and riparian areas due to runoff from treated roadways (Facilities Objective 1C). The use of wildland fire (wildfire and prescribed fire) in wetlands would have similar effects to those described in Alternative A.

Indirect

Similar to the indirect impacts for Alternative A, continued management of wetland and riparian areas under existing practices would have indirect, long-term, beneficial, negligible effects on the wildlife dependent on this habitat. See *Wildlife* for more discussion of impacts on wildlife species. Additionally, removal of Rocky Mountain juniper could increase stream temperature and possibly increase sediment into Mission Creek, which could have indirect, short- and long-term, minor, adverse impacts on cold-water fish species (e.g. trout species).

4.4 Wildlife

Anticipated effects of the No Action Alternative and CCP alternatives on wildlife at NBR are described below.

Under all alternatives, the Service would comply with applicable laws, regulations, and policies for management. Refuge policies promote the consideration and protection for the broad spectrum of fish, wildlife, and habitat resources. The Service would work proactively with the CSKT and other Tribes, particularly in the collection and application of TEK for the benefit of resources of mutual interest. Furthermore, the Service would continue existing partnerships to collect and share scientific and research information for the benefit of resources of mutual interest. Collectively, these all result in beneficial effects on wildlife at NBR.

4.4.1 Bison

The analysis area for impacts on bison and other ungulates under all alternatives is primarily limited to the land within NBR boundaries. However, the Service manages multiple bison herds as a metapopulation across several DOI land holdings. This aspect of bison management is also within the analysis area for bison.

Alternative A

Overall, Alternative A would have long-term, minor, beneficial impacts on bison.

Direct

Current management entails a range of practices, including maintaining the boundary and corral system, maintaining water sources, controlling invasive species, and managing grassland (as discussed under Grasslands), balancing the populations of other ungulates with those of the bison, conducting yearly capture operations with low-stress handling techniques, and using the metapopulation framework to ensure appropriate gene flow via periodic movement of bison among refuges (Bison Objective 1A). As a trust species, the bison would continue to be managed for the long-term benefit of the NBR population and for the NWRS metapopulation. As discussed under Grasslands, the Service plans to prepare a range condition survey (Grassland Objective 1A) to update available forage to ensure that bison and other ungulates can be managed within carrying capacities. Because bison are a priority trust species, it is anticipated that forage allocations for bison would be prioritized, resulting in direct, long-term, beneficial effects for bison at NBR.

Bison capture would be expected to have some short-term, adverse effects on individuals, as each animal reacts to stress and stimuli differently. Capture operations, which would occur only as often as needed to align with population objectives, would be conducted with low-stress methods to gather the majority of the herd. Long-term adverse impacts are not expected, and the capture operations would be necessary for the overall benefit of the metapopulation.

Research efforts would inform bison management, having direct benefits on bison, as well as indirect benefits by continuing to add to the body of knowledge that integrate TEK into research (Research Objectives 1A-2A). The use of TEK would better inform managers and scientists of the cultural and/or historical information to improve management and expand tactics for bison management. Collection efforts under Special Use Permits (SUP) would have short-term, adverse impacts from disturbing wildlife, but these would be localized and negligible in the context of available resources. Traditional cultural use of bison would not adversely affect the species. Bison, in particular, would benefit by enhancing recognition, education, and prioritization of cultural resources by promoting a more robust understanding of the species (Cultural Resources Objectives 1A–3A), resulting in long-term, beneficial impacts.

Ongoing maintenance of facilities and real property could have some short-term, negligible, adverse impacts on bison due to general disturbances such

as increased noise or dust (Facilities Objective 1A). However, these kinds of activities also directly benefit bison by keeping visitors on designated roads and trails and ensuring that fencing and cattle guards are safe and fully functioning.

The Service plans to construct a new Visitor Center during this CCP cycle (Environmental Education, Interpretation and Outreach Objective 1A). Construction of a new facility could also have negligible, adverse impacts on bison due to general disturbances such as increased noise or dust during construction. The footprint of this facility would represent a small portion of the available grassland that is still available, and would, therefore, be considered a negligible, long-term, adverse impact on loss of forage and habitat for the bison. It is anticipated that construction of a new Visitor Center would be the subject of follow-on NEPA documentation when the decision to construct moves forward.

Magnesium chloride is applied to roadways for dust suppression once a year. Both magnesium and chloride are necessary components of the bison diet. Magnesium is important for bone development and is an enzyme activator (reduces blood pressure); magnesium toxicity can upset the calcium-to-phosphorus ratio, which can affect bone development and bone structure. Chlorine is involved in cellular acid/base balance and is a component of gastric juices for digestion; chlorine toxicity is not considered problematic (Feist 2000). Formulations of magnesium chloride are also available commercially as a dietary supplement for dairy cattle. Bison likely ingest some magnesium chloride from dust suppression through foraging since the magnesium chloride re-suspends and deposits on grasses and forbs. However, it is not likely that bison would ingest large quantities of magnesium, considering its once per year application for dust control, the forage land available, and a bison's large mass. Therefore, the application of magnesium chloride likely has negligible, adverse impacts on bison.

Indirect

Because bison are a priority trust species, it is anticipated that forage allocations for bison would be prioritized, directly benefiting bison at NBR and indirectly benefiting the bison metapopulation. However, it is possible that only evaluating forage in terms of AUM, as it is currently done and would continue to be done under Alternative A, might not accurately represent available forage and use per species and, subsequently, could have indirect, long-term, intermediate adverse impacts on the population (see Grassland Objective 1A). Forbs and grasses in the grassland habitats are used by numerous ungulate, mammal, and bird species, and there may be some competition for forage and habitat among various species. If the range condition survey identified a significant reduction in carrying capacity, removals (culls, transfers) and reductions in the NBR bison population may be necessary. This would lead to indirect, intermediate adverse impacts that may extend from NBR to the metapopulation.

Grassland Objectives 2A-4A, Forest Objectives 1A and 2A, and Wetland and Riparian Objective 1A include strategies for invasive species control, all of which would have varying degrees of indirect, long-term, beneficial effects on bison, ranging from minor in forests to intermediate in wetland and riparian areas to major in grasslands. Minimizing existing invasives and controlling their spread into new areas of NBR would benefit bison by preserving native vegetation. Bison use grassland for forage and wetlands/riparian areas for water, so these areas would have greater potential for indirect beneficial effects. Temporary work to remove invasives could displace some wildlife species during treatment, which could have indirect, negligible, adverse impacts on bison while these activities are occurring, but would not be expected to have long-term, adverse impacts.

Research, partnerships, monitoring, education and outreach, and public use objectives, in general, would also have indirect, long-term, beneficial effects on bison. Monitoring objectives would provide for a robust wildlife health surveillance program. Research and partnership objectives would provide the daily management and collaborative support for long-term research on various aspects of habitat and wildlife, including bison, at NBR. Monitoring objectives would provide better understanding of the species present and their abundance on grasslands, improving the understanding of ecosystem functions and overall management practices, and would also allow for adaptive management so that changes can be integrated with continual observation and adjustment, as the latest information warrants. Finally, general education and outreach would improve visitor knowledge of NBR resources, which has some indirect benefits on habitats by increasing understanding and appreciation of these resources.

Alternative B

Overall, Alternative B would have long-term, minor, beneficial impacts on bison.

Direct

Under Alternative B, strategies for maintaining and improving bison genetic diversity as well as overall bison management would also be essentially the same as those described under Alternative A. Alternative B would involve public-centric strategies to maximize the quality of public experiences regarding bison (Bison Objective 1B). Various strategies to provide more public experiences could have direct, long-term, minor negative impacts on the bison at NBR due to increased human disturbance of herds, social

behaviors and natural movements across the landscape from the presence of increased visitors. Increased emphasis on visitor experiences would also help to engage the public, expanding awareness and fostering further appreciation for bison and habitat at NBR. Capture operations would be the same as described under Alternative A.

Similar to Alternative A, and as discussed under *Grasslands*, the Service would prepare a range condition survey (Grassland Objective 1B) to update available forage to ensure that bison and other ungulates can be managed within carrying capacities. Because bison are a priority trust species, it is anticipated that forage allocations for bison would be prioritized, resulting in long-term, beneficial effects for bison at NBR.

Increased focus on visitor experiences could increase visitor use of NBR over the life of the CCP under this alternative.) Increases in visitation are not expected to be dramatic enough to present new challenges or exceed the limits of current management practices and minor increases in visitation are not expected to have a noticeable impact on species behavior. Wildlife on the NBR are considered habituated to human presence, however a significant increase in public use could result in physiological or behavioral changes that we do not have data to analyze. Depending on visitor-directed objectives, the upgrading of roads as well as the establishment of new trails would affect bison by increasing disturbances from noise or dust during construction (short term) and decreasing available grassland (long term) (Wildlife Observation and Photography Objective 1B). These disturbances may affect movement patterns and cause animal avoidance of the affected areas. Ongoing maintenance of facilities and real property would be similar to Alternative A (Facilities Objective 1A). These kinds of impacts would still be minor in the long-term relative to the overall grassland habitat and forage that would still be available for bison.

Impacts on bison for cultural resource objectives under Alternative B would be similar to those described under Alternative A, though Alternative B would involve more coordination collaboration with CSKT. Therefore, Alternative B may realize slightly more long-term beneficial effects than Alternative A from the incorporation of TEK into bison management.

Indirect

Alternative B has some potential for indirect, adverse impacts, such as increased invasive plant species that indirectly affect rangeland and bison food supplies, or slightly increased potential for introducing a health risk or pathogen into the herd. Long-term impacts of increased stress could negatively impact population level productivity and resistance to disease.

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Bison

If the range condition survey (Grassland Objective 1B) identified a significant reduction in carrying capacity, removals (culls, transfers) and reductions in NBR bison population may be necessary. This would lead to indirect, adverse, intermediate impacts that may extend from NBR to the metapopulation. These impacts would be similar to those described under Alternative A.

Under Alternative B, intensively managing grasslands for increasing forage and decreasing weeds with wildland fire and various integrated pest management techniques (mechanical or chemical) could limit access by bison to certain areas (Grassland Objectives 2B–4B), which could have indirect, short-term, intermediate adverse impacts on bison movement and behavioral patterns while occurring and long-term, minor, beneficial effects from minimizing the spread of invasive weeds and preserving native vegetation. Prioritizing maintenance and improving the condition of wetland and riparian habitats from juniper thinning on NBR would also have indirect, long-term, beneficial effects on bison, similar to under Alternative A (Wetland and Riparian Objective 1B). Impacts from forest objectives would be the same as described under Alternative A, resulting in indirect, beneficial effects on bison from minimizing and controlling invasives for improved habitat.

Other indirect effects of Alternative B would be similar to those described under Alternative A. However, Alternative B would include monitoring the impacts of visitor use and management practices on bison and other ungulates (Monitoring Objective 3B); indirectly, this would have long-term, minor, beneficial effects on bison. Expanded monitoring of targeted species (Monitoring Objective 2B), which could include citizen science or volunteer work for bison, specifically, would also have indirect, long-term, minor, beneficial effects on bison. Alternative B would also be expected to have increased funding and staff over the baseline, which would have indirect, beneficial, short- and long-term, intermediate effects for bison by having more available resources for management (Funding and Staff Objective 1B).

Alternative C

Overall, Alternative C would have long-term, major, beneficial impacts on bison.

Direct

Under Alternative C (Bison Objective 1C), strategies for maintaining and improving bison genetic diversity as well as overall bison management would be similar to those described under Alternative A. Management of grassland habitat communities through preparation of a rangeland health assessment (Grassland Objective 1C), as described under Alternative C in Section 4.3, would have long-term, major, beneficial effects on bison. Alternative C would involve species-centric strategies to manage bison operations for the well-being of the bison. Capture operations would be the same as described under Alternative A.

The Service would aim to improve bison genetic diversity and integrity by expanding the local population in cooperation with the CSKT (Bison Objective 1C). This alternative would directly benefit bison by continuing to pursue handling, techniques, and science that ensures a healthy herd into the future.

Impacts on bison cultural resource objectives and ongoing maintenance of facilities and real property under Alternative C would be similar to those described under Alternative A.

Indirect

By focusing on the interactions of the grassland communities, to include more inclusion of landscape-scale ecology, Alternative C would have indirect, long-term, intermediate to major, beneficial effects on bison over the life of the CCP (Grassland Objective 1C).

If the grassland habitat assessment identified a significant reduction in carrying capacity, removals (culls, transfers) and reductions in NBR bison population may be necessary. This may lead to indirect, adverse, intermediate impacts that may extend from NBR to the metapopulation. These impacts would be similar to those described under Alternatives A and B.

Under Alternative C, intensively managing grasslands for increasing forage and decreasing weeds with wildland fire and various integrated pest management tools (Grassland Objectives 2C-4C) and maintenance of wetland and riparian habitats (Wetland and Riparian Objective 1C) would have similar indirect, short- and long-term effects as described under Alternative B. Impacts from forest objectives would be the same as described under Alternative A, resulting in indirect, long-term, minor, beneficial effects on bison from minimizing and controlling invasives for improved habitat.

Alternative C would expand monitoring to focus on adaptive management activities for targeted species and refuge habitats (Monitoring Objective 3C), which have indirect, long-term, minor, beneficial effects on bison. Alternative C would also be expected to have increased funding and staff, which would have indirect, beneficial, short- and long-term, intermediate effects for bison by having more available resources for managment (Funding and Staff Objective 1C). Public use objectives and strategies would improve knowledge of NBR and resources, indirectly benefiting bison and wildlife, but these objectives could have increased indirect, short-term, beneficial effects on bison and wildlife, if the Service implements temporary closures to minimize disturbances to habitats and species. Other indirect effects of Alternative C associated with research, partnerships, monitoring, education and outreach, and public use objectives would have indirect, long-term, negligible, beneficial effects on bison, as described for Alternative A.

4.4.2 Other Ungulates

Alternative A

Overall, Alternative A would have long-term, minor, beneficial effects on other ungulates.

Direct

The Service would continue to evaluate and maintain the populations of other native ungulate species in accordance with existing or updated management plans (Other Ungulates Objective 1A). As discussed under *Grasslands*, the Service plans to prepare a range condition survey (Grassland Objective 1A) to update available forage to ensure that bison and other ungulates can be managed within carrying capacities. Currently, representative population targets are approximately 130 elk, 200 mule deer, 175 white-tailed deer, 125 pronghorn, and 75 bighorn sheep. Estimated pronghorn and bighorn populations in 2018, for example, were 32 and 34, respectively, much smaller than targets of 125 and 75, respectively, due to disease (i.e. *Mycoplasma ovipneumoniae)* and predation. Therefore, these species will be more closely monitored and evaluated for additional management strategies, as necessary.

Planned research efforts could include the study of *Mycoplasma ovipneumoniae* (MOVI) in bighorn sheep, which could lead to better understanding of disease transmission or treatments and better poise Service biologists to protect the bighorn sheep populations at NBR and elsewhere (Research Objective 1A).

Ongoing maintenance of facilities and real property could have some short-term, negligible, adverse impacts on other ungulates due to general disturbances such as increased noise or dust (Facilities Objective 1A). However, these

kinds of activities also directly benefit ungulates in the short and long term by keeping visitors on designated roads and trails and ensuring that fencing and cattle guards are safe and fully functioning. Construction of a new Visitor Center could also have short- and long-term, negligible impacts on ungulates; refer to discussion under *Bison* (Environmental Education, Interpretation and Outreach Objective 1A, Facilities Objective 1A).

Effects of magnesium chloride on other ungulates would be similar to those described for bison. Negligible adverse impacts would be expected.

Indirect

While Alternative A would have direct, beneficial effects on other ungulates as described above, the prioritization of bison could also have indirect, long-term, minor, adverse impacts on other ungulates. Bison are a priority trust resource at NBR, receiving more research, management, and funding to ensure bison objectives are met. As discussed under *Bison* for Alternative A, it is possible that evaluating and managing forage in terms of AUM might not accurately represent available forage per species because it does not account for other species that use the grassland for forage and habitat. This could be an indirect, long-term, negligible, adverse impact on ungulates. Identification of significantly reduced carrying capacity through updated habitat assessment could have short-term negative impacts on the wildlife population based on subsequent removal of animals. Impacts on other ungulates (indirect, short-term, adverse negligible impacts)—specifically those well-represented on the landscape—would have negligible adverse effects from reduction but long-term beneficial effects on forage allocations.

Invasive species control per grassland, forest, and wetland and riparian objectives would have varying degrees of indirect, long-term, beneficial effects on other ungulates, similar to the indirect impacts discussed for bison. Removal of thermal cover due to thinning in forest stands, which is more important for other ungulates than bison, could also have indirect, long-term, negligible adverse, impacts. The amount lost would be negligible compared with remaining shade and would not impact ungulates, overall.

Other indirect impacts on ungulates would be similar to those discussed for bison under Alternative A. Similar to bison, research, partnerships, monitoring, education and outreach, and public use objectives, in general, would also have indirect, long-term, negligible, beneficial effects on ungulates. Staffing levels could minimally and adversely affect other ungulates, if there are not sufficient resources (Funding and Staff Objective 1A).

Dave Fitzpatrick/USFWS

Pronghorn in winter

Alternative B

Overall, Alternative B would have long-term, minor, beneficial effects on other ungulates.

Direct

Under Alternative B, the Service would continue to evaluate and maintain the populations of other native ungulate species in accordance with existing or updated management plans (Other Ungulates Objective 1B), but with the addition of providing quality wildlife observation and photography and environmental education opportunities to the public, without negatively affecting habitat or other wildlife species. One strategy would include involving the public through citizen science projects. As discussed under *Grasslands*, the Service plans to prepare a range condition survey (Grassland Objective 2B) to update available forage to ensure that bison and other ungulates can be managed within carrying capacities.

Visitor experiences would be enhanced over the life of the CCP under this alternative; potential impacts on other ungulates would be similar to those described for bison. The upgrade of existing roads and the construction of new trails would adversely affect ungulates by slightly increasing disturbances from noise or dust during construction and decreasing available grassland for foraging (Wildlife Observation and Photography Objective 1B). Long-term adverse impacts may result from the additional human disturbances, causing stress to the ungulates ungulates and potentially resulting in animal avoidance of these areas. In turn, this higher level of stress may lead to altered behavior as well as changes in their movement patterns and metabolism. On the whole, the Service would continue to manage ungulates as part of the refuge ecosystem, which would be beneficial for these populations.

Indirect

Alternative B would have similar indirect impacts on other ungulates as Alternative A; refer also to the discussion for bison under Alternative A.

Bison are a priority resource at NBR, receiving more research, management, and funding to ensure bison objectives are met. It is possible that evaluating and managing forage in terms of AUM might not accurately account for other species that use the grassland for forage and habitat (Grassland Objective 1B). This could be an indirect, long-term, negligible, adverse impact on ungulates because bison would be prioritized over other ungulates. If the range condition survey identified a significantly reduced carrying capacity, subsequent management actions to remove/reduce the ungulate population would be expected to have short-term, adverse negligible effects during the removal activities but long-term beneficial effects on forage allocations because other ungulates are well-represented within the larger landscape. These impacts would be similar to those described under Alternative A.

Invasive species control per grassland, forest, and wetland and riparian objectives would have varying degrees of indirect, long-term, beneficial effects on other ungulates, similar to the indirect impacts discussed for bison and other ungulates under Alternative A. Removal of thermal cover, which is more important for other ungulates than bison, could also have indirect, long-term, adverse, negligible impacts; the amount lost would be negligible compared with remaining shade and would not impact ungulates overall.

Other indirect impacts on ungulates would be similar to those under Alternative A for bison and ungulates. Research, partnerships, monitoring, education and outreach, and public use objectives, in general, would also have indirect, long-term, negligible, beneficial effects on ungulates. Alternative B would include monitoring the impacts of visitor use and management practices on bison and other ungulates (Monitoring Objective 3B). Alternative B would also be expected to have increased funding and staff, which would have indirect, beneficial, long-term, intermediate effects for ungulates by having more available resources for management (Funding and Staff Objective 1B).

Alternative C

Overall, Alternative C would have long-term, intermediate, beneficial effects on other ungulates.

Direct

Alternative C would provide for more research and conservation of ungulates that are ecologically compatible with bison on NBR within the next 10 years (Other Ungulate Objective 1C). Various strategies to support this objective could be implemented for the benefit of other ungulates. Management of grassland habitat communities, as described under Alternative C in Section 4.3, would have direct, long-term, beneficial, intermediate effects on ungulates. The Service would increase coordination with partners (including state agencies, Tribes, NGOs) and adjacent landowners to promote landscape-level management of ungulates, create an educational campaign that promotes to the extent possible livestock management practices that are compatible with wildlife, and communicate about wildlife health concerns and major disease threats. The Service would identify and consider prioritizing species that are less-represented in adjacent landscapes, develop survey techniques that allow population estimates with minimized staff efforts, evaluate and implement passive management techniques to encourage balanced grazing across the landscape, and promote connectivity with other populations where possible without risking possible increased disease transmission. Implementation of this alternative would include converting the fenced animal management plan to a habitat management plan (Other Ungulates Objective 1C), which would have direct, long-term, beneficial, intermediate effects on ungulates.

The Service has concerns regarding the health of the bighorn sheep and pronghorn populations at NBR, considering recent population declines from disease and predation. Under this alternative, the Service would pursue focused research on the viability of both species at NBR, as well as research about the impacts of herbivory on refuge grassland habitats (Research Objective 2C). Consistent with Other Ungulate Objective 1C, research would target various strategies for the health and balance of ungulates in general. Implementation of this alternative could have direct (as well as indirect), long-term, beneficial effects on ungulate species.

Indirect

By focusing on the interactions of the grassland communities, to include more landscape-scale ecology, Alternative C would have indirect, long-term, intermediate to major, beneficial effects on other ungulates over the life of the CCP. Grassland Objective 1C would have both direct effects on bison (as discussed under *Bison*) but would also have indirect, long-term, beneficial effects on other ungulates by maintaining representative populations of all ungulates in consideration of available grassland habitat and its use by all wildlife at NBR. Bison use of the grasslands would still be prioritized, but the patterns and needs of other wildlife would be better balanced. Implementation of Alternative C includes evaluating coyote-control measures, which could have indirect, long-term, beneficial effects, particularly on pronghorn. Pronghorn success has decreased in recent years as a result of coyote predation, so increased coyote control (if determined necessary, see also discussions in indirect effects of Alternative A, *Birds*, *Mammals*, *Fish, Reptiles, and Amphibians*) could indirectly increase the survival rate for pronghorns, if the Service continues to manage this species at NBR. Identification of significantly reduced carrying

capacity through updating the habitat assessment could have short-term negative impacts on wildlife population based on subsequent management actions (e.g. removal of animals). Impacts on other ungulates (indirect, short-term, adverse negligible impacts), specifically those well-represented on the landscape, would have only negligible effects from reductions but long-term beneficial effects on forage allocations, similar to those described for Alternatives A and B.

Indirect effects on other ungulates under Alternative C would be similar to those described for bison. Under Alternative C, intensively managing grasslands for increasing forage and decreasing weeds with prescribed fire and various integrated pest management tools (Grassland Objectives 1C-4C) and maintenance of wetland and riparian habitats (Wetland and Riparian Objective 1C) would have similar indirect, short- and long-term effects. Impacts from forest objectives would result in indirect, long-term, minor, beneficial effects on bison from minimizing and controlling invasives for improved habitat.

Alternative C would expand monitoring to focus on resilience, integrity, and sustainability for targeted species and refuge habitats (Monitoring Objective 3C), which have indirect, long-term, minor, beneficial effects on other ungulates. Alternative C would also be expected to have increased funding and staff, which would have indirect, beneficial, long-term, intermediate effects on ungulates by having more available resources. Public use objectives and strategies would improve knowledge of NBR and resources, indirectly benefiting all wildlife at NBR, but these objectives could have increased indirect, short-term, beneficial effects on wildlife—including ungulates—if the Service implements temporary closures to minimize disturbances to habitats and species. Indirect effects associated with research, partnerships, monitoring, education and outreach, and public use objectives would have long-term, negligible, beneficial effects on ungulates, as described for Alternative A.

4.4.3 Birds, Mammals, Fish, Reptiles, and Amphibians

The analysis area for impacts on birds, mammals, fish, reptiles, and amphibians under all alternatives is limited to the land within NBR boundaries.

Alternative A

Overall, Alternative A would be expected to have long-term, minor, beneficial effects on birds, mammals, fish, reptiles, and amphibians.

Direct

Management of habitat communities, as described in Section 4.3, would be expected to have long-term, beneficial effects on overall habitat and wildlife species, as evidenced by the abundance of wildlife species that are found on NBR. Certain migratory birds (e.g. grasshopper sparrow, lazuli bunting, willow flycatcher, red-naped sapsucker, Lewis's woodpecker, bald eagle) are priority species for conservation efforts on NBR. Management, maintenance, and enhancement of grasslands (Grassland Objectives 1A-4A), forests (Forest Objectives 1A-2A), and riparian and wetland habitat (Wetland and Riparian Objective 1A) throughout NBR would provide benefits to wildlife species that use those habitats through the promotion of overall ecosystem health and biodiversity. However, while Grassland Objectives 2A-4A would be expected to improve grasslands, localized, short-term impacts ranging from adverse to beneficial may also occur from management treatments, depending on the species. Forest Objectives 1A-2A would benefit species that prefer older growth forests with more open understory (e.g. Lewis's woodpecker, pileated woodpecker, olive-sided flycatcher), but other birds, small mammals, and mountain lions could experience adverse impacts from reduced cover (USFWS 2002).

The use of herbicides for invasive plant removal has some potential for adverse impacts on wildlife (Gassland, Forest, Wetland and Riparian Objectives). Generally, the areas actively treated for herbicides would be relatively small and employ best management practices to minimize non-target effects on other species, including wildlife species. However, wildlife may still have direct contact with areas treated with herbicide or ingest leaves that have been recently sprayed with herbicide. Care and caution would be used when selecting herbicides to ensure the most appropriate formulation for the area and target species, with consideration for the application method, weather conditions, and timing, as specified according to the product label for each herbicide. Risk assessment to wildlife is conducted during the EPA's registration process, and determined as the product of hazard, which is based on toxicity on test animals, and exposure, which depends on use and environmental persistence. Furthermore, considering the small amounts of herbicide used and the small application areas, short-term, adverse impacts would be negligible on wildlife.

The use of mechanical removal or prescribed fire can also result in short-term, negligible, adverse impacts on wildlife as a result of noise, smoke, general disturbance, or possibly direct mortality in the areas undergoing treatment (Gassland, Forest, Wetland and Riparian Objectives). As discussed under *Grasslands*, prescribed fires can exacerbate some species of invasive plants, creating a flush of invasives post-fire in certain grassland units, which can alter wildlife habitats. In the short term, populations of small mammals would be expected to drop in number following a fire but recover and increase in the two to three years following the fire (USFWS 2002). An increase in small mammals would benefit those animal and bird species that

rely on them for food. The use of prescribed burns would use appropriately timed and intense fires to improve the forest understory with native, grassland plant species, which would provide more suitable wildlife habitat and lead to long-term, intermediate beneficial effects.

Bison management and other ungulate objectives (Bison Objective 1A, Other Ungulate Objective 1A) have direct impacts on other NBR species. Currently, bison are managed at carrying capacity (i.e. 285–300 bison), which is based on animal unit months (AUMs; or the amount of forage needed per animal per month, in NBR's case, primarily bison though the herds of other ungulates are also included). Therefore, the specific impacts on other wildlife are secondary to the bison, and may range from adverse to beneficial, depending on the species. Further research would be needed to fully understand this balance. Under Alternative A, the Service plans to conduct a range condition survey (Grassland Objective 1A), which would update managing bison and other grazing ugulates, but provide little information for managing other wildlife species. Birds, particularly grassland and waterfowl species that need tall grass, likely experience direct, long-term, negligible to intermediate, adverse impacts from bison grazing decreasing the height of the grass, though other bird species may benefit from decreased height. Some research suggests that grazing behavior of bison in conjunction with wallows and other ecological events (e.g. fire) provide suitable nesting habitat for a variety of obligate grassland nesting birds, such as grasshopper sparrow and long-billed curlew (MTFWP 2015a). Bison and elk also help to distribute seeds, break up soil, and fertilize grasslands. Trampling and wallows may also disturb areas that allow the invasion of invasive species and contribute to soil and stream bank erosion (MTFWP 2015a), which can have direct, short- and long-term, adverse impacts of varying intensity (see also indirect impacts on wildlife).

The presence and associated maintenance of the boundary fence intended to contain the bison would also be expected to have long-term, minor, adverse impacts on movement, connectivity, genetic exchange, and mortality for wildlife species that cannot move over or under the fenced areas.

USFWS

Volunteers helping with management and learning about the refuge

Research, monitoring, and cultural resources objectives (Research Objectives 1A and 3A, Monitoring Objectives 1A-3A, Cultural Resources Objectives 1A-3A) would continue to add to the body of knowledge that integrate TEK into research; track populations and habitats using existing partnerships, eBird, citizen science, and volunteers; and identify wildlife health and disease concerns for the general benefit of wildlife species. Collection efforts under special use permits could have short-term, adverse impacts from disturbing wildlife, but these would be localized and negligible in the context of available resources.

Ongoing maintenance of facilities and real property could have short-term, negligible, adverse impacts on wildlife due to general disturbances such as increased noise or dust (Facilities Objective 1A). Construction of a new Visitor Center could also have short- and long-term, negligible impacts on wildlife; refer to discussion under *Bison* for Alternative A.

Magnesium chloride is applied to roadways for dust suppression once a year (Facilities Objective 1A). The specific effects of magnesium chloride could vary widely based on the animal. A small amount of magnesium and chloride would likely be metabolized by any animal species. Herbivores would be more likely to ingest it after it gets resuspended and redeposited on grasslands. Small herbivores may be more likely to experience adverse effects of magnesium imbalance due to their size than a larger herbivore (like bison and other ungulates). Birds may ingest some magnesium chloride, but grassland species may be more likely to encounter it during foraging and nesting. Toxicity would not be expected, considering that magnesium is only applied once per year on roadways, and that most wildlife are located more removed from the roadways. Therefore, adverse impacts would be expected to be negligible on small wildlife.

Indirect

Bison management and other ungulate objectives (Bison Objective 1A, Other Ungulate Objective 1A) have indirect impacts on other NBR species because bison are a priority species. Bison trampling and wallows may disturb areas that allow the invasion of invasive species and contribute to soil and stream bank erosion (MTFWP 2015a), which can have indirect, long-term, adverse impacts of varying intensity on bull trout, birds, herpetofauna, and other mammals that use riparian areas.

Coyote control measures (Other Ungulate Objective 1A) can have indirect, short-term, negligible, adverse impacts on other wildlife species at NBR. Current control measures are minimal (USFWS 1985a),

and coyote control measures sometimes lead to increased reproduction in coyotes as well as changes in predatory behavior (i.e. pack dynamics). Changes in the coyote population also result in changes in predatory community composition, for example, increasing fox, skunk, and raccoon populations, which in turn increases predation on nesting birds and other small mammals and herpetofauna. Further research may need to be conducted to better quantify the direct and indirect impacts of further coyote control or depredation on coyotes and coyote prey on NBR.

The use of herbicides for invasive plant removal has some potential for indirect impacts on birds, mammals, fish, reptiles, and amphibians. Some examples of possible indirect, short-term, adverse impacts include oxygen depletion in aquatic environments (affecting fish and aquatic wildlife) from the decay of organic matter in the water, or reduction in vegetation that alters habitat availability and temporarily reduces food sources for herbivorous wildlife. Considering the small amounts of herbicide used and the limited application areas, these short-term adverse impacts would be negligible on birds, mammals, fish, reptiles, and amphibians.

Cultural objectives would further increase appreciation and understanding of Tribal citizens' and early peoples' history and relationship to wildlife, which would be considered indirect, long-term, minor, beneficial effects.

Alternative B

Overall, Alternative B would be expected to have long-term, minor, beneficial effects on birds, mammals, fish, reptiles, and amphibians.

Direct

Under Alternative B, native grassland management would occur in areas that would benefit public viewing opportunities (Grassland Objective 1B-4B). While grassland management would be concentrated in the areas that benefit visitors, grassland objectives would also be expected to benefit migratory birds and Montana species of concern that are present on NBR.

Forest Objectives (1B-2B) would manage forests according to species of interest to visitors and would have long-term benefits on small wildlife. Forest management would occur in areas most accessible to the public, though overall effects on wildlife would still be beneficial.

Generally, the impacts of using herbicides, mechanical removal, and prescribed fire under Alternative B would be similar to those described under Alternative A, though slightly more adverse. Alternative B would have areas of mechanical removal of woody species, namely Rocky Mountain juniper along wetland and riparian areas (Wetland and Riparian Objective 1B), which could increase the quality of visitor viewing. Short-term, negligible, adverse impacts on birds, mammals, fish, reptiles, and amphibians would occur as a result of noise, smoke, general disturbance, or possibly direct mortality in the areas undergoing treatment could occur from these activities. More area of woody vegetation removal could temporarily displace small wildlife. In the long term, however, areas that have undergone mechanical thinning, invasive species management, or prescribed burning would be expected to improve wildlife habitat.

Under Alternative B, each wildfire will receive a management response. All wildfire ignitions determined to be human caused will be full suppression. Consider managing wildfires caused by natural sources for multiple objectives. When considering managing a wildfire for multiple objectives, evaluate the risks to firefighter and public safety, the circumstances under which a wildfire occurs including weather and fuel conditions, natural and cultural resource management objectives, values to be protected, and protection priorities. Wildfires would have short-term, adverse impacts on wildlife, ranging from loss of habitat to direct mortality. The effects of prescribed fire and wildfire may similar, but wildfires may be more intense and may burn larger areas. Small wildlife populations would be expected to recover following a wildfire in the long term; in the event of a wildfire, it could be necessary to reseed areas or conduct invasive treatments to reestablish habitat.

Impacts under Alternative B from bison and ungulate management on other wildlife species would be similar to those discussed for Alternative A. Bison are managed at carrying capacity (based on AUM); therefore, the specific impacts on other wildlife are secondary to the bison, and may range from adverse to beneficial, depending on the species. Refer to discussion under Alternative A.

The upgrade to existing roads and the construction of new trails could affect birds, mammals, fish, reptiles, and amphibians by slightly increasing disturbances from noise or dust during construction and decreasing available habitat (Wildlife Observation and Photography Objective 1B). Ongoing maintenance of facilities and real property could also have some short-term, negligible, adverse impacts on small wildlife due to general disturbances (Facilities Objective 1B). Disturbances from infrastructure project, as well as from potential long-term increases in visitors under Alternative B, may affect movement patterns and cause animal avoidance of the affected areas.

Ongoing maintenance of facilities and real property would be similar to Alternative A. These kinds of impacts would be minor, compared with the overall acreage of habitat still available at NBR for retreat.

Indirect

Under Alternative B, emphasis would be placed on enhancing visitor opportunities and experiences, though not to the detriment of the wildlife species that inhabit NBR. Alternative B would involve strategies to increase educational opportunities as a component of visitor opportunities and experiences, which can have beneficial effects, for example, by encouraging citizen science projects that fill needed data gaps for NBR or using volunteers to assist in the eBird monitoring program.

Increased focus on visitor experiences could increase visitor use over the life of the CCP under Alternative B, but the Service would continue to manage resources primarily for priority species. Fishing opportunities could be expanded, such as providing accessible fishing access by creating accessible trails, and providing public access and parking at the Mission Creek west bridge (Fishing Objective 1B). Increased visitors could be slightly adverse for animals whose behaviors are less tolerant of human disturbances, though generally visitors are not allowed in highly sensitive areas (e.g. nesting areas). Some potential for indirect, adverse impacts exists, such as increased invasive plant species that indirectly affect habitat and food sources, or slightly increased potential for introducing health risks or pathogens. Monitoring Objective 2B would develop a plan to monitor visitor impacts on wildlife habitat and populations within 5 years, which would be a valuable tool over the remainder of the CCP period to inform and enhance visitor opportunities while also protecting species and habitat from possible harms.

Furthermore, research and monitoring objectives (Research Objectives 1B-3B, Monitoring Objectives 1B-3B) would add to the body of knowledge that integrate TEK into research; track populations and habitats using existing partnerships, eBird, citizen science, and volunteers; and identify wildlife health and disease concerns for the general benefit of all species. Increased emphasis on visitor experiences would also help to engage the public, expanding awareness and fostering further appreciation for wildlife and habitat at NBR. Partnership Objective 1B would also benefit wildlife through additional funding and support. These would be indirect, long-term, beneficial effects. Alternative B would also be expected to have increased funding and staff, which would have indirect, beneficial, short- and long-term, minor to intermediate effects for wildlife by having more available resources for management.

Indirect impacts under Alternative B from bison and ungulate management on other wildlife species would be similar to those discussed for Alternative A. Bison and other ungulates behaviors such as grazing, trampling, and wallowing can have indirect, long-term, adverse impacts of varying intensity on bull trout, birds, herpetofauna, and other mammals.

The use of herbicides and wildland fire can also have indirect effects on wildlife, ranging from adverse to beneficial; refer to discussion under Alternative A. Mechanical removal of junipers along Mission Creek riparian areas under Alternative B could increase stream temperature and possibly increase sediment into Mission Creek, which could have indirect, short-term, minor, adverse impacts on cold-water fish species (e.g. trout species). However, improving wetland and riparian areas would provide more suitable wildlife habitat for birds and other wildlife species in the long term, and shaded stream and river conditions would also slowly be restored along Mission Creek as vegetation grows.

Alternative C

Overall, Alternative C would be expected to have long-term, minor, beneficial effects on birds, mammals, fish, reptiles, and amphibians.

Direct

Management of habitat communities, as described under Alternative C in Section 4.3, would have direct, long-term, major, beneficial effects on overall habitat management and wildlife species at NBR. Prioritization of management strategies would favor wildlife under Alternative C, and so it would be expected to have more overall benefits to wildlife than Alternatives A and B. Migratory birds and Montana species of concern present at the NBR would benefit under specific wetland, grassland, and other habitat management objectives as described under both Alternatives A and B, but benefits would be higher under Alternative C. Improved native plant diversity on NBR would expand food and nesting habitat for a variety of migratory birds.

Grassland objectives under Alternative C would have direct, long-term, minor, beneficial effects on wildlife and habitat, particularly grassland bird species and pollinators, as strategies would include conducting wildlife-specific assessments (particularly for birds) and leaving stumps behind to promote pollinator nesting. Prairie and grassland management would be focused on those areas with the highest chance of enhancing and maintaining sustainability.

Forest Objectives (1C and 2C) impacts on wildlife would be be similar to those described under Alternative A. Prescribed fire and use of herbicides under Alternative C would have impacts similar to those described under Alternative A. Under Alternative C each wildfire will receive a management response. All wildfire ignitions determined to be human caused will be full suppression. Consider managing wildfires caused by natural sources for multiple objectives. When considering managing a wildfire for multiple objectives, evaluate the risks to firefighter and public safety, the circumstances under

which a wildfire occurs including weather and fuel conditions, natural and cultural resource management objectives, values to be protected, and protection priorities. Under Alternative C, the forest community would undergo more intense renovations and be actively managed for priority species, where appropriate. Therefore, short-term impacts during renovations associated with mechanical removal or wildland fire could be more adverse in the short term and proportionate to the areas of forest that are being renovated. The long-term effects would be more beneficial for wildlife as the management actions would be selected to increase resiliency of wildlife and the larger landscape. Leaving snags and girdles would benefit cavity nesters and some bat species.

Impacts under Alternative C from bison and ungulate management on birds, mammals, fish, reptiles, and amphibians would be similar to those discussed for Alternative A. However, information from the rangeland health assessment (Grassland Objective 1C) and the preparation of a habitat management plan (Other Ungulates Objective 1C) would be expected to have overall beneficial effects for other wildlife that use grasslands at NBR.

Ongoing maintenance of facilities and real property could have some short-term, negligible, adverse impacts on wildlife due to general disturbances such as increased noise or dust. The potential removal of interior fences that have not been maintained since the 1922 change in grazing systems (and are currently considered obstacles to wildlife movement) would have similar short-term impacts, but long-term beneficial effects by removing those barriers to wildlife movement on NBR. The Service plans to construct a new Visitor Center during this CCP cycle. Construction of a new facility could also have some short-term, negligible, adverse impacts on bison due to general disturbances such as increased noise or dust. The footprint of this facility would represent a small portion of the available grassland that is still available, and would, therefore, be considered a negligible, long-term, adverse impact on loss of forage and habitat. It is anticipated that construction of a new Visitor Center would be the subject of follow-on NEPA documentation when the decision to construct moves forward.

Indirect

Under Alternative C, emphasis would be placed on pursuing and conducting research that furthers ecological sustainability, protects priority species (Research Objective 1C), and informs management at a landscape level across multiple landowners and agencies (Research Objective 2C). Collaboration and partnerships with CSKT, local agencies, state agencies, federal agencies, and universities would occur under all alternatives but would be actively pursued under Alternative C, particularly as these partnerships can further collaboration on habitat-focused research, planning for and responding to climate change, and/or developing new monitoring protocols for priority species and habitats. While all alternatives would provide long-term, beneficial effects by virtue of preserving and managing NBR for bison, trust species, and associated refuge habitat, Alternative C has the greatest potential to expand the knowledge base and understanding of management practices specific to this ecosystem and associated wildlife. Research and monitoring objectives (Research Objectives 1C-3C; Monitoring Objectives 1C-3C) would also continue to add to the body of knowledge that integrate TEK into research; track populations and habitats using existing partnerships, eBird, citizen science, and volunteers; and identify wildlife health and disease concerns for the general benefit of all species.

Indirect impacts under Alternative C from bison and ungulate management on other wildlife species would be similar to those discussed for Alternative A. Bison and other ungulates behaviors such as grazing, trampling, and wallowing can have indirect, long-term, adverse impacts of varying intensity on bull trout, birds, herpetofauna, and other mammals. As discussed under direct impacts for birds, mammals, fish, reptiles, and amphibians, further research would be needed to fully understand the ecosystem balance. The habitat management plan prepared under the Other Ungulates Objective 1C could reduce some impacts by providing a more comprehensive view and management strategy of grassland habitat at NBR.

The use of herbicides and wildland fire can also have indirect effects on wildlife, ranging from adverse to beneficial; refer to discussion under Alternative A. Alternative C would result in mechanical removal of junipers along Mission Creek riparian areas that could increase stream temperature and possibly increase sediment into Mission Creek, which could have indirect, short-term, minor, adverse impacts, on cold-water fish species (Wetland and Riparian Objective 1C). However, improving wetland and riparian areas with native plant species would provide more suitable wildlife habitat for birds and other wildlife species in the long term, and shaded stream and river conditions would also slowly be restored along Mission Creek as vegetation grows.

4.5 Threatened and Endangered Species and other Species of Concern

Anticipated effects of the No Action Alternative and CCP alternatives on threatened species (bull trout, grizzly bear, yellow-billed cuckoo and Spalding's catchfly) at NBR are described below. Impacts to these species at NBR under each alternative would be similar to the impacts on wildlife described in *Wildlife* and on grasslands in *Habitat*. The analysis area for federally listed species and Montana species of concern is limited to the NBR boundary.

Alternative A

Continued management of all habitat communities under existing practices would have long-term, minor, beneficial impacts on overall habitat and the wildlife species that use NBR, including threatened species and other species of concern.

Direct

Management, maintenance, and enhancement of grasslands (Grassland Objectives 1A-4A), forests (Forest Objectives 1A-2A), and riparian and wetland habitat (Wetland and Riparian Objective 1A) throughout NBR would provide benefits to federally protected species and Montana species of concern that rely on NBR habitat through the promotion of overall ecosystem health and biodiversity at NBR. Habitat management practices would continue to provide excellent habitat for federally protected species and Montana species of concern that have been observed on, or have the potential to use, NBR. NBR staff would continue to monitor for occurrences of these species.

Maintaining 500 acres of existing riparian and wetland habitats at NBR, through invasive plant management and prescribed fire (Wetland and Riparian Objective 1A), would enhance the riparian and wetland habitat, as discussed in more detail under *Habitat*. Maintenance of riparian habitats would benefit grizzly bears, bull trout and other species of concern that may use these habitats, providing long-term, minor, beneficial impacts. Maintenance of riparian habitat could also provide future breeding habitat for yellow-billed cuckoo, which does not currently exist on NBR, but has the potential to occur. However, trampling, grazing, and browsing from bison and other ungulates (Bison Objective 1A, Other Ungulates Objective 1A) could degrade riparian vegetation potentially used by the yellow-billed cuckoo.

Additionally, maintaining and enhancing grassland habitat under Alternative A (Grassland Objectives 1A-4A), discussed in more detail under *Habitat*, could provide quality future habitat for Spalding's catchfly, which does not currently exist on NBR, but has the potential to occur.

As discussed in more detail under *Habitat*, forest management under Alternative A (Forest Objectives 1A-2A) would reduce cover through the removal and thinning of Douglas fir densities. This may result in long-term, intermediate, adverse impacts to bats that prefer Douglas firs, such as fringed myotis, hoary bat, and Townsend's big-eared bat. They are all Montana species of concern that have been documented on NBR. Since the reduction of Douglas fir on NBR would occur on 1,000 acres of forest, the adverse impact would be intermediate, as it would likely impact the refuge bat populations.

The continued existence of the boundary fence surrounding NBR (Bison Objective 1A, Other Ungulates Objective 1A) may also have long-term, adverse impacts to movement, connectivity, genetic exchange, and mortality for wildlife species outside the NBR fence, including grizzly bears. However, given that grizzly bears and other protected species are currently able to traverse the existing fence, the impacts would be negligible.

Indirect

Partnership and research and monitoring objectives at NBR (Partnership Objectives 1A-2A, Research Objectives 1A and 3A, Monitoring Objectives 1A-2A) would continue to add to the body of knowledge that integrate TEK into research, track populations and habitats using existing partnerships and volunteers, and identify wildlife health and disease concerns for the general benefit of all species on NBR. This includes protected species, providing indirect, long-term, beneficial impacts through increased knowledge about species populations, their movement, and habitats.

Trampling, grazing, and browsing from bison and other ungulates (Bison Objective 1A, Other Ungulates Objective 1A) would degrade bank and riparian vegetation, which could indirectly impact bull trout habitat through erosion and increases in water temperature and turbidity. In addition, loss of grassland vegetation could indirectly impact potential Spalding's catchfly habitat and potentially preclude the species from establishing on the refuge in the future. The indirect impacts would be long-term and adverse and would be similar under all alternatives.

Alternative B

Overall, Alternative B would have long-term, minor, beneficial impacts on threatened species as well as other species of concern.

Direct

The management, maintenance and enhancement of grasslands (Grassland Objectives 1B-4B), forests (Forest Objectives 1B-2B), and riparian and wetland habitat (Wetland and Riparian Objective 1B) throughout NBR would provide benefits to threatened species and species of concern through the promotion of overall ecosystem health and biodiversity. The expected benefits from the management of habitat communities, under Alternative B, would be expected to be similar to what was described under Alternative A, with a few differences.

Alternative B focuses on the public experience at NBR, and an emphasis is placed on enhancing visitor opportunities and benefit, though not to the detriment of the fish, wildlife, and habitat that exist at NBR. Under Alternative B, native grassland

maintenance, restoration, and enhancement would occur in areas that would benefit public viewing opportunities (Grassland Objective 1B-4B) as well as satisfy the CCP habitat and wildlife goals. Grassland objectives, under Alternative B, would have long-term, minor beneficial impacts on Montana species of concern that are present on NBR and use the grassland habitat. The grassland restoration and enhancement for this alternative would be concentrated on areas that would improve the quality of visitor experience and would be a smaller percentage of the overall grassland than what would be restored under Alternative A, therefore resulting in less beneficial impacts than would be realized under Alternative A.

The forest management objectives under Alternative B would have similar impacts as those described under Alternative A. However, Alternative B would retain the ponderosa pine overstory in addition to reducing Douglas fir densities. Three bat species of concern—fringed myotis, hoary bat, and Townsend's big-eared bat—would be affected by the reduction of Douglas fir habitat, resulting in long-term, adverse impacts. Retaining the ponderosa pine overstory would help to reduce the adverse impacts to these three bat species. Since the location of tree removal and overall forest management would be focused on corridors best accessible by the public as opposed to areas targeted to reduce adverse impacts to species or maximize benefits to other wildlife, long-term, minor, adverse impacts would be expected.

Management of 500 acres of riparian habitat under Alternative B (Wetland and Riparian Objective 1B) would benefit grizzly bears that are occasionally present on NBR, and may attract more grizzly bears to the refuge, similar to what would be expected under Alternative A. Management of riparian habitat at NBR could provide quality future habitat for yellow-billed cuckoo, which is found in riparian woodland habitats. Trampling, grazing, and browsing from bison and other ungulates (Bison Objective 1B, Other Ungulates Objective 1B) could degrade riparian vegetation potentially used by the yellow-billed cuckoo. While the species does not currently exist on NBR, it has the potential to occur.

By developing new, specific areas for wildlife observation and photography, public use would be concentrated in certain regions of NBR with predictable patterns, which could limit disturbance to wildlife, including threatened species and species of concern. However, if increasing the quality of NBR visitation leads to an increase in visitors to the refuge, it may ultimately cause adverse impacts to habitat, disturb wildlife, and cause animal avoidance of those areas. In the riparian areas, greater visitor opportunities would lead to an increase in human-bear interactions, resulting in a potential increase in grizzly bear deaths, bear relocations, or human injury or death. Increasing education such as signs, brochures, and other proposed outreach materials, as well as closures, law enforcement, and requiring bear spray in these areas could help to reduce impacts to both grizzly bears and the public (Wildlife Observation and Photography Objective 1B; Environmental Education, Interpretation, and Outreach Objective 1B). These adverse impacts would be short-term and minor to intermediate.

Under Alternative B, the improved quality of public experience could increase the number of visitors in the long-term, making human disturbance to species on NBR more likely. Education, awareness, and appreciation for wildlife, including threatened species and species of concern on NBR, would also increase under Alternative B with a focus on improving wildlife viewing opportunities and services to visitors (Wildlife Observation and Photography Objective 1B).

Under Alternative B, the Service would examine opportunities to increase fishing access by creating accessible trails and upgrading roads for improved public access and parking, which may increase the amount of fishing along Mission Creek and the Jocko River (Fishing Objective 1B). In addition, the Service would explore ways to improve and enhance the fishing program. Increased fishing activity may negatively impact bull trout due to increased unintentional catch. Increases in the number of annual visitors fishing on NBR may increase disturbance to other species of concern, especially birds, by attracting more public to these habitats. Impacts from public use of NBR would be the highest under this alternative, where public use is promoted and an increase in visitors could occur.

Similar to Alternative A, the continued existence of the boundary fence surrounding NBR (Bison Objective 1B, Other Ungulates Objective 1B) may also have long-term adverse impacts to movement, connectivity, genetic exchange, and mortality for wildlife species outside the NBR fence, including grizzly bears. However, given that grizzly bears and other protected species are currently able to traverse the existing fence, the impacts would be negligible.

Indirect

As with Alternative A, partnership and research and monitoring objectives at NBR (Partnership Objectives 1B-2B; Research Objectives 1B-3B; Monitoring Objectives 1B-2B) would continue to add to the body of knowledge that integrates TEK into research, track populations and habitats using existing partnerships and volunteers, and identify wildlife health and disease concerns for the general benefit of all species on NBR. This would provide indirect, long-term, beneficial impacts to protected species on the refuge through increased knowledge about species populations, their movement, and habitats.

Trampling, grazing, and browsing from bison and other ungulates (Bison Objective 1B, Other

Ungulates Objective 1B) would also indirectly impact protected species habitat. Trampling could degrade bank and riparian vegetation, which would indirectly impact bull trout habitat through erosion and increases in water temperature and turbidity. In addition, loss of grassland vegetation could indirectly impact potential Spalding's catchfly habitat and potentially preclude the species from establishing on the refuge in the future. The indirect impacts would be long-term and adverse and would be similar under all alternatives.

Alternative C

Overall, Alternative C would have long-term, minor, beneficial impacts on threatened species as well as species of concern.

Direct

The focus on priority species and their habitat on NBR under Alternative C would have beneficial effects, as described under *Wildlife* and *Habitat*, and similar impacts would be experienced by threatened species and species of concern on NBR.

Management, maintenance, and enhancement of grasslands (Grassland Objectives 1C-4C), forests (Forest Objectives 1C-2C), and riparian and wetland habitat (Wetland and Riparian Objective 1C) throughout NBR would provide benefits to all threatened species through the promotion of overall ecosystem health and biodiversity.

Montana species of concern present at NBR would benefit from specific wetland, grassland, and other habitat management objectives under Alternative C, as described under Alternative A, but benefits would be greater under Alternative C. Natural resources research (habitat and species), surveys and monitoring (to include threatened plant and wildlife species of concern) would provide accurate and updated inventories of biological resources to inform management decisions and strategies designed to enhance and maintain natural resources. Changes in species occurrence, abundance, diversity, and distribution all can serve as vital signs of improving or deteriorating environmental conditions. Research, surveys and monitoring projects that would be used to document such changes would be predominately based on visual and acoustic observations and field techniques that would not result in the removal or harassment of any flora or fauna and would have a long-term, minor, beneficial impacts. Improved native plant diversity on NBR would expand food and nesting habitat for a variety of Montana bird species of concern in Alternative C.

The forest management objectives under Alternative C would have similar impacts as those described under Alternative A. Three bat species of concern—fringed myotis, hoary bat, and Townsend's big-eared bat—would be affected by the reduction of Douglas fir habitat, resulting in long-term, adverse impacts. Retaining the ponderosa pine overstory, which provide roosting for bat species, would help to reduce the adverse impacts to these protected species. Under Alternative C, the forest management objectives would actively manage NBR forests for priority species and maintaining forested corridors for species where appropriate. In addition, leaving snags or girdles for cavity-nesting birds and bats under this alternative would also benefit Montana species of concern that use the forested areas on NBR. Therefore, beneficial impacts to wildlife, including threatened species and species of concern, would result in long-term, minor, beneficial impacts.

Restoration and management of existing riparian habitat on NBR would benefit grizzly bears. Grizzly bears prefer riparian areas, which are rich in forage and provide more cover than other habitat types. Since Alternative C also focuses on species and habitat, the management of existing riparian habitat would benefit grizzly bears throughout the refuge and potentially attract more bears to the refuge.

A greater focus on riparian habitats under Alternative C would provide greater benefits to the threatened bull trout than what would be expected under Alternative A. In addition, under Alternative C, informational fishing brochures would be updated to highlight native and protected species, their conservation importance, and catch and release policies at the refuge (Fishing Objective 1C).

In addition, the greater focus on riparian habitats under Alternative C would also provide quality future habitat for yellow-billed cuckoo, which does not currently exist on NBR but has the potential to occur. Potential benefits to the species and its habitat would be expected to be higher under Alternative C than under Alternatives A or B. However, trampling, grazing, and browsing from bison and other ungulates (Bison Objective 1C, Other Ungulates Objective 1C) could degrade riparian vegetation potentially used by the yellow-billed cuckoo.

There are no occurrences of Spalding's catchfly on NBR. However, Alternative C has a large focus on

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An example of incorporating traditional language on informational signs

restoring grassland habitat, including decreasing invasive plants and developing a grassland adaptive management project, which would help increase potential habitat for Spalding's catchfly. In addition, prescribed burning, which would remove litter and duff and inhibit the establishment of woody plants, would establish beneficial conditions for potential future Spalding's catchfly habitat.

As with Alternative A, the continued existence of the boundary fence surrounding NBR (Bison Objective 1C, Other Ungulates Objective 1C) may also have long-term adverse impacts to movement, connectivity, genetic exchange, and mortality for wildlife species outside of the NBR fence, including grizzly bears. However, given that grizzly bears and other protected species are currently able to traverse the existing fence, the impacts would be negligible.

The emphasis of research under Alternative C and the associated increased presence of researchers may cause temporary, short-term, adverse impacts on habitat and disturbance to wildlife. NBR staff will provide field protocols and guidelines to ensure that the researchers are minimizing their interaction with wildlife and limiting the adverse impact to habitat when taking plant and ground samples. This alternative would also continue fishing and visitor access to riparian areas of NBR, increasing the risk of human-bear interactions which could lead to bear deaths, relocations, or human injury or death. Closures to Mission Creek and the Jocko River would occur when significant risks to public safety exist, or the potential for minor disturbance to priority species or habitat (Fishing Objective 1C, Wildlife Observation and Photography Objective 1C), lessening the impact to bears and humans. Increasing environmental education through interpretation (Environmental Education, Interpretation, and Outreach Objective 1C) and temporarily closing areas to visitors (Fishing Objective 1C) would help to reduce potential risks to both grizzly bears and the public. Therefore, short-term, beneficial impacts would occur for threatened species and species of concern.

Indirect

Under Alternative C, emphasis would be placed on pursuing and conducting research that furthers ecological sustainability of NBR at the landscape level, including focused research on threatened species and species of concern (Research Objective 2C). Supporting research projects that substantially inform the management and ecological understanding of refuge habitat and priority species conservation would lead to indirect, long-term, beneficial effects to protected species. Collaboration and partnerships with CSKT, local agencies, state agencies, federal agencies, and universities would be actively pursued under Alternative C. These efforts would expand the knowledge base and understanding of management practices specific to this ecosystem and protected species that occupy NBR and could ultimately lead to a more comprehensive management of the habitats and protected species in the region.

Trampling, grazing, and browsing from bison and other ungulates (Bison Objective 1C, Other Ungulates Objective 1C) could degrade bank and riparian vegetation, which could indirectly impact bull trout habitat through erosion and increases in water temperature and turbidity. In addition, loss of grassland vegetation could indirectly impact potential Spalding's catchfly habitat and potentially preclude the species from establishing on the refuge in the future. The indirect impacts would be long-term and adverse.

4.6 Cultural Resources

Anticipated effects of the No Action Alternative and CCP alternatives on cultural resources at NBR are described below. A description of the impacts is limited to the affected environment as described within the boundary of NBR.

Effects Common to All Alternatives

Activities outlined in each alternative have the potential to adversely affect cultural resources, either by direct disturbance during construction of habitat projects and facilities related to public use or administration and operations, or indirectly by exposing cultural resources during management actions such as habitat restoration or prescribed burning. The presence of cultural resources would not necessarily prevent a Federal undertaking or project, but any undertaking would be subject to Section 106 of the NHPA or other laws protecting cultural resources (refer to Appendix C). Effects to cultural resources would be analyzed and if adverse impacts are anticipated, options for avoiding or minimizing adverse effects would be explored prior to implementation of the project.

Any projects that include ground disturbance or modifications to a building or structure over 50 years old would be subject to review by Service cultural resource staff, in coordination with the CSKT THPO, and other interested parties. The Service adheres to Executive Order (EO) 13175 which ensures it consults with the CSKT and respects Tribal sovereignty on issues that impact Indian communities. Refuge staff would provide the Service cultural resource staff with project information for their review and recommendations. Projects found to have no potential to affect cultural resources would be recommended to proceed. If potentially significant cultural resources are within the project area, refuge staff and the cultural resource staff would work with consulting parties to assure that any concerns or recommendations are considered.

The Service would protect all known significant cultural resources. Any collection of natural resources for Tribal cultural purposes would be conducted under a special use permit.

Alternative A

In addition to the effects common to all alternatives, Alternative A would not significantly improve the knowledge and information base for the protection of cultural resources. As previously described, NBR follows the existing laws and legislation concerning cultural resources and does some very limited proactive identification of resources. Alternative A continues the current level of public education, interpretative materials, and collaborative effort with CSKT. Therefore, long-term, minor, beneficial impacts are anticipated for cultural resources.

Direct

Under Alternative A, the Service may provide bison to Tribes (Bison Objective 1A), which can enhance and continue important cultural heritage and traditions, a long-term, minor beneficial effect. Additionally, long-term beneficial effects would be associated with the continued access to NBR resources through special use permits so CSKT and other Tribes can collect materials, such as sage, for cultural and traditional uses (Cultural Resources Objectives 2A).

Indirect

The sharing of TEK (Research Objective 2A) as well as increasing staff understanding and knowledge of local indigenous culture (Funding and Staff Objective 2A) are long-term, minor, beneficial effects. Under Alternative A, the CSKT traditional language would be incorporated into signage and interpretative panels to bring more awareness and enhance the visitor's experience as well as support the heritage of the CSKT (Communications Objective 2A).

Alternative B

Overall, Alternative B would have long-term, minor to intermediate, beneficial impacts on cultural resources.

Direct

Under Alternative B, a variety of new facilities may be constructed to accommodate increased public viewing, photography, and environmental education. Some of these facilities include new signs (Environmental Education, Interpretation and Outreach Objective 1B), updating the corral system (Bison Objective 1B), creating new trails, and expanding or creating new observation areas (Observation and Photography Objective 1B). Construction of these facilities has the potential to adversely affect cultural resources and would be reviewed under Section 106 of NHPA.

Visitors interested in the area's heritage would benefit from an increased emphasis on interpretation of cultural resources and the efforts to preserve a rich past (Cultural Resources 1B). Increased education and outreach may increase the awareness and protection of resources since an informed and educated public could support the protection of cultural resources. Greater access by the public to information, while protecting the location of sensitive sites, has the potential for increased disturbance and impacts. Regular review and analysis, in the field and collaboratively with CSKT, would be necessary to identify areas disturbed by the increased use.

Indirect

The indirect beneficial effects are centered on the increased public use, which brings more awareness to existing and unknown cultural resources. The indirect beneficial effects listed under Alternative A would be the same under Alternative B but with various enhancements or opportunities. Collaboration with CSKT would increase, which would be a beneficial effect on cultural resources by acknowledging traditional cultural resources and TEK and creating programs with standardized guidelines to identify and protect these resources (Cultural Resources Objectives 1B-2B). Under Alternative B, the CSKT traditional language would be incorporated into signage and interpretative panels to bring more awareness enhance the visitor's experience as well as support the heritage of the CSKT (Communications Objective 2B).

Alternative C

Overall, Alternative C would have long-term, major, beneficial impacts to cultural resources.

Direct

The direct effects are similar to Alternative A and B. By providing bison to conservation efforts, including CSKT, other Tribes, as well as other conservation herds, the NWRS genetics program is enhanced and the overall health, integrity, and longevity of bison is improved (Bison Objective 1C). Having a stronger metapopulation of bison bolsters and supports CSKT's cultural heritage and would be a major, long-term, beneficial impact to the cultural resources.

Indirect

The indirect beneficial effects listed under Alternative A would be similar under Alternative C. Increased protection to certain species may coincide with CSKT efforts to preserve and protect TEK and other traditional cultural resources. In addition, the incorporation of CSKT traditional language into signage and interpretive panels would bring more awareness and enhance the visitor's experience as well as support the heritage of the CSKT (Communications Objective 2C).

Conclusion

The Service would continue to follow all cultural resources laws for any project work on NBR.

Developments and construction could disturb cultural resources, so all rules and regulations apply to minimize potential adverse effects. Under Alternatives B and C, the Service would increase protection efforts largely through more explicit coordination. Tribes would continue to collect and use plants, bison, and other resources for ceremonial purposes under special use permits. Overall, with both Alternatives B and C, these efforts would result in negligible-to-major benefits to cultural resources. The emphasis on public use in Alternative B would most likely provide more awareness and protection of cultural resources and traditional cultural resources, a minor, beneficial effect.

4.7 Socioeconomics and Visitor Services

Anticipated effects of the No Action Alternative and CCP alternatives on socioeconomics and visitor services at NBR are described below.

The analysis area for socioeconomics and visitor services includes the NBR property and surrounding communities (Lake County and Sanders County).

4.7.1 Socioeconomics

Alternative A

Overall, Alternative A would be expected to have long-term, minor, beneficial impacts on socioeconomics.

Direct

As described in Chapter 3, spending associated with tourism brings $3.98 billion annually to the State of Montana. In addition to providing a popular destination for tourists and local residents, NBR employees benefit local communities by residing and purchasing goods and services within the region. Continued management, maintenance, and enhancement under Alternative A would maintain comparable levels of tourism and visitors to NBR. Visits to NBR would be expected to continue at a similar rate to previous years, and Alternative A would predict at least 180,000 visitors annually for the duration of the CCP. Under Alternative A, benefits to the State and local communities from tourism would continue at the current level.

Contracting services for biological studies, condition assessments, infrastructure repair and construction, maintenance of facilities, and other essential services to complement and support NBR staff would continue to provide beneficial impacts the local economy through direct spending and the creation or maintenance of employment. These benefits would be long-term and minor.

Indirect

Wildlife management under Alternative A would continue to provide indirect beneficial effects on the local tourism industry by maintaining healthy and diverse wildlife populations within NBR. The availability of bison and other wildlife to view and photograph are a primary draw to NBR. Alternative A would continue to provide opportunities for viewing and photography of unique wildlife by maintaining services to accommodate at least 180,000 visitors annually (Wildlife Observation and Photography Objective 1A). Under Alternative A, the Service would maintain the existing trails, tour routes, interpretive kiosks, and other existing visitor services. The impacts from visitors to NBR would remain similar to the current levels experienced by neighboring communities, providing long-term, minor, beneficial impacts.

Continued management of NBR would maintain the open, rural, and scenic character of the refuge, providing indirect benefits to neighboring landowners and communities.

Alternative B

Overall, Alternative B would be expected to have long-term, minor to intermediate, beneficial impacts on socioeconomics.

Direct

Visits to NBR would be expected to be at least 180,000 visitors annually for the duration of the CCP, similar to the other alternatives. However, by increasing the visitor services and striving to increase opportunities for highly unique wildlife viewing and photography under Alternative B, it is possible that there would be an increase in annual visitors over time, above what would be expected under the other two alternatives. In addition, duration of visitor stay in the local area would likely expand commensurate with increased public use opportunities and programs, thus increasing expenditures on food, gas, entertainment, and lodging to support the local economy. Direct short- and long-term, minor benefits would be expected with increased tourism to NBR resulting in an increase in local spending.

A slight increase in staffing under Alternative B (of 1 Full Time Equivalent [FTE]), as well as continued staffing of full-time, seasonal, temporary, and youth positions at NBR (Funding and Staff Objective 1B) would continue to have a positive effect on local employment, income, and housing in the communities surrounding NBR. Under Alternative B, at least 25 volunteer positions would be offered for various public use programs (Volunteer Objective 1B). A strong volunteer program would provide opportunities for people to gain job experience in a range of employment fields.

Contracting services for biological studies, condition assessments, infrastructure repair and construction, maintenance of facilities, and other

essential services to complement and support NBR staff would continue to directly benefit the local economy through direct spending and the creation or maintenance of employment, providing long-term, intermediate beneficial impacts. Updated and additional infrastructure under Alternative B, including an updated corral system (Bison Objective 1B), paving trails or roads, new trail construction (Wildlife Observation and Photography Objective 1B and Fishing Objective 1B), and new facility construction (Facilities Objective 1B), would further benefit the local economy through an increase in employment and expenditures. The potential paving of sections or the entire wildlife drive auto tour route under Alternative B (Wildlife Observation and Photography Objective 1B) would result in increased maintenance requirements to the paved areas. For example, frost and heavy snow loads would loosen paved areas. Additional maintenance staff and equipment, or local contract support, would be necessary to maintain any paved roads annually. These infrastructure improvements would result in short and long-term intermediate, beneficial impacts to the local economy, and would create a larger maintenance and financial commitment by the Service that may be difficult to achieve with current staffing levels.

Indirect

Under Alternative B, the potential for increases in tourism over time would also result in indirect increases in a variety of jobs and income in the region. Increased public use opportunities and programs at NBR under this alternative may result in added visitors to the region, and trips of longer duration than in the past. Increases in frequency and length of visits to the region would be expected to result in commensurate increases in expenditures on hotels, food, gas, entertainment, and other incidentals, providing indirect benefits to the region through the creation of additional jobs and income.

Management of NBR, under Alternative B, would maintain the open, rural, and scenic character of the refuge, providing indirect benefits to neighboring landowners and communities.

Alternative C

Overall, Alternative C would be expected to have long-term, minor, beneficial impacts on socioeconomics.

Direct

Impacts on socioeconomics under Alternative C would be similar to those described under Alternative A. With an emphasis on wildlife needs above visitor services, tourism to NBR would be expected to remain at levels similar to what was experienced in the past, and approximately 180,000 visits annually would be expected under Alternative C.

A slight increase in staffing under Alternative C (an additional 2 FTEs), as well as continued staffing of full-time, seasonal, temporary, and youth positions at NBR (Funding and Staff Objective 1C) would continue to have a positive effect on local employment, income, and housing in the communities surrounding NBR. Increased opportunities for research scientists, students, and teachers under this alternative would result in additional, temporary researchers that would stay near NBR to complete surveying, monitoring, and other research on the refuge, providing additional benefits to the local economy. Active volunteer programs under this alternative would provide opportunities for people to gain job experience in a range of natural resource management positions with a focus on habitat and wildlife use. Under Alternative C, at least 20 volunteer positions would be offered for various programs (Volunteer Objective 1C).

Contracting services for biological studies, condition assessments, infrastructure repair and construction, maintenance of facilities, and other essential services to complement and support NBR staff will continue to directly benefit the local economy through direct spending and the creation or maintenance of employment, providing long-term, intermediate beneficial impacts. Increases in contracted services related to research and monitoring would further benefit the local economy in the short-term.

Indirect

Continued management of NBR would maintain the open, rural, and scenic character of the refuge, providing indirect benefits to neighboring landowners and communities.

The potential for reduced recreational use opportunities on the refuge could result in an indirect decrease in local expenditures, if the closures would result in visitors decreasing the duration of their stay in the region or traveling elsewhere in the state for recreation instead of prolonged visits to NBR (Wildlife Observation and Photography Objective 1C). These impacts would be short-term, negligible, and adverse.

4.7.2 Visitor Services

Alternative A

Overall, Alternative A would be expected to have long-term, minor, beneficial impacts on visitor services.

Direct

Under Alternative A, visitor services would remain similar to existing levels at NBR. NBR would continue to provide the current visitor services, including continuing to allow fishing on Mission Creek and the Jocko River (Fishing Objective 1A), maintenance of the wildlife observation and photography opportunities on

NBR via auto tour routes and seasonal access drives (Wildlife Observation and Photography Objective 1A), and educational education and outreach through general information contacts on an ad hoc basis (Environmental Education, Interpretation, and Outreach Objective 1A).

Communicating with the public about the incorporation of TEK into the management practices and how it benefits natural resource management and relationships between resource managers (Communications Objective 1A) would help to increase public awareness of TEK and how it is used, providing long-term, beneficial, intermediate impacts to visitors. NBR would continue to work with CSKT to incorporate native languages, to the maximum extent possible on NBR, into educational materials, signage, and outreach materials (Communications Objective 2A), including place names, as well as flora and fauna names. Integration of TEK would provide long-term, intermediate, beneficial educational and cultural awareness to visitors through the increased presence of local Tribal language and culture references.

Existing fishing opportunities would continue to be an attraction at NBR. Under Alternative A, the fishing program would remain along Mission Creek and the Jocko River (Fishing Objective 1A). NBR would continue to provide relevant information about fishing to the public and maintain accessible fishing access for visitors with disabilities. Existing fishing opportunities provide long-term, negligible, beneficial impacts to visitor services at NBR. Portions of the creek and river would be closed if there were risks to public safety or the potential for significant disturbance to priority species or habitat, which would potentially adversely affect visitor experience.

The annual bison capture operations would continue to take place and be available for the public to view. The capture operations would be conducted as needed to manage the population, with the existing boundary fence and corral system. There would be no change in visitor services from what is currently offered for public viewing of the capture operations.

Facilities and access to NBR would also be maintained under Alternative A, and staff would keep the refuge in operational condition with access to the auto tour route, hiking trails, Red Sleep Mountain Drive (seasonally), the day use area, and the Visitor Center (Facilities Objective 1A). Under Alternative A, the existing refuge Visitor Center would be replaced, pending funding, starting in 2020, which would provide benefits to visitor services, although it will be smaller than the current Visitor Center (Environmental Education, Interpretation and Outreach Objective 1A, Facilities Objective 1A). The number of vault toilets in the public use area may be reduced under this alternative, causing minor adverse effects to visitor services (Facilities Objective 1A).

To ensure safety of NBR visitors, the Service needs to maintain the public use roads and therefore must manage potential risks associated with road stabilization. Losing loose gravel and road surfaces to traffic and the elements can require continuous maintenance and upkeep. Application of magnesium chloride, which is a stabilizing agent, binds fine dust particles to keep roads stabilized, to slow the loss of aggregate, and to reduce the need for costly regrading. Liquid magnesium, which is sprayed on the road surface, reduces erosion, makes unpaved surfaces harder and more compact, and helps to prevent surfaces from becoming uneven or developing potholes. This activity works to minimize the safety issues and health concerns associated with airborne dust, providing a long-term, minor, beneficial impact to the well-being of NBR visitors (Facilities Objective 1A).

Indirect

The bison herd on NBR is managed as wildlife so their grazing patterns are not structured by the Service and are unpredictable. Many visitors' primary reason for visiting NBR is to view the bison, which is dependent on the herd's location and may lower visitor satisfaction if the bison aren't visible in large herds.

The wildlife objectives would sustain NBR's ability to maintain healthly and diverse wildlife for viewing and photography opportunities, providing long-term, minor beneficial impacts to visitor services. Similarly, the habitat objectives would sustain the landscape of the refuge and maintain the beauty and native species that provide viewing and photography opportunities to visitors. The cultural resources objectives benefit public awareness and appreciation of the cultural resources and history of NBR, which would connect staff, visitors, and the community to the refuge's past and continuing traditions, which, in turn, would enhance protection of the species and habitat at NBR. These would result in long-term, negligible, beneficial impacts to visitor services at NBR.

Alternative B

Overall, Alternative B would be expected to have long-term, minor to intermediate, beneficial impacts on visitor services.

Direct

With a focus on the quality of public experiences at NBR, Alternative B would provide the most benefits to visitor services. Under this Alternative, a visitor use study would occur to better understand visitor wants and needs, as well as determine the impacts from providing visitor services at NBR (Research Objective 2B). The overall focus on visitor services would benefit all visitors to NBR through improving visitor experience, satisfaction, and knowledge. Given that the Alternative B approach is to increase the

quality of visitor experience, visitation to NBR could increase over time under this alternative. If the enhancement of visitor services programs leads to increased visitation, it may necessitate added infrastructure and amenities that are not outlined in this CCP alternative, which would be addressed in future, step-down plans.

The emphasis on public experiences at NBR could also affect plants, wildlife, and habitats at NBR due to increased traffic and presence. Alternative B would include a plan to monitor visitor impacts on wildlife habitats and populations, using the information to modify the management to enhance visitor experiences while also protecting the species and their habitats (Monitoring Objective 2B).

Fishing would continue to attract some visitors to NBR. Under Alternative B, the fishing program would be enhanced along Mission Creek and the Jocko River, and NBR would consider opportunities to increase accessible fishing areas by paving trails or roads, increasing public access and providing additional parking (Fishing Objective 1B). NBR would also provide information to the public about angling methods, fish species, fishing locations, and angling opportunities and strategies, benefiting visitors' experience while fishing at NBR. These enhancements would provide long-term, minor, beneficial impacts to visitor services at NBR by potentially increasing public use of fishing, and offering more positive, outdoor, nature-related experiences for the public.

Wildlife observation and photography is the primary reason visitors come to NBR. Expanding public opportunities for wildlife observation and photography would potentially increase public visitation to NBR for photography and observation over time (Wildlife Observation and Photography Objective 1B). Under Alternative B, NBR would create a Visitor Service team that would, with partners, develop and implement a Vistor Use Plan to enhance visitor experiences at NBR. Workshops and guided wildlife observation and photography tours and designated, year-round viewing areas would further benefit visitor services at NBR under Alternative B. The Service would consider increasing available trail miles, improving trail accessibility, and expanding the season for public access on Red Sleep Mountain Drive, which would all benefit visitor services at NBR, if implemented. The Alternative B strategies for improving wildlife observation and photography would result in long-term, minor, beneficial impacts to visitor services at NBR.

The Service would identify opportunities for an annual Saddle Club Trail ride to occur under a Special Use Permit with specific conditions to support or facilitate wildlife-dependent recreation and management activities (Other Uses Objective 1B). Special use permits would include specific conditions to reduce negative impacts and support wildlife-dependent recreation and management.

Under Alternative B, the annual bison capture operations would continue to take place and would be available for the public to view. The bison corral system would be updated to incorporate new viewing areas to best accommodate public viewing, photography, and environmental education (Bison Objective 1B), providing long-term, intermediate, beneficial effects to visitor services. The improved viewing of the bison capture operations may also attract more visitors to NBR for the event, increasing environmental education opportunities.

A full-time visitor services specialist under Alternative B would benefit the environmental education, interpretation, and outreach at NBR by serving as a facilitator with the public, volunteers, and partners to increase environmental education and interpretation presentations, outreach events, and outreach to underserved populations. (Environmental Education, Interpretation, and Outreach Objective 1B, Staffing and Funding Objective 1B).

Communication, outreach, and engagement would increase at NBR through educational efforts such as evening programs on refuge research (Research Objective 1B), teacher workshops (Environmental Education, Interpretation, and Outreach Objective 1B), and development of a mobile phone application (Environmental Education, Interpretation, and Outreach Objective 2B). The numbers of individuals reached through educational and interpretive efforts would be greater under Alternative B than under the other two alternatives. Educating people, especially youth, would result in long-term, intermediate, beneficial effects, as it encourages support of refuges and increases awareness and appreciation for wildlife, culture, history, and the environment.

Development of new brochures, handouts, and other interpretive materials, which integrate TEK, would provide visitors with increased access to information about plants and animals on NBR, as well as best times, locations, and seasons to view them, benefiting the wildlife observation and photography at NBR (Communications Objective 1B). Interpretive materials and activities would help educate visitors on expectations and opportunities at NBR, resulting in higher quality experiences at the refuge. Interpretive materials tie public use together with the biology, management, and rules of the refuge and fosters an understanding and instills appreciation for wildlife, fish, and plants and their conservation.

Communicating with the public about how we incorporate TEK into management practices and how it benefits natural resource management and relationships between resource managers (Communications Objective 1B) would help to increase public awareness of TEK and how it is used, providing long-term, beneficial, intermediate impacts to visitors. NBR would continue to work with CSKT to incorporate native languages to a maximum extent possible on NBR, including place names as well as flora and fauna names, into educational materials,

signage, and outreach (Communications Objective 2B), providing long-term, beneficial educational and cultural benefits to visitors through the increased presence of local Tribal language and culture. These impacts would be the same as what would be expected under Alternative A and C.

Partnerships with CSKT, local, state, and federal agencies and universities, as well as increases in volunteers, would provide for more opportunities to increase research at NBR and improve public knowledge about the important research that occurs at the refuge. Expanding the volunteer program at NBR by at least 25 volunteer positions for various public use programs (Volunteer Objective 1B) would increase the availability of personal contact for interpretation and allow NBR staff to focus on other management issues throughout the refuge.

Under Alternative B, efforts to fund and develop new visitor exhibit displays would begin in 2020, a new office and Visitor Center would be constructed by 2023, and efforts to fund and construct new outdoor restroom facilities would begin in 2025 (Facilities Objective 1B). All new facilities would provide minor to intermediate benefits to visitor services and help to provide an exceptional experience to visitors at NBR.

As described under Alternative A, the application of magnesium chloride on public use roads would provide long-term, intermediate, beneficial impacts to NBR visitors, and the same impacts would be realized under Alternative B. Since Alternative B may result in more visitors and vehicles in the long-term, the effectiveness of the magnesium chloride may decline sooner than under Alternatives A and C.

Indirect

Similar to A, since Alternative B would include increased interpretation and education on the history and culture of NBR; more educational benefits would be realized under this alternative compared with Alternatives A and C.

Alternative C

Overall, Alternative C would be expected to have long-term, minor, beneficial impacts on visitor services.

Direct

With an emphasis on sustainable, species-focused management at NBR, Alternative C would provide less direct benefits to visitor services at the refuge. However, benefits from prolonged landscape scale management of the refuge would benefit and increase bison populations, biodiversity, and habitat in the long term, which would increase wildlife observation opportunities in the future.

Under Alternative C, fishing along Mission Creek and the Jocko River would only be allowed when not in conflict with priority species or habitat (Fishing Objective 1C). Portions of the creek and river would be closed if there were risks to public safety or the potential for minor disturbance to priority species or habitat, which would potentially adversely affect visitor services if fishing were closed often.

Wildlife viewing and photography opportunities would still be emphasized under Alternative C, but only when not in conflict with priority species or habitat (e.g. for safety or to minimize disturbance) (Wildlife Observation and Photography Objective 1C). If areas are closed to the public frequently, potentially diminishing wildlife observation and photography, it would create minor, adverse effects to visitor services. Restricting wildlife viewers and photography in Alternative C would concentrate visitors to the refuge in a smaller area, which may provide conflicts with other visitors and traffic. By limiting the areas that are accessible to visitors, the photography opportunities may be limited.

Under Alternative C, environmental education, interpretation, outreach and communication would occur at the same levels as under Alternative A, with special consideration given to priority species and habitat. The environmental education and interpretation under Alternative C would be aimed at fostering understanding and emphasizing management of the refuge with wildlife and habitat as a priority (Environmental Education, Interpretation, and Outreach Objective 1C; Communication Objective 1C).

Communicating with the public about the incorporation of TEK into the management practices and how it benefits natural resource management and relationships between resource managers (Communications Objective 1C) would help to increase public awareness of TEK and how it is used, providing long-term, beneficial, intermediate impacts to visitors. NBR would continue to work with CSKT to incorporate native

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Lewis's woodpeckers

languages, to the maximum extent possible on NBR, into educational materials, signage, and outreach materials (Communications Objective 2C), including place names, as well as flora and fauna names. Integration of TEK would provide long-term, intermediate, beneficial educational and cultural awareness to visitors through the increased presence of local Tribal language and culture references. These impacts would be the same as what would be expected under Alternative A and B.

The Service would identify opportunities for an annual Saddle Club Trail ride to occur under a Special Use Permit (Other Uses Objective 1C). Special use permits would include specific conditions to reduce negative impacts while supporting wildlife-dependent recreation and management.

Other non-wildlife dependent recreation and uses that do not significantly contribute to the appreciation or management of the refuge could be reduced under Alternative C. This would limit visitors' overall experience at NBR but would benefit species on NBR.

A visitor services position would be employed under this alternative to provide outreach and education on priority species and habitat. Interns and volunteers would also focus on education, outreach, and interpretation focused on priority species and habitat. Similarly, educational and interpretative materials, displays, and signs would emphasize information relative to the wildlife and habitats on NBR.

Partnerships with CSKT, local, state, and federal agencies and universities, as well as increases in volunteers, would provide for more opportunities to increase research on priority species and habitat at NBR and public knowledge about the important research that occurs at the refuge (Partnership Objective 1C). Impacts of facilities maintenance would be similar to Alternative A, but somewhat more beneficial due to increased staff and volunteers.

Indirect

The overall wildlife objectives would potentially result in increased wildlife populations on NBR but there could be less or more restricted access for public viewing and photography, resulting in long-term, negligible, adverse impacts to visitor services. Over time, this could ultimately decrease visitation if closures are too frequent, and visitors aren't able to view the wildlife they hope to observe and photograph. The cultural resources objectives benefit public awareness and appreciation of the cultural resources and history of NBR, which would connect staff, visitors, and the community to the refuge's past and continuing traditions, which, in turn, would enhance protection of the species and habitat at NBR. These would result in long-term, negligible, beneficial impacts to visitor services at NBR.

There is the potential for a decrease in public use and diminished visitor experience due to possible increases in closures under Alternative C (Wildlife Observation and Photography Objective 1C), resulting in short-term, negligible adverse impacts to visitor services.

4.8 Cumulative Effects

Cumulative effects are defined in CEQ regulations as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions" (40 CFR § 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. This section analyzes cumulative effects of the alternatives when combined with the effects of other relevant past, present, and reasonably foreseeable future activities.

4.8.1 Reasonably Foreseeable Actions

Reasonably foreseeable future activities are actions and activities that are independent of the action alternatives but could result in cumulative effects when combined with the effects of the alternatives. These activities are anticipated to occur regardless of which alternative is selected. Reasonably foreseeable future actions that could potentially result in cumulative effects include the following, and are described in Table 4.1.

During initial planning, CSKT recommended that the Service consider a CSKT self-governance agreement for NBR be a reasonably foreseeable action in this cumulative analysis. However, the scope and terms of such an agreement are yet to be negotiated. However, the environmental effects of CSKT operating the National Bison Range according to the CCP would be identical to the impacts of the Service performing those functions.

Table 4.1. Past, Present, and Reasonably Foreseeable Future Projects Affecting National Bison Range Resources

Project Name	Geographic Location	Scope of Project	Status	Resource Affected
Management of DOI/ federal bison herds	Throughout western United States	Federal agencies currently manage	Ongoing	Wildlife/Bison
NBRC CCP and EA	NBRC	Preparation of a CCP and associated EA for Pablo, Lost Trail, and Ninepipe National Wildlife Refuges, and the Northwest Montana WMDs; all are part of the NBRC. The CCP will describe the desired future conditions of the units and provide long-range guidance and management direction to refuge staff on how best to achieve refuge purposes.	Projected to be completed in 2020	All
Missoula Housing Authority Affordable Housing Project	Missoula, MT	A roughly $36.5 million, 200-unit apartment complex.	Planning stage as of May 2018	Socioeconomics
CSKT Fire Prevention Plan	NBR	Three-year plan to treat 4,500 acres of forest and grasslands as part of The Reserved Treaty Rights Initiative. 1,000 acres will be thinned and implement mechanical pile treatments, 1,950 acres will have prescribed fire treatments, and 1,550 acres will use invasive plant treatments.	Ongoing	Habitat; Physical Environment
CSKT Weed Management Plan	Pablo, MT	Last CSKT Integrated Noxious Weed Management Plan was conducted in 1993. Montana Weed Management Plan revised in May 2008.	Unknown	Habitat; Wildlife; Physical Environment; Threatened and Endangered Species; Visitor Services
Jocko River Restoration Conservation Easement	Jocko River Watershed, Lake County, MT	Ecological restoration effort targeting the lower 22 miles of the Jocko River from approximately four river miles upstream of Arlee to the confluence with the Flathead River, with goals to ultimately restore natural processes that will result in a sustainable ecosystem structure. Project began in December 2008. A 16.25-acre habitat acquisition along Valley Creek, a tributary to the Jocko River. Once the property was acquired, a conservation easement was placed on the property. CSKT is providing long-term stewardship for the land.	Restoration: Ongoing Easement: Spring 2009	Threatened and Endangered Species; Habitat; Wildlife; Physical Environment; Visitor Services

Table 4.1. Past, Present, and Reasonably Foreseeable Future Projects Affecting National Bison Range Resources (Continued)

Project Name	Geographic Location	Scope of Project	Status	Resource Affected
West Glacier RV and Cabin Village	West Glacier, MT	A 102-space RV Park and 25 cabins on a 178-acre forested tract of land just west of West Glacier village. The proposed subdivision lots would be developed in 2 phases.	Expected to be complete by 2021	Socioeconomics
Rehabilitation of the Going-to-the-Sun Road (GTSR)	Glacier National Park	Continuous rehabilitation project since 2007. Beginning October 15 and lasting through October 19, 2018, the section of the GTSR from the four-way intersection, near Apgar, to Logan Pass will be closed to vehicles, bicycles, and foot travel. (Could lead to more travel to NBR with continuous construction on the GTSR at Glacier.)	Ongoing	Socioeconomics
Highway 93 Corridor Study	Missoula to Florence, MT	The Montana Department of Transportation is performing a corridor study to identify the most needed improvements to US 93 between Missoula and Florence (south of NBR) that will meet the operational requirements and user needs for the next 20 years. The planning process will consider the needs of local residents and the traveling public. Both current and future demands of personal and commercial travelers will be considered. (Could potentially inhibit visitors if construction is severe or if US 93 is closed partially. Could increase travel times for visitors)	Ongoing	Socioeconomics
Highway 93 Ravalli Hill Scenic Turnout	Adjacent to the southeast corner of NBR	CSKT-owned site developed around 1990 as a joint project between the Tribes and the Ronan & St. Ignatius Chamber of Commerce organizations. Entire northbound scenic turnout site was removed during Highway 93 reconstruction, including interpretive material. There is draft interpretative panel language for numerous signs at each side of Highway 93 that could be edited or completely redrafted to benefit some of the education goals of NBR in the immediate future if funding could be secured to make and install the walkway interpretive panels or other signage at the sites.	Ongoing	Visitor Services
"Rack Card"	NBR	Flyer with information on NBR to be placed in hotels and businesses surrounding NBR.	Ongoing	Socioeconomics

Sources: (Erickson 2018); (ABC Fox Montana 2017); (CSKT 2008); (Bonneville Power Administration 2009); (Flathead County 2017); (NPS 2018); (Montana Department of Transportation 2008); (McDonald 2018)

4.8.2 Cumulative Effects of the Alternatives

Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. The potential cumulative effects of the final CCP alternatives, when combined with the effects of past, present, and reasonably foreseeable future actions, are described below. Resources with no cumulative effects are not discussed further.

All three alternatives include projects that would cumulatively contribute to improvements of the condition and viability of natural resources both within and outside NBR boundaries. Regional conservation partnerships and participation in county-level planning efforts contribute to a regional natural resources conservation network. Minimal growth and development is expected in the areas surrounding the refuge.

Implementation of ecosystem management practices associated with the CCP alternatives would contribute to the maintenance of high-quality natural systems within NBR, which would prove to be beneficial for the refuge as well as the greater Complex and the western Montana region. Through reviews and updates of the CCP, NBR can plan for ongoing adaptive management of natural resources in a manner that reflects the current conditions of the refuge.

Implementation of the CCP would have a positive cumulative effect on NBR and its surrounding area, particularly for wildlife and habitats, and especially the bison and grasslands.

Physical Environment

Topography and Soils

There would be no cumulative effects on topography and/or soils.

Air Quality

Cumulative effects on air quality would be the same for all alternatives. Smoke and dust may be trapped in mountain valleys by temperature inversions and increase PM_{10}. Wildfires could be larger and produce more emissions under a suppression strategy that uses natural and constructed barriers as control lines compared to fires that are suppressed with an aggressive, direct-attack strategy. Prescribed burns would increase slightly due to the CSKT Fire Prevention Plan; however, the relative size of fires is still expected to be so small as to have little overall impact.

Climate

Under all alternatives, cumulative effects from climate change include the likelihood of an increase in water consumptions from other water users (diversions and pumping) due to drought and higher temperatures, which would adversely impact NBR wildlife and habitats by limiting water availability. The availability of water is critical to bison and other wildlife survival, providing drinking water sources and contributing to thriving habitats. Increasing temperatures and dry conditions elevate the risk for wildfires throughout the region, adversely affecting wildlife with increased smoke and destruction of habitat. Warmer, longer days often limit water supplied from springs, which would likely increase riparian use by bison and other wildlife to combat higher temperatures and limited water availability from springs. Increased occurrence and greater numbers of bison and other ungulates moving through the floodplain and rivers would adversely impact vegetation and water quality in these areas. Increased wildlife access to riparian and riverine environments would directly affect fisheries and riparian bird use by negatively affecting water quality and disrupting floodplain and aquatic habitat.

Alternative B may increase the risk of wildfires, specifically from accidental ignition (e.g. smoking, exhausts), because of the projected increase in public visitation. Increased public use may also generate greater public support for refuge programs if conditions deteriorate significantly over time. This would be a minor, beneficial impact to NBR.

Alternative C would have the same cumulative effects as Alternative A.

Hydrology

Under all alternatives, the efforts carried out by the Service to improve instream and riparian habitat for wildlife, as well as CSKT's ongoing Jocko River Restoration Project, has direct and indirect long-term beneficial cumulative impacts to water resources by restoring natural physical and biological processes that were substantially disturbed by agriculture, irrigation, grazing, transportation infrastructure, and development (CSKT 2008). Restoration efforts include solutions for irrigation withdrawals, confined flood flows, increased sediment transport, and channel erosion. The degradation to the riverine and floodplain environments have led to impairments such as channel incision, loss of floodplain connectivity, loss of near-bank riparian vegetation, higher stream temperatures, and elevated rates of bank erosion. The intent of the restoration project activities, both for NBR and CSKT, is to implement solutions that recreate conditions throughout the floodplain that allow disturbance processes (such as floods) to create, sustain, and enhance habitats and the connections between them (CSKT 2008). In addition, the easement along Valley Creek, a tributary to the Jocko River in Montana's Jocko River Watershed, would have a cumulative, beneficial effect on water resources, ensuring

riparian habitats are protected in perpetuity.

Current trends in climate change are expected to affect high-mountain ecotypes and lower elevation, snowmelt-dependent watersheds, such as those found at NBR. Changes in temperature and precipitation are expected to decrease snow pack, which could affect stream flow and water quality throughout NBR. Warmer temperatures would result in more winter precipitation falling as rain rather than snow throughout much of the region, particularly in mid-elevation basins where average winter temperatures are near freezing. This would result in less winter snow accumulation, higher winter stream flows, earlier spring snowfall, earlier peak spring stream flow, and lower summer stream flows in rivers that depend on snowfall. Increased flooding would have short-term, minor, adverse impacts on infrastructure (e.g. fences) by causing displacement or damage as well as increasing the possibility of bison egress during flooding events.

Under Alternative B, increased public use would likely increase the demand for public toilets by visitors and domestic water by employees. Additional water and permits to accommodate the expanded needs may need to be obtained. This is not expected to be a problem, as the State of Montana is known to support applications for domestic well use.

Habitat

The Service is in the initial stages of preparing a CCP and associated EA for the remainder of the NBR Complex, which include three other refuges and the Flathead and Lake County WMDs. Though the two CCPs are separate planning documents, it is anticipated that much of the management and monitoring strategies would overlap, particularly since staff and management coordination will be aligned within the regional Western Montana Complex. The Service has identified outreach and partnership objectives, particularly under Alternative C, that would strengthen communications on a landscape level and involve multiple landowners and agencies. Cumulatively, management and monitoring on a regional landscape scale would provide added benefits to the habitats within these refuges and WMDs from collective conservation and research efforts.

The CSKT is leading many initiatives that promote beneficial land and habitat management, including the Fire Prevention Plan, Weed Management Plan, and Jocko River Restoration and associated conservation easements. The Fire Prevention Plan helps remedy the buildup of fuels caused by past federal management fire suppression practices that excluded indigenous fire-use practices, with the goal of treating and restoring lands near or within reservation areas. Invasive plant management goals include decreasing coverage of invasive plant species to the greatest extent possible within the limits of what is economically feasible. Areas surrounding NBR have been used as range, which led to the introduction of non-native species for feed or pasture. The Jocko River restoration aims to restore the natural physical and biological processes of the river, to ultimately stabilize the river and its ecosystems, including the beneficial functions of its riparian areas (CSKT 2008).

Ongoing implementation of the CSKT Fire Prevention Plan would have cumulative beneficial effects on habitat, particularly when combined with habitat goals in this CCP and the upcoming NBR Complex CCP. As discussed under impacts for habitat and wildlife, wildfire carries much more serious risks on these biological resources, because of the potential heat and intensity as well as rapid and uncontrolled spread. The Service aims to reduce base fuel loads by using wildland fire - most of which will be prescribed fire. The cumulative impacts of wildland fire (prescribed or wildfire) on habitat can be both adverse and beneficial. They would be adverse impacts in the short term from habitat loss and could be adverse in the long term if invasive weeds recolonize the burned area instead of native species. However, if strategies are implemented that address the post-burn management activities, such as pro-active seeding or planting of natural vegetation, habitat monitoring, and continued treatment of invasives, long-term beneficial impacts would occur and support the success of native grasslands and fire-tolerant trees.

As discussed under impacts for habitat and wildlife, invasive species are detrimental by outcompeting native species and forming less biologically productive monocultures. Ongoing invasive plant treatments on and around NBR and including the NBR Complex units would have cumulative benefits on habitat management, particularly as these efforts are followed with native plant restoration. However, invasive plant control is likely to continue to be a threat to native habitats into the future, considering the numerous challenges that are faced in cumulatively and effectively treating invasives. From a cumulative perspective, invasive plant management is usually reactive in treating invasions on a case-by-case basis as they occur, to minimize possibly adverse impacts on healthy, native species.

Positive cumulative impacts would be expected to occur as a result of the implementation of Alternative C, which includes conducting surveys and inventories for the NBR wildlife and habitat, which would result in improvements to the health and integrity of plant communities and wildlife populations. These positive impacts would contribute to other regional conservation efforts, including conservation efforts planned for the entire NBR Complex. Specifically, wildlife monitoring, habitat rehabilitation, invasive species management, soil stabilization and erosion control, and ecological and cultural resources education would combine with regional efforts to create a positive cumulative effect for western Montana.

Conservation easements outside of NBR that have been established for Jocko River watershed restoration, which protects land uses within the easements to conserve the beneficial uses of riparian zones. Under all alternatives, NBR's efforts to improve riparian habitat on the refuge and specifically along the Jocko River, coupled with CSKT's ongoing Jocko River restoration and easements, would provide cumulative improvements.

Wildlife

Bison

Maintaining and improving bison genetic diversity is a crucial objective to conserve bison as a priority species into the future. The role of natural selection is limited in a range-restricted bison population that is managed at carrying capacity, which makes metapopulation genetic diversity conservation, through mean kinship and metapopulation management, an appropriate means of contributing to species diversity. DOI is the primary federal agency that manages bison within the United States with 12 plains bison herds at 10 locations; two additional herds at two sites are managed cooperatively, one each with the states of Montana and Wyoming. Bison managed as livestock are not considered "wild" and are inappropriate for conservation purposes.

The genetic health of bison herds is a concern because all North American herds were founded by a few individuals and have generally been maintained at small population sizes. Only the Yellowstone National Park population constitutes more than 1,000 individuals, while three herds (Wichita Mountains National Wildlife Refuge, Badlands National Park, and Grand Teton/ Elk Refuge) have between 500 and 1,000. The remaining herds number fewer than 500 and are at greater risk due to loss of genetic diversity. For locations where herd size cannot be increased due to forage restrictions, satellite herds with exchange of animals to constitute metapopulations is believed to be the best way to preserve the bison genome (Dratch and Gogan 2010). The individual health of each DOI herd, State herd, and Tribal herd contributes significantly to the overall cumulative health of the bison conservation herds in North America. The individual strategies to provide appropriate forage allocations in grassland and adequate water sources, minimize overall stress during capture operations, and understand and respond to disease threats, as proposed in the NBR CCP, are significant for the NBR herd, but also cumulatively significant for the other DOI herds within the metapopulation.

Other Ungulates, Birds, Mammals, Fish, Reptiles, and Amphibians

The Service is in the initial stages of preparing a CCP and associated EA for the remainder of the NBR Complex, which include three other refuges and the Northern Montana WMDs. Although this is a separate planning document, it is anticipated that much of the management strategies would overlap, particularly since staff and management coordination will be aligned regional Western Montana Complex. Cumulatively, management and monitoring on a regional landscape scale would provide added benefits to species within these refuges and WMDs, particularly targeted bird species, from the collective conservation and research efforts.

Under all alternatives, there would be long-term beneficial cumulative effects to wildlife at NBR. The Jocko River restoration aims to restore the natural physical and biological processes of the river, to ultimately stabilize the river and its ecosystems (CSKT 2008). Conservation easements outside of NBR that have been established for Jocko River watershed restoration, which protect land uses within the easements to conserve the beneficial uses of riparian zones. Under all alternatives, NBR's efforts to improve riparian habitat on the refuge and specifically along the Jocko River coupled with CSKT's ongoing Jocko River restoration and easements would provide cumulative improvements in wetland and riparian habitats and the fish, bird, herpetofauna, and mammals that use those riparian areas. Other improvements in wetland and riparian areas identified in the NBR Complex CCP would have larger scale benefits on bird species that may use large areas of regional habitat.

Invasive plant management activities by the CSKT, the Lake County Weed Management Division, and others in the surrounding area also cumulatively benefit wildlife species by providing better habitat, when combined with habitat and wildlife goals in this CCP and the upcoming NBR Complex CCP. However, invasive weeds, in particular, are likely to continue to threaten the quality of native habitats for wildlife, which favors wildlife species that are more adaptable.

Some of the cumulative actions could increase visitation to NBR over the life of the CCP, such as the West Glacier RV and Cabin Village, rehabilitation of the GTSR, and "rack card" flyers. Increased human presence could cumulatively stress wildlife species at NBR, causing those that can to relocate to areas with less human presence.

Threatened and Endangered Species

Under all alternatives, there would be long-term beneficial cumulative effects to threatened and endangered species. The ongoing Jocko River restoration project has direct, long-term, cumulative impacts to the threatened bull trout and its Columbia Headwaters Recovery Unit. The Jocko River restoration aims to restore the natural physical and biological processes of the river, to ultimately stabilize the river and its ecosystems

(CSKT 2008). The overall Jocko restoration effort developed by the CSKT seeks a comprehensive approach to restoring the Jocko watershed, which benefits bull trout and its habitat. Along with NBR's efforts to improve all riparian habitat on the refuge, and specifically along the Jocko River, under all alternatives, the bull trout populations would receive cumulative, intermediate beneficial impacts. In addition, grizzly bears would benefit from riparian restoration and improvements throughout the region, as rivers and creeks are restored. In addition to the Jocko River restoration project, the conservation easements outside of NBR that have been established for Jocko River watershed restoration would have a cumulative, beneficial effect on bull trout when considered alongside the management of the Jocko River on NBR as proposed in Alternatives A, B, and C.

Realignment of NBR into a regional Western Montana Complex for management of NWR lands would result in flexible, permanent staff members throughout the Complex, which would result in indirect, cumulative, beneficial effects to threatened and endangered species monitoring and management. The realignment would increase the capacity of the refuge complex to plan and implement management actions, including those included in the three CCP alternatives. As a result, NBR could have more opportunities for monitoring and research of protected species, and the varying functions of staff within the larger complex would provide additional resources for the monitoring and management of protected species as needed, providing a cumulative benefit.

The CCP and EA that are currently in development of the overall NBR Complex would similarly provide indirect, cumulative, beneficial effects to threatened and endangered species. The management and monitoring of protected species on a regional landscape scale would provide added benefits to threatened and endangered species. The conservation and research that would be expected under the NBR Complex CCP would provide additional knowledge on protected species that, together with the NBR CCP, would provide indirect benefits to protected species.

Cultural Resources

Under all alternatives, cumulative effects to cultural resources would include the increased use of the traditional language of the CSKT, which would be a minor, long-term beneficial impact. The effects would be likely be enhanced under Alternative B, if the increased emphasis on public use leads to increased visitation.

Socioeconomics and Visitor Services

Socioeconomics

Several projects listed in Table 4.1 would result in minor, beneficial cumulative effects to socioeconomics under all alternatives. Recreational tourism, like what is offered at NBR, remains a top reason for tourists and residents to visit parks within the state. Planned residential and tourist development would increase the number of residents and visitors in the state, which would likely lead to additional tourism activities throughout the state, including to NBR. The planned Missoula Housing Authority Affordable Housing Project would provide new affordable housing within an hour drive of NBR, which provides an affordable recreation option for local residents. The planned private campground and RV park near Glacier National Park, which would add additional RV spaces and cabins to the region by 2021, would allow for numerous potential new visitors within a two-hour drive of NBR; the refuge would be an easy day-trip for long-term campers at the campground looking for additional wildlife viewing opportunities. The rehabilitation of the Going-to-the-Sun Road (GTSR) within Glacier National Park would likely increase public interest and visits to the park, which has limited parking throughout the park (Nickerson 2017). If the park were to fill up quickly (as early as 9 a.m. most days), it is possible NBR could benefit from the overflow of visitors who cannot experience Glacier National Park but may be interested in visiting NBR.

The Highway 93 corridor study and improvements could inhibit visitors to NBR in the short-term if construction results in increased travel times on the highway, but the improvements would make travel along the highway corridor easier in the long run, which could provide a cumulative, long-term benefit from increased visits to NBR and the surrounding region.

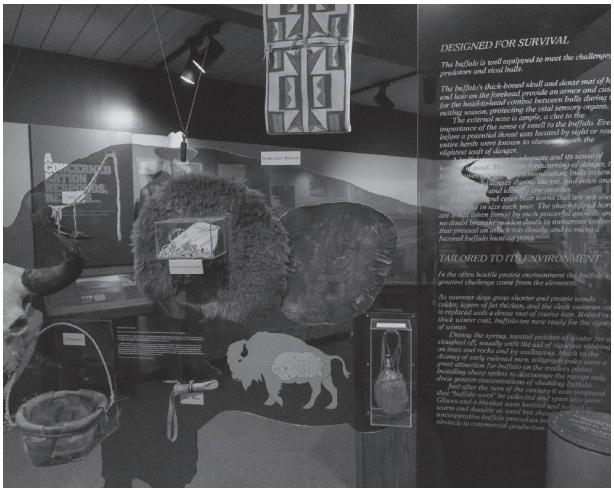
The Service project to develop a "rack card" to place in neighboring hotels and businesses would increase public knowledge of the refuge and may result in increased interest and visitors to NBR.

The potential for increased visitors to NBR from each these projects would have a cumulative, long-term, beneficial impact to the socioeconomics in the region. NBR will continue to be a draw for visitors to the region, benefiting the local economy.

Visitor Services

The projects described under socioeconomics would also have cumulative, long-term, beneficial impacts to visitor resources at NBR. Regional projects that may increase interest and visitors to NBR would provide more opportunities for environmental education and outreach to the public.

The ongoing Jocko River restoration project would also provide cumulative, long-term beneficial effects on visitor resources. Together with the proposed riparian enhancements under the CCP alternatives, rehabilitation of Mission Creek and Jocko River could increase the quality and



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Bison display in the Visitor Center

diversity of fish and birds for better wildlife observation and fishing opportunities. This would increase the quality of the visitor experience and potentially increase the number of visitors to NBR.

The Highway 93 Scenic Turnout is close to NBR and brings the attention of people driving on the highway to the bison and beauty of the area. The eventual interpretive panel would provide education and awareness to the bison herd and its importance to the CSKT culture. Increased awareness of the area and the bison could result in increased interest and visitors to NBR to view the bison herd and other wildlife and for environmental education. Cumulatively with the projects proposed in the CCP alternative, particularly within Alternative B, there would be long-term, beneficial effects on visitor services at NBR.

NBR will continue to play an important role in the environmental education of thousands of children and adults. Projects within the region would not only increase potential visits to NBR but would enhance the overall experience and education of visitors to NBR. With NBR realigned as part of the regional WMTC, NBR would have the capacity to coordinate with staff throughout the Complex to improve planning and implementation of visitor services, including those actions described in the three CCP alternatives.

4.9 Summary of Environmental Consequences

Environmental consequences of the No Action Alternative and the CCP alternatives are summarized in Table 4.2

Table 4.2. Summary of Environmental Consequences Across All Alternatives

Resource Topic	Alternative A	Alternative B	Alternative C
Physical Environment	Negligible adverse impacts on topography and soils. Minor adverse impacts on air quality. Minor beneficial impacts on hydrology.	Minor adverse impacts on topography and soils. Minor adverse impacts on air quality. Minor beneficial impacts on hydrology.	Negligible adverse impacts on topography and soils. Negligible adverse impacts on air quality. Minor beneficial impacts on hydrology.
Habitat	Primarily minor benefits on grasslands and forests. Primarily negligible benefits on wetland and riparian areas.	Primarily negligible benefits on grasslands. Primarily intermediate benefits on forests. Primarily minor benefits on wetlands and riparian areas	Primarily major benefits on grasslands and forests. Primarily minor benefits on wetlands and riparian areas.
Wildlife	Primarily minor benefits to bison, other ungulates, and other wildlife.	Primarily minor benefits to bison, other ungulates, and other wildlife.	Primarily intermediate to major benefits on bison and other ungulates. Primarily minor benefits to other wildlife.
Threatened and Endangered Species and Species of Concern	Minor benefits.	Minor benefits.	Minor benefits.
Cultural Resources	Minor benefits.	Minor to intermediate benefits.	Major benefits.
Socioeconomics and Visitor Services	Minor benefits.	Minor to intermediate benefits.	Minor benefits.
Cumulative Effects	Primarily beneficial.	Primarily beneficial.	Primarily beneficial.

Glossary

accessible: Pertaining to physical access to areas and activities for people of different abilities, especially those with physical impairments.

active management: The direct manipulationof habitats or wildlife populations to achieve specific objectives. Actions could include planting food plots, managing water levels, prescribed grazing or fire, or wildlife relocations.

adaptive management: A systematic approach for improving resource management by learning from management outcomes.

Administration Act: National Wildlife Refuge System Administration Act of 1966.

allelic richness: A measure of genetic diversity indicative of a population's long-term potential for adaptability and persistence.

alternative: A reasonable way to solve an identified problem or satisfy the stated need (40 CFR 1500.2); one of several different means of accomplishing refuge purposes and goals and contributing to the Refuge System mission (The Fish and Wildlife Service Manual, 602 FW 1.5).

amphibian: A class of cold-blooded vertebrates including frogs, toads, or salamanders.

animal-unit month (AUM): Stocking rates have been traditionally expressed in animal unit months, which is the amount of forage needed by an "animal unit" for one month. These calculations were adapted specifically to the wildlife species present on NBR.

annual: A plant that flowers and dies within 1 year of germination.

appropriate use: A proposed or existing use on national wildlife refuges that meet at least one of the following: (1) is a wildlife-dependent recreational use; (2) contributes to fulfilling refuge purposes, the Refuge System mission, or goals and objectives outline in a CCP; or (3) the refuge manager has evaluated the use and found it to be appropriate.

ATV: All-terrain vehicle.

baseline: A set of critical observations, data, or information used for comparison or a control.

biological control: The use of organisms or viruses to control invasive plants or other pests.

biological diversity, also biodiversity: The variety of life and its processes including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur (The Fish and Wildlife Service Manual, 052 FW 1.12B). The National Wildlife Refuge System's focus is on indigenous species, biotic communities, and ecological processes.

biological integrity: Biotic composition, structure, and function at genetic, organism, and community levels.

biotic: Pertaining to life or living organisms; caused, produced by, or comprising living organisms.

bison capture operations: Bison capture operations are conducted across the Refuge System in order to maintain population objectives and involve "rounding up" bison into a corral system designed specifically for bison handling. The NBR corrals are upgraded periodically to accommodate implementation of low-stress bison handling techniques and to facilitate animal movement through the system.

carrying capacity: the number of organisms that a region can support without environmental degradation.

CCP: See comprehensive conservation plan.

CFR: See Code of Federal Regulations.

citizen science: the collection and analysis of data relating to the natural world by members of the general public, typically as part of a collaborative project with professional scientists.

Code of Federal Regulations (CFR): The codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government. Each volume of the CFR is updated once each calendar year.

compatibility determination: See compatible use.

compatible use: A wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Director of the U.S. Fish and Wildlife Service, will not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge (The Fish and Wildlife Service Manual, 603 FW 3.6). A compatibility determination supports the selection of compatible uses and identified stipulations or limits necessary to ensure compatibility.

comprehensive conservation plan (CCP): A document that describes the desired future conditions of the refuge and provides long-range guidance and management direction for the refuge manager to accomplish the purposes of the refuge, contribute to the mission of the Refuge System, and to meet other relevant mandates (The Fish and Wildlife Service Manual, 602 FW 1.5).

concern: See *issue*.

corridor: A landscape feature that facilitates the biologically effective transport of animals between larger patches of habitat dedicated to conservation functions. Such corridors may facilitate several kinds of traffic including frequent foraging movement, seasonal migration, or the once-in-a-lifetime dispersal of juvenile animals. These are transition habitats and need not contain all the habitat elements required for long-term survival or reproduction of its migrants.

cover, cover type, canopy cover: Present vegetation.

cubic feet per second (cfs): A rate of the flow, in streams and rivers, for example. It is equal to a volume of water one foot high and one foot wide flowing a distance of one foot in one second. One cfs is equal to 7.48 gallons of water flowing each second.

cultural resources: Includes the material evidence of past human activities: prehistoric and historic. Also includes traditional cultural properties that may or may not have material evidence.

Department of the Interior (DOI)*:* The United States Federal executive department of the U.S. government responsible for the management and conservation of most Federal lands and natural resources, and the administration of programs relating to Native Americans, Alaska Natives, Native Hawaiians, territorial affairs, and insular areas of the United States. About 75% of Federal public land is managed by the department, with most of the remainder managed by the United States Department of Agriculture's United States Forest Service. The department is administered by the United States Secretary of the Interior, who is a member of the Cabinet of the President.

depredation: Destruction or consumption of eggs, broods, or individual wildlife due to a predatory animal; damage inflicted on agricultural crops or ornamental plants by wildlife.

eBird: A global online and mobile application used to survey birds, through the Cornell Lab of Ornithology, at eBird.org.

ecological resilience: The ability to absorb disturbances, to be changed, and then to reorganize and still have the same identity, that is, keep the same basic structure and ways of functioning. A resilient system is forgiving of external shocks; a disturbance is unlikely to affect the whole. A resilient habitat (1) sustains many species of plants and animals and a highly variable structural composition; (2) is asymmetric; (3) exemplifies biological integrity, biological diversity, and environmental health; and (4) adapts to climate change.

ecosystem: A dynamic and interrelating complex of plant and animal communities and their associated nonliving environment; a biological community, together with its environment, functioning as a unit. For administrative purposes, the Service has designated 53 ecosystems covering the United States and its possessions. These ecosystems generally correspond with watershed boundaries and their sizes and ecological complexity vary.

ecosystem resilience: See *ecological resilience*.

endangered species, Federal: A plant or animal species listed under the Endangered Species Act of 1973, as amended, that is in danger of extinction throughout all or a significant part of its range.

endangered species, State*:* A plant or animal species in danger of becoming extinct or extirpated in a particular state within the near future if factors contributing to its decline continue. Populations of these species are at critically low levels or their habitats have been degraded or depleted to a significant degree.

endemic species: Plants or animals that occur naturally in a certain region and whose distribution is relatively limited to a particular locality.

environmental assessment: A concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose and need for an action and alternatives to such action, and provides sufficient evidence and analysis of effects to determine whether to prepare an environmental impact statement or finding of no significant impact (40 CFR 1508.9).

environmental health: Composition, structure, and functioning of soil, water, air, and other abiotic features.

environmental impact statement (EIS): An environmental impact statement (EIS), under United States environmental law, is a document required by the National Environmental Policy Act (NEPA) for certain actions "significantly affecting the quality of the human environment." An EIS is a tool for decision making. It describes the positive and negative environmental effects of a proposed action, and it usually also lists one or more alternative actions that may be chosen instead of the action described in the EIS.

expropriate: to take (land, property, etc.) from its owner; especially to take for public use or in the public interest.

fauna: All the vertebrate and invertebrate animals of an area.

Federal Indian trust responsibility: The Federal Indian trust responsibility is also a legally enforceable fiduciary obligation on the part of the United States to protect Tribal treaty rights, lands, assets, and resources, as well as a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native Tribes and villages. In several cases discussing the trust responsibility, the Supreme Court has used language suggesting that it entails legal duties, moral obligations, and the fulfillment of understandings and expectations that have arisen over the entire course of the relationship between the United States and the federally recognized Tribes.

federal trust resource: A trust is something managed by one entity for another who holds the ownership. The Service holds in trust many natural resources for the people of the United States as a result of federal acts and treaties. Examples are species listed under the Endangered Species Act, migratory birds protected by international treaties, and native plant or wildlife species found on a national wildlife refuge.

federal trust species: All species where the federal government has primary jurisdiction including Federally endangered or threatened species, migratory birds, anadromous fish, and certain marine mammals.

fire management plan: A plan that identifies and integrates all wildland fire management and related activities within the context of approved land and resource management plans. The plan defines a program to manage wildland fires (wildfire and prescribed fire).

Friends group: Any formal organization whose mission is to support the goals and purposes of its associated refuge and the National Wildlife Refuge Association overall: Friends organizations and cooperative and interpretive associations.

full-time equivalent (FTE): is the hours worked by one employee on a full-time basis. On an annual basis, an FTE is considered to be 2,080 hours, which is calculated as 8 hours per day.

General Schedule (GS)*:* The pay rate schedule for certain Federal positions. https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/2018/general-schedule/.*genetic diversity (*also *gene diversity)*: the total number of genetic characteristics in the genetic makeup of a species. Genetic diversity serves as a way for populations to adapt to changing environments.

goal: Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units (The Fish and Wildlife Service Manual, 620 FW 1.5).

habitat: Suite of existing environmental conditions required by an organism for survival and reproduction; the place where an organism typically lives and grows.

habitat disturbance: Significant alteration of habitat structure or composition; may be natural (for example, wildfire) or human-caused events (for example, timber harvest and disking).

habitat management plan (HMP)*:* A stepdown plan to a comprehensive conservation plan that identifies in detail how the objectives and strategies for uplands, riparian areas, river bottoms, and shorelines will be carried out.

habitat type, also vegetation type, cover type: A land classification system based on the concept of distinct plant associations.

herbivory*:* Grazing of grass and other plants by any animal.

heterogeneity: Diversity or dissimilar species within a landscape.

heterozygosity: Refers to an individual having two different alleles for a specific trait. An allele is a version of a gene or specific DNA sequence on a chromosome.

Improvement Act: National Wildlife Refuge System Improvement Act of 1997.

indigenous: Originating or occurring naturally in a particular place.

integrated pest management: Methods of managing undesirable species such as invasive plants; education, prevention, physical or mechanical methods of control, biological control, responsible chemical use, and cultural methods.

introduced species: A species present in an area due to intentional or unintentional escape, release, dissemination, or placement into an ecosystem as a result of human activity.

invasive plant: A species that is nonnative to the ecosystem under consideration and whose introduction causes, or is likely to cause, economic or environmental harm or harm to human health. (Executive Order 13112)

issue: Any unsettled matter that requires a management decision; for example, a Service initiative, opportunity, resource management problem, a threat to the resources of the unit, conflict in uses, public concern, or the presence of an undesirable resource condition (The Fish and Wildlife Service Manual, 602 FW 1.5).

management alternative: See alternative.

mean kinship: A measure of the relationship of an individual with a population; animals with a low mean kinship are more valuable for genetic diversity. Mean kinship depends on the population, which means that the mean kinship of an animal might change over time when a population changes. In conservation genetics, mean kinship is an important tool to maintain genetic diversity.

metapopulation: is a group of populations that are separated by space but consist of the same species. These spatially separated populations interact as individual members move from one population to another.

migration: Regular extensive, seasonal movements of birds between their breeding regions and their wintering regions; to pass usually periodically from one region or climate to another for feeding or breeding.

migratory birds: Birds that follow a seasonal movement from their breeding grounds to their wintering grounds. Waterfowl, shorebirds, raptors, and songbirds are all migratory birds.

mission: Succinct statement of purpose or reason for being.

mitigation: Measure designed to counteract an environmental impact or to make an impact less severe.

monitoring: The process of collecting information to track changes of selected parameters over time.

national wildlife refuge: A designated area of land, water, or an interest in land or water within the National Wildlife Refuge System, but does not include coordination areas; a complete listing of all units of the Refuge System is in the current "Annual Report of Lands Under Control of the U.S. Fish and Wildlife Service." https://www.fws.gov/refuges/land/landreport.html

National Wildlife Refuge System (Refuge System): Various categories of areas administered by the Secretary of the Interior for the conservation of fish and wildlife including species threatened with extinction, all lands, waters, and interests therein administered by the Secretary as wildlife refuges, areas for the protection and conservation of fish and wildlife that are threatened with extinction, wildlife ranges, game ranges, wildlife management areas, and waterfowl production areas.

National Wildlife Refuge System Improvement Act of 1997 (Improvement Act): Sets the mission and the administrative policy for all refuges in the National Wildlife Refuge System; defines a unifying mission for the Refuge System; establishes the legitimacy and appropriateness of the six priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation); establishes a formal process for determining appropriateness and compatibility; establishes the responsibilities of the Secretary of the Interior for managing and protecting the Refuge System; requires a comprehensive conservation plan for each refuge by the year 2012. This act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

native species: A species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

non-native: species which have been deliberately or accidentally introduced to areas outside of their native geographic range, which are able to reproduce and maintain sustainable populations in these areas.

nongovernmental organization: Any group that is not a Federal, State, Tribal, county, city, town, local, or other governmental entity.

noxious weed: a noxious weed is any plant designated by federal, state or local government officials as injurious to public health, agriculture, recreation, wildlife or property.

objective: An objective is a concise target statement of what will be achieved, how much will be achieved, when and where it will be achieved, and who is responsible for the work; derived from goals and provide the basis for determining management strategies. Objectives should be attainable and time-specific and should be stated quantitatively to the extent possible. If objectives cannot be stated quantitatively, they may be stated qualitatively (The Fish and Wildlife Service Manual, 602 FW 1.5).

passive management: Minimal direct manipulation of habitat or wildlife populations. For example, on NBR, movement and grazing of bison and other ungulates are not restricted on the refuge except when excluded from certain areas for management purposes.

patch: An area distinct from that around it; an area distinguished from its surroundings by environmental conditions.

perennial: Lasting or active through the year or through many years; a plant species that has a lifespan of more than 2 years.

plant community: An assemblage of plant species unique in its composition; occurs in particular locations under particular influences; a reflection or integration of the environmental influences on the site such as soil, temperature, elevation, solar radiation, slope, aspect, and rainfall; denotes a general kind of climax plant community, such as ponderosa pine or bunchgrass.

PM10: suspended particulate matter less than 10 microns diameter

preferred alternative: The Service's final selection (after analysis of alternatives in a draft NEPA document) of a management alternative to carry out, which is documented in a "record of decision" for an EIS or a "finding of no significant impact" for an EA and published in the Federal Register. The decision is based on the legal responsibility of the Service including the missions of the Service and the Refuge System, other legal and policy mandates, the purpose of the refuge, and the vision and goals in the final CCP. In addition, the Service considers public, Tribal, and agency input along with land uses in the ecosystem, environmental effects, and budget projections.

prescribed fire: Any fire intentionally ignited by management actions in accordance with applicable laws, policies, and regulations to meet specific objectives.

prioritization framework: Using consistent criteria to ensure that the most impactful actions are taken first, e.g. prioritizing invasive species treatments, allocating staff resources to management actions, addressing facilities maintenance.

priority public use: One of six uses authorized by the National Wildlife Refuge System Improvement Act of 1997 to have priority if found to be compatible with a refuge's purposes. This includes hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation.

project leader: Another term for refuge manager. Refers to the most senior manager at the refuge or refuge complex.

proposed action: The alternative proposed to best achieve the purpose, vision, and goals of a refuge (contributes to the Refuge System mission, addresses the significant issues, and is consistent with principles of sound fish and wildlife management).

public: Individuals, organizations, and groups; officials of federal, state, and local government agencies; Native American Tribes; and foreign nations. It may include anyone outside the Planning Team. It includes those who may or may not have shown an interest in Service issues and those who do or do not realize that Service decisions may affect them.

public involvement: A process that offers affected and interested individuals and organizations an opportunity to become informed about, and to express their opinions on, Service actions and policies. In the process, these views are studied thoroughly and thoughtful consideration of public views is given in shaping decisions for refuge management.

purpose of the refuge: The purpose of a refuge is specified in or derived from the law, proclamation, Executive Order, agreement, public land order, donation document, or administrative memorandum establishing authorization or expanding a refuge, a refuge unit, or a refuge subunit (The Fish and Wildlife Service Manual, 602 FW 1.5).

quality wildlife-dependent recreation: Programs are based on 11 criteria that defined under 605 FW1, "General Guidelines for Wildlife-Dependent Recreation." Quality programs include the following: safety of participants and compliance with laws and regulations; minimized conflicts with other goals or users; accessibility, stewardship, and availability to a broad spectrum of the American people; public understanding and appreciation of the natural resources; reliable and reasonable opportunities to experience wildlife; accessible facilities that blend in with the natural setting; and visitor satisfaction to help define and evaluate programs.

raptor: A carnivorous bird such as a hawk, a falcon, or a vulture that feeds wholly or chiefly on meat taken by hunting or on carrion (dead carcasses).

refuge purpose: See purpose of the refuge.

Refuge System: See National Wildlife Refuge System.

refuge use: Any activity on a refuge, except administrative or law enforcement activity, carried out by or under the direction of an authorized Service employee.

renovation: Is used in this context to indicate improvements in habitat health and resiliency, but not necessarily a complete return to an entirely "natural", self-sustaining or historical condition.

resident species: A species inhabiting a given locality throughout the year; nonmigratory species.

resilience: The ability to absorb disturbances, to be changed and then to reorganize and still have the same identity (keep the same basic structure and ways of functioning). Also see *ecological resilience*.

rest: Free from biological, mechanical, or chemical manipulation, in reference to refuge lands.

restoration: Management emphasis designed to move ecosystems to desired conditions and processes, such as healthy upland habitats and aquatic systems. Often implies a complete return to 'natural' or historic conditions.

riparian area or riparian zone: An area or habitat that is transitional from terrestrial to aquatic ecosystems including streams, lakes, wet areas, and adjacent plant communities and their associated soils that have free water at or near the surface; an area whose components are directly or indirectly attributed to the influence of water; of or relating to a river; specifically applied to ecology, "riparian" describes the land immediately adjoining and directly influenced by streams. For example, riparian vegetation includes all plant life growing on the land adjoining a stream and directly influenced by the stream.

scoping: The process of obtaining information from the public for input into the planning process.

service: See U.S. Fish and Wildlife Service.

spatial: Relating to, occupying, or having the character of space.

special use permit: A permit for special authorization from the refuge manager required for any refuge service, facility, privilege, or product of the soil provided at refuge expense and not usually available to the public through authorizations in Title 50 CFR or other public regulations (Refuge Manual, 5 RM 17.6).

species of concern*:* Plants and animals that are rare, threatened, and/or have declining populations and as a result are at risk or potentially at risk of extirpation in Montana. Species are designated by a joint committee composed of biologists from the Montana Natural Heritage Program and Montana Fish Wildlife and Parks as new status information becomes available for individual species.

stakeholder: commonly used to refer to individual citizens; organizations; businesses; Native American Tribes; federal, state, and local governmental agencies; and others who have expressed an interest in the issues and outcomes of the planning process.

stepdown management plan: A plan that provides the details necessary to carry out management strategies identified in the comprehensive conservation plan (The Fish and Wildlife Service Manual, 602 FW 1.5).

strategy: A specific action, tool, or technique or combination of actions, tools, and techniques used to meet unit objectives (The Fish and Wildlife Service Manual, 602 FW 1.5).

suppression: A wildfire response strategy to "put the fire out", as efficiently and effectively as possible, while providing for firefighter and public safety.

TES: Threatened and endangered species.

threatened species, federal: Species listed under the Endangered Species Act of 1973, as amended, that are likely to become endangered within the foreseeable future throughout all or a significant part of their range.

threatened species, state: A plant or animal species likely to become endangered in a particular State within the near future if factors contributing to population decline or habitat degradation or loss continue.

Traditional Ecological Knowledge (TEK): Traditional Ecological Knowledge, also called by other names including Indigenous Knowledge or Native Science, refers to the evolving knowledge acquired by indigenous and local peoples over hundreds or thousands of years through direct contact with the environment. This knowledge is specific to a location and includes the relationships between plants, animals, natural phenomena, landscapes and timing of events that are used for lifeways, including but not limited to hunting, fishing, trapping, agriculture, and forestry. TEK is an accumulating body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (human and non-human) with one another and with the environment. It encompasses the world view of indigenous people which includes ecology, spirituality, human and animal relationships, and more (Rinkevich et al 2011, https://www.fws.gov/nativeamerican/pdf/tek-fact-sheet.pdf).

tribal trust responsibility: see Federal Indian trust responsibility

trust resource: See federal trust resource.

trust species: See federal trust species.

ungulate: A hoofed mammal such as horses, bison, deer, elk, pronghorn, and bighorn sheep.

United States Code (USC): The official compilation and codification of the general and permanent federal statutes of the United States.

USDA: U.S. Department of Agriculture.

U.S. Fish and Wildlife Service (Service, USFWS, FWS): The principal federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people. The agency enforces federal wildlife laws, manages migratory bird populations, restores national significant fisheries, conserves and restores wildlife habitat such as wetlands, administers the Endangered Species Act, and helps foreign Governments with their conservation efforts. It also oversees the federal aid program that distributes millions of dollars in excise taxes on fishing and hunting equipment to State wildlife agencies.

U.S. Geological Survey (USGS): A federal agency whose mission is to provide reliable scientific information to describe and understand the earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

vision statement: A concise statement of the desired future condition of the planning unit, based primarily on the Refuge System mission, specific refuge purposes, and other relevant mandates (The Fish and Wildlife Service Manual, 602 FW 1.5).

wildfire: An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out (definition currently under review).

wildland fire: Any non-structure fire that occurs in vegetation or natural fuels. Wildland fire includes prescribed fire and wildfire.

Appendix A—List of Preparers

This document is the result of extensive and enthusiastic collaboration among members of the Planning Team, which includes refuge staff and other U.S. Fish and Wildlife Service employees, as well as several contributors from our cooperating agencies.

We are very grateful to all who have participated in the preparation of this plan, especially our cooperative agencies who attended Planning Team meetings; helped identify issues; provided input on alternative approaches, objectives, and strategies; helped us assess the environmental consequences of alternatives; reviewed draft planning documents; and provided extensive support and information throughout the planning process.

Table A-1. Planning Team

Name	Agency and/or position	Education and Experience	Contributions
Neil Anderson	Montana Fish, Wildlife and Parks, Region 1, Wildlife Program Manager	B.S. Fish and Wildlife Science, M.S. Fish and Wildlife Management, 24 years.	Assistance with development of vision, goals, alternatives and environmental consequences; document review
Dale Becker	Confederated Salish and Kootenai Tribes, Natural Resources Department, Wildlife Program Manager	B.S. Wildlife Biology; M.S. Wildlife Biology; 40 years	Assistance with development of vision, goals, alternatives and environmental consequences; document review
Amy Coffman	U.S. Fish and Wildlife Service, National Bison Range, Refuge Manager	B.S. Environmental Science; 13 years; 3 years at NBRC	Overall planning coordination, organization, response to comments; FEIS/CCP.
Robert Compton	Bureau of Indian Affairs, Land Management Specialist	B.S. Rangeland Ecology and Watershed Management; 20 years	Assistance with development of environmental consequences, document review
Wally Congdon	Lake County, Attorney	Geography and land planning experience 35 years. Extensive prior work with USFS, BLM, and USFWS.	Assistance with development of vision, goals, alternatives and environmental consequences; planning process guidance; document review
Gale Decker	Lake County, Commissioner	B.A. and M.A. in Education; Lake County Commissioner 6 years	Assistance with development of vision, goals, and alternatives
Vanessa Fields	U.S. Fish and Wildlife Service, Division of Science Resources, Planning Team Leader	B.S. Ecology; M.S. Biology; 21 years	Lead planner; plan and planning team coordinator; and plan organization, writing, and review DEIS/FEIS/CCP
Bernardo Garza	U.S. Fish and Wildlife Service, Branch of Planning and Policy, Planning Team Leader	B.S. Fish and Wildlife Sciences; 29 years	Lead planner; plan and planning team coordinator; and plan organization, writing, and review of DEIS/FEIS/CCP

Name	Agency and/or position	Education and Experience	Contributions
Pat Jamieson	Lake and Sanders County, Subject Matter Expert	B.S. Wildlife Biology, B.S. Recreation; 39 years; 20 years at NBRC	Assistance with development of vision, goals, alternatives and environmental consequences; document review; Visitor Services expertise
Mike Koole	U.S. Fish and Wildlife Service, National Bison Range, Federal Wildlife Officer	B.S. wildlife management; 11 years; 8 years at NBRC	Planning development, analysis, writing, and review of DEIS/ FEIS/CCP
Amy Lisk	U.S. Fish and Wildlife Service, National Bison Range, Wildlife Biologist	B.S. in Resource Conservation; 19 years; 19 years at NBRC.	Planning development, analysis, writing, and review of DEIS/ FEIS/CCP
Marlin McDonald	U.S. Fish and Wildlife Service, National Bison Range, Range technician	14 years range and maintenance experience at NBRC	Facility and Operations expertise, reviewer
Mike Oldham	U.S. Fish and Wildlife Service, National Bison Range, Acting Project Leader	B.S. Wildlife and Habitat Management; 26 years	Overall planning coordination, organization, analysis, writing, and review of DEIS/CCP; compatibility determinations
David Redhorse	Bureau of Indian Affairs, Natural Resources Division, Chief	Management, conservation, and protection of Indian wildlife and natural resources, with BIA, USFWS, FS, BLM, and USBR; 25 years	Assistance with development of vision, goals, and alternatives; document review
Kevin Shinn	U.S. Fish and Wildlife Service, Lost Trail refuge, Refuge Manager/ Federal Wildlife Officer	B.S. fisheries and wildlife; M.S. wildlife biology; 24 years; 7 years at NBRC	Planning development, analysis, writing, and review of DEIS/ CCP.
Karen Shoemaker	U.S. Fish and Wildlife Service, National Bison Range, Budget Analyst	Heald Business College; 20 years budget administration; 8 years at NBRC	Budget and operations expertise; reviewer
Neil Shook	U.S. Fish and Wildlife Service, National Bison Range, Acting Project Leader	B.S. Fish and Wildlife Management; 25 years	Overall planning coordination, organization of DEIS/CCP.
Beverly Roedner Skinner	U.S. Fish and Wildlife Service, Lost Trail refuge, Wildlife Biologist	B.S. Wildlife Management, B.S. Plant Sciences, M.S. Wildlife Management; 35 years; 6 years at NBRC	Planning development, analysis, writing, and review of DEIS/ FEIS/CCP
Dave Stipe	Lake County Commissioner	A.S. Range Management; Lake County Commissioner 15 years; 63 years ranching experience	Assistance with development of vision, goals, and alternatives
Kent Sundseth	U.S. Fish and Wildlife Service, National Bison Range, Acting Project Leader	B.S. General Biology; M.A. Wildlife Management; 20 years	Overall planning coordination, organization, and review; Development of Alternatives
Darren Thomas	U.S. Fish and Wildlife Service, National Bison Range, Engineering Equipment Operator	37 years maintenance experience at NBRC	Assistance with development of vision, goals, alternatives and environmental consequences; reviewer
Brian Upton	Confederated Salish and Kootenai Tribes, Attorney	B.A., International Relations; J.D.; 21 years.	Assistance with development of vision, goals, alternatives and environmental consequences; document review
Brent Woodger	U.S. Fish and Wildlife Service, National Bison Range, Maintenance	28 years maintenance experience at NBRC	Facility and Operations expertise, reviewer

Table A-2. Other contributors and reviewers

Name	Agency and/or position	Contributions
Jaron Andrews	U.S. Fish and Wildlife Service, Division of Water Resources, Hydrologist	Water rights, water resources and hydrology expertise; Advise/comment, writer, reviewer
Mery Casady	U.S. Fish and Wildlife Service, Division of Science Resources, Geographic Information System (GIS) Specialist	Spatial analysis and mapping expertise and support
Lori Caramanian	Department of Interior, Office of the Solicitor, Solicitor	Legal advisor to the Service, document review
Ben Conrad	U.S. Fish and Wildlife Service, Montana Ecological Services Office, Assistant Field Office Supervisor	Listed species expertise; section 7 consultation; document review
Carrie Cordova	U.S. Fish and Wildlife Service, Water Rights Specialist	Water rights expertise, document review
Michael d'Agostino	U.S. Fish and Wildlife Service, External Affairs, Public Affairs Specialist	Communications, Outreach and Public Engagement
Mary Danno	U.S. Fish and Wildlife Service, Division of Education and Visitor Services, Visitor Services Manager	Public use expertise, reviewer
Mike Durglo	Confederated Salish and Kootenai Tribes, Tribal Historic Preservation Office, Chief	Cultural resources expertise; assistance with environmental consequences; reviewer
Diane Emmons	U.S. Fish and Wildlife Service, Division of Education and Visitor Services, Chief	Public use expertise, writer, reviewer
Kyle Felsman	Confederated Salish and Kootenai Tribes, Tribal Historic Preservation Office	Cultural resources expertise; assistance with environmental consequences
Lindy Garner	U.S. Fish and Wildlife Service, Division of Science Resources, Invasive Species Branch, Chief	Invasive species and habitat management expertise; Advise/comment, reviewer; former NBR employee
Toni Griffin	U.S. Fish and Wildlife Service, Branch of Planning and Policy, Planning Team Leader	Initial planning coordination and organization; Reviewer
Kelly Hogan	U.S. Fish and Wildlife Service, Division of Operations, acting Chief	Overall planning coordination, organization, and review; policy expertise
Dana Jacobsen	Department of Interior, Office of the Solicitor, Assistant Regional Solicitor	Department of Interior, Office of the Solicitor, Solicitor
Lee Jones	U.S. Fish and Wildlife Service, Mountain-Prairie Region, Wildlife Health Office, Wildlife Biologist	Wildlife health and bison genetics expertise; Advise/comment, writer; reviewer; former NBR employee
Matt Kales	U.S. Fish and Wildlife Service, National Wildlife Refuge System, Mountain-Prairie Region, Acting Refuge Supervisor	Planning overview and assistance; document review
Robert Mansheim	(former) U.S. Fish and Wildlife Service, External Affairs, Digital Communications Specialist	Web site design and maintenance, section 508 compliance
Matthew McCollister	(former) U.S. Fish and Wildlife Service, Branch of Planning and Policy, Planner/ Biologist	Planning coordination and support; assistance with development of vision and goals
Tom McDonald	Confederated Salish and Kootenai Tribes, Natural Resources Department, Division of Fish, Wildlife and Recreation, Program Manager	Wildlife expertise, assistance with environmental consequences; reviewer

Table A-2. Other Contributors and Reviewers (Continued)

Name	Agency and/or position	Contributions
Linda Moeder	(former) U.S. Fish and Wildlife Service, Division of Realty, Cartographer	Spatial analysis and mapping expertise and support; document review
Roya Mogadam	U.S. Fish and Wildlife Service, External Affairs, Deputy Assistant Regional Director	Communications, Outreach and Public Engagement; Congressional outreach
Allison Parrish	U.S. Fish and Wildlife Service, Zone Archeologist MT/UT/WY	Cultural and historical resources expertise, writer, reviewer
Bernie Peterson	(former) U.S. Fish and Wildlife Service, National Wildlife Refuge System, Mountain-Prairie Region, Refuge Supervisor	Planning overview and assistance
Amy Thornburg	U.S. Fish and Wildlife Service, National Wildlife Refuge System, Mountain-Prairie Region, Deputy Refuge Supervisor	Planning overview and assistance, document review
Dean Vaughn	U.S. Fish and Wildlife Service, Montana Partners for Fish and Wildlife Program, Biologist	Wetland and riparian expertise; advise/ comment, reviewer
Meg Van Ness	U.S. Fish and Wildlife Service, Mountain-Prairie Region Archeologist	Cultural and historical resources expertise, writer, reviewer
Jeff Warren	U.S. Fish and Wildlife Service, Division of Science Resources, Zone Biologist	Biological, research design and monitoring expertise; advise/comment, reviewer
Bill West	(former)U.S. Fish and Wildlife Service, Red Rock Lakes NWR, Refuge Manager	Refuge management expertise; Advise/ comment, reviewer; former NBR employee

Table A-3. Consultants

Name	Agency and/or position	Contributions
Erika Wettergreen	(former) Marstel-Day, Principal	Workshop and public meeting facilitation, NEPA expertise and environmental document production; development and writing of affected environment and environmental consequences
Jennifer Allen	Marstel-Day, Principal	
Dawn Johnson	John Wood Group PLC, Principal	Document layout, editing, and production; section 508 compliance

Appendix B—Summary of Public Involvement

Following the guidance found in the National Environmental Policy Act (NEPA), the Improvement Act, and the US Fish and Wildlife Service's (Service) planning policy, the Planning Team has sought ways to ensure that all interested groups and the public have had an opportunity provide input into the planning process.

Public Scoping Activities

The formal scoping period began on May 18, 2017 with a Notice of Intent (NOI) published in the Federal Register [82 FR 22843]. This NOI was a revision to an earlier NOI published in January 18, 2017 [82 FR 5597].

Outreach Activities

Throughout the planning process we have developed a range of activities and methods of communication to keeping the public informed, seek to ensure meaningful public input, and be inclusive of many interests. To date, we have used various methods to solicit guidance and feedback from interested citizens, organizations, tribes and government agencies. These methods have included outreach materials; public meetings; agency meetings (Planning Team); presentations; and letters, email, and telephone calls.

Press Release

Our Division of External Affairs prepared and distributed press releases to various media ad news organizations throughout Montana, as well as to Congressional offices, other Federal and State agency offices, and Tribal agencies announcing the planning process and notifying the public of the schedule and location of various public meetings. Information and news articles about NBR and the planning process appeared in local newspapers, online publications, and the NBR project website prior to the meetings.

Project Website

The project's planning website (https://www.fws.gov/mountain-prairie/refuges/nbrc.php) was established concurrent with the beginning of the planning effort and is promptly updated as new information is available. The site provides information about the public scoping meetings, as well as downloadable versions of all of the available public scoping comments, the notice of intent, press releases press releases, planning updates and the draft and final EIS and CCP. All interested citizens can sign up to be on the project mailing list or can provide public comment through the planning website.

Public Scoping Meetings

The four public scoping meetings (June 6-7 and August 30, 2017) were a key component of the public scoping process. The purpose of these meetings was to inform the public about the NBR planning process, about the refuge and its resources, and to solicit public concerns and planning ideas that will be considered in the CCP and EIS. Scoping meetings for the NBR CCP and EIS were held in conjunction with scoping meetings for the CCP and EA for the other units of the Complex. The four meetings were held at the following locations:

- June 6, 2017: Public Scoping Meeting, Red Lion Inn, Polson, Montana
- June 7, 2017: Public Scoping Meeting, Kalispell Public Library, Kalispell, Montana
- August 30, 2017: North Lake County Public Library, Polson, Montana
- August 30, 2017: Missoula Public Library, Missoula, Montana

Following a brief welcome and introduction, Service staff provided a 15-minute presentation that outlined the following topics: (1) an introduction to the Service and to the purposes of the Refuge System; 2) a description of the refuge and its purposes, resources, and management; (3) an overview of the CCP and EIS planning process; (4) the project schedule. After the presentation, the remainder of the meeting was divided into two components: questions and answers and public comments. Most of the meeting time was devoted to answering questions from meeting attendees. After the question and answer session, we welcomed comments from those who provided them. This format enabled participants to have their questions answered about the planning process and also identified many of the issues they considered important and wanted us to address in the CCP. Attendees were also give the opportunity to provide written comments during the meeting or sent to us via postal service, facsimile, or email.

Scoping Summary

During the comment period for scoping, the Service received over 100 written responses in the form of letters, emails, or from notes written in the handout sheet we provided at the public meetings. Twelve organizations submitted comments. Comments received from both the January 2017 and the May 2017 NOIs were taken into consideration throughout this planning process. All comments have been posted in a downloadable format on the NBR planning website. Following the comment period, the planning team prepared a scoping report summarizing the scoping phase. Copies of the report were provided to the cooperating agencies at the Planning Team Vision and Goals workshop in November 2017. The comments were consolidated into significant topics of concern with a number of subtopics. The primary topics are: habitat and wildlife (especially bison), monitoring and research, public use, tribal cooperation and cultural/historic resources, partnerships and communication and economics/ refuge operations/staffing. These are addressed in more detail in chapter 1.

Agency and Tribal Coordination

In accordance with the Service's planning policy (FWS 2000), we notified Native American tribes and other Federal and State agencies with a land management interest on the planning effort and invited them to participate as cooperating agencies and members of the planning team.

Native American Tribes

The Service sent letters of notification about the planning process, including an invitation to join the planning team, to the following tribes: Confederated Salish and Kootenai Tribes, Blackfeet Nation, Coeur d'Alene Tribe, Apache Tribe, Fort Belknap Indian Community of the Fort Belknap Reservation, Kalispel Indian Community of the Kalispel Reservation. The Confederated Salish and Kootenai Tribes decided to join us and are currently participating as a cooperating agency.

Federal, State and Local Agencies

We sent letters of notification about the planning process, including an invitation to join the planning team, to County, State and Federal agencies: Lake, Sanders and Flathead Counties, Montana Fish, Wildlife and Parks, Bureau of Indian Affairs, U.S. Forest Service (Flathead, Kootenai, and Lolo National Forests), Bureau of Reclamation (BOR), and National Park Service (NPS). Lake and Sanders Counties, Montana Fish, Wildlife and Parks and the Bureau of Indian Affairs decided to join us and are currently participating as cooperating agencies.

In summary, the cooperating agencies that accepted our invitation include the Confederated Salish and Kootenai Tribes, the Bureau of Indian Affairs, Montana Fish, Wildlife and Parks, Lake County and Sanders County. A memorandum of understanding was signed by all these agencies.

Planning Team Meetings

The Planning Team is comprised of the core planning team of Service staff from the National Bison Range Complex and the Mountain-Prairie region as well as the cooperating agencies: the Confederated Salish and Kootenai Tribes, the Bureau of Indian Affairs Montana Fish, Wildlife and Parks, Lake and Sanders Counties. The Planning Team has been involved in developing and reviewing every step of the CCP process.

The first Planning Team meeting occurred on August 29, 2017. The purpose of this meeting was to bring the Planning Team together, explain the CCP planning process, and answer any questions from the cooperating agencies. Background on the units of the Complex was presented including history, habitats and current management. The Team then brainstormed the qualities, issues and opportunities inherent to the Complex and the planning process. The Memorandum of Understanding was reviewed and circulated after the meeting for signature.

The second Planning Team meeting was on November 7, 2017 in Polson, Montana. The purpose of this meeting was to review the public scoping comments and the various purposes of the the units of the Complex and develop a draft vision and set of goals. The vision and goals were developed collectively for all units of the National Bison Range Complex at this meeting.

The third Planning Team meeting was a workshop to develop a draft range of alternatives on March 7-9, 2018 in Polson, Montana. The Team developed four alternatives, in addition to the no action alternative. The Team then added more details about the types of activities that would occur under each alternative for each goal topic area. The draft vision, goals and alternatives were then shared with the public (see section 1.4 below) during a public review period.

The fourth Planning Team meeting was held June 14-15 and 21-22, 2018 via conference call. During these calls the Team reviewed public comments received during the review period of the draft vision, goals, and alternatives and revised them accordingly. Immediately afterwards the planning team developed a set of draft Objectives and Strategies for the revised alternatives.

The fifth Planning Team meeting was held August 8-10, 2018 in Polson, Montana. This workshop focused on reviewing the draft impact analysis developed by the NEPA consultants from Marstel-Day. This workshop was preceded by an "expert panel" discussion where several Service technical

experts (some of which were also former NBR employees) gathered with the Planning Team to provide their comments and answer questions after reviewing the draft vision, goals, alternatives, objectives, strategies, rationales and impacts analysis.

The Service provided the cooperating agencies with copies of the internal review document at the end of August 2018. Following a week long review period, the Service reviewed the input of the cooperating agencies and incorporated changes and suggestions as appropriate.

Development of Draft Alternatives

The Service considers alternatives development as part of an iterative process in the development of the Draft CCP and EIS (FWS 2000). This phase of the project began in spring 2018, and public input ended in late May 2018. Following input by the cooperating agencies and the public on the draft alternatives, detailed objectives and strategies for all the alternatives were developed in June 2018 with input by the cooperating agencies.

Outreach Activities

In April 2018, the planning team presented five draft alternatives to the public, including a no-action alternative. At this point, the alternatives were described as conceptual approaches or themes including the type of management actions that would occur under each approach. For a CCP planning process involving an EIS the Service often solicits feedback on the draft alternatives prior to fully developing them. While not required under the National Environmental Policy Act, this allows the public an added opportunity to provide input earlier into the planning process. It also gives the refuge staff a chance to convey to the public what the Service would like to achieve. The Service does not select a preferred alternative until the preparation and publication of the final CCP and EIS.

Planning Updates

Planning Update, Issue 1, April 2018 was mailed via postal service and e-mailed (as appropriate) during the comment period, with most of the updates sent out during the week of April 30, 2018. This planning update outlined the draft vision, goals, and initial draft alternatives developed by the planning team. It also provided the dates, times, and locations of the open house public meetings. The distribution list included individuals, agencies, and organizations who had previously expressed an interest in NBR activities. In addition, the planning update was handed out at the meetings. The Service followed up with another update (Planning Update, Issue 2, July 2018), which summarized what had been learned during the comment period. Both updates and all of the public comments were posted on the NBR project website.

Press Release

On April 23, the Service issued another press release notifying the public of the schedule and location of the public meetings to 77 media organizations, congressional offices, other Federal and State agency offices, and tribal agencies throughout Montana. The press release was also posted on the NBR project website and the NBR website and a link to the press release was posted on the National Bison Range facebook page.

Public Meetings

Forty-four people attended one or more of the public meetings held in Kalispell, Charlo and the Lost Trail and National Bison Range headquarters. Following a brief welcome and introduction, the Complex staff made a short presentation highlighting the planning process to date, sharing the draft vision and goals and an overview of the draft alternatives. As with the scoping meetings, after the presentation, the remainder of the meeting was divided into two components: questions and answers and public comments. Most of the meeting time was spent welcoming and answering questions from meeting attendees. Afterwards we took comments from those who wanted to offer them. Attendees were also give the opportunity to provide written comments that day or in subsequent days.

Summary of Comments

The public comment period lasted from April 26 through May 25, 2018. The Service's primary objective in providing the public an early opportunity to review the alternatives was to gather additional input prior to writing the objectives and strategies, conducting the analysis of environmental consequences, and proposing a preferred alternative. All comments, questions, or issues, whether from written submissions or recorded at the public meetings, were considered to be of equal importance. While the Planning Team valued all comments made in support or opposition to a specific alternative or issue, the team also was seeking feedback on the range of alternatives, whether there were other reasonable alternatives that should be included in the analysis, and if any of the alternatives should be changed in some way.

A summary of comments received at the public meetings and all written comments were posted on the NBR project website. A summary of all comments was included in the Planning Update, Issue 2, July 2018, which was emailed to everyone on our email list and also posted on the NBR project website.

Public comments received for the draft Vision and Goals were generally supportive. For the draft Alternatives, it was suggested that the Service should be more specific to the unique resources of

individual Complex units. Commenters expressed concern that while including Alternative A (No Action) is necessary for completeness, it needs to include a discussion of the challenges the current budget creates for infrastructure, programs, and staffing. Comments received for Alternative B acknowledged that public support is important to the refuge; some expressed concern that Alternative B may not support optimal management of the individual Refuge Complex units. For Alternatives C and D, several commenters noted the importance of sustainability, connectivity, and healthy ecosystems as well as the persistence of individual species. It was suggested that Alternatives C and D have similarities and complementary aspects that may warrant combining them. Many commenters supported the concepts of partnership and collaboration in Alternative E, while some cautioned against creating additional administrative burdens. There were also several specific items suggested as additions within the draft Alternatives that the Service will evaluate, such as increased public uses (e.g. bird watching, hunting, public access, group trail rides), increased interpretation for Glacial Lake Missoula, and additional ideas for invasive species control.

Commenters suggested other Alternatives, including "A Balanced Approach to Management Direction" which harnesses the best strategies of all the draft Alternatives. Several commenters suggested other Alternatives with higher levels of staffing and funding, including the "National Bison Range Complex Restoration" alternative based on prior staffing levels and operation of the Complex. Concerns about the planning process - including pre-planning, outreach efforts, and inadequate resources - were also noted.

The Planning Team reviewed these comments and used the input to revise the Alternatives for the draft CCP. All public comments were also be used, as appropriate, to help the Planning Team develop draft objectives and strategies for each alternative and to evaluate the environmental consequences of the alternatives.

Changes to the Draft Alternatives

From a review of all the comments, the Planning Team decided to revise the range of draft alternatives for the National Bison Range. The team agreed with public comments that suggested combining Alternatives C (Manage for Ecological Sustainability) and D (Species-focused Management) due to the overlap and complementary aspects of these two alternatives. Further discussions by the team also led to incorporating elements of Alternative E (Collaborative/Partner-based Landscape Level Conservation) into each of the other alternatives, where appropriate. The Planning Team felt that partnerships are essential to the success of every alternative and having a separate alternative for this was overly repetitive. None of the elements of Alternative E were eliminated, but rather moved to another alternative that moved forward in the process. The No Action Alternative and Alternative B, Maximize the Quality of Public Experiences, were not changed. Suggestions for alternative approaches that were not carried forward in the analysis are discussed in chapter 2, section 2.7. Some public comments provided specific ideas for action items that were incorporated as objectives and strategies were developed for the revised alternatives.

Release of the Draft CCP and EIS

The draft CCP and EIS was released to the public for a 45-day public review and comment period on April 5, 2019 following publication of a notice of availability in the Federal Register [84 FR 13662]. We allowed comments to be submitted until May 20, 2019.

Outreach Activities

A planning update (Issue 3, April 2019) was mailed to everyone on the project mailing list. A press release was also used to announce the availability of the document. We held three public meetings on the draft CCP and EIS in Missoula (April 30), Polson (May 1), and at the refuge headquarters (May 2). Advertisements for the public meetings were published in the Missoulian, Flathead Beacon, Daily Interlake and Lake County Leader in the weeks prior. In total, about 60 people attended the meetings. We began the meetings with a short presentation, followed by an opportunity for participants to ask questions, and finally an opportunity for anyone who wished to offer a formal comment. Comment sheets were available for anyone who preferred to submit comments in writing. Throughout the comment period, we received comments from tribes, Federal agencies, non-profit organizations, and individuals. Refer to the responses to comments section of this final CCP and EIS for more information on the comments we received (Appendix H).

Summary of Changes to the Final CCP and EIS

As a result of public comments on the draft CCP and EIS, we made several changes or clarifications in the final CCP and EIS.

We received many comments about the importance of the public use program at the refuge. Several commenters were supportive of the objectives and strategies proposed under Alternative C for public use, but were concerned about the resources we had allocated to achieve the overall goal. In order to better address public use, we have increased the expected full performance level of the Visitor Services Specialist. In addition, we have revised our plans for the new Visitor Center to create greater flexibility to address the needs of the visitors, the staff and the opportunity for

partnerships and will seek to have the Visitor Center open 7 days a week, May-October, subject to funding.

We have added language to the final EIS/CCP to further clarify the Service's Native American Policy and our Tribal trust responsibilities. The Service's Native American policy (510 FW 1) provides a framework for government-to-government relationships and furthers the United States' and the Department of the Interior's trust responsibility to federally recognized Tribes. The policy established a consistent framework nationwide, yet remains flexible, to reflect regional and local variations in history, knowledge systems, applicable laws, treaties, and Service-Tribal relationships. In developing this CCP, the Service has worked with the CSKT to identify ongoing, and future, opportunities for collaboration consistent with this policy. Examples of some of these opportunities include proactively soliciting, and incorporating into our management, information on traditional ecological knowledge from CSKT and other Tribes, as well as collaborating on developing relevant educational and interpretive materials, including exhibits, interpretive panels, and programs.

We received several comments expressing concern over the grazing and habitat management on the refuge. We have clarified out intent not to endorse permanent changes, but rather recommend conducting a robust analysis prior to development and implementation of the Habitat Management step-down plan. Our priority is to better inform habitat objectives in a manner that addresses issues such as those set forth in these comments (e.g. species diversity, invasive species, soils, birds). If the best available science and current knowledge indicates a significant benefit to rangeland health by implementing yet a new system (rotational or otherwise), current NBR management is in favor of adapting accordingly. All alternatives seek to investigate whether implementation of passive distribution tactics would be beneficial to the habitat and any subsequent plans will promote management specific to the wildlife and habitat resources on the NBR.

We also revised the refuge history and included many suggested editorial comments throughout the document.

List of Recipients Receiving the Final CCP and EIS

The following Federal and State agencies, along with nonprofit organizations, or other businesses that were on the project mailing list received copies of the Final CCP and EIS. All interested groups and the public on the project mailing list received a copy of Planning Update, Issue 4, which summarized the contents of the Final CCP and EIS.

FEDERAL ELECTED OFFICIALS

- U.S. House of Representatives, Montana Representative Greg Gianforte
- U.S. Senate, Montana Senator Steve Daines
- U.S. Senate, Montana Senator Jon Tester

FEDERAL AGENCIES

- Bureau of Reclamation, Boise, Idaho
- Bureau of Indian Affairs, Portland, Oregon
- Department of Agriculture, NRCS, Missoula, Montana
- Department of Agriculture, USFS, Lolo NF Missoula; Flathead NF Kalispell; Kootenai NF, Libby, Montana
- Environmental Protection Agency, Helena, Montana
- Federal Highways Administration, Western Lands Office, Vancouver, Washington
- U.S. Fish and Wildlife Service—Mountain-Prairie Region programs, Denver, Colorado; Invasive Strike Team– Great Falls, Montana; Ecological Services–Helena, Montana, and Creston, Montana; Region 9–Washington D.C.
- National Park Service, Glacier National Park, regional office–Denver, Colorado

TRIBES AND TRIBAL ORGANIZATIONS

- Confederated Salish and Kootenai Tribes
- Blackfeet Nation
- Coeur d'Alene Tribe
- Apache Tribe
- Fort Belknap Indian Community of the Fort Belknap Reservation
- Kalispel Indian Community of the Kalispel Reservation

MONTANA ELECTED OFFICIALS

- Governor Steve Bullock
- Representative Jon Fleming
- Representative Denley Loge
- Senator Daniel Salomon
- Senator Jennifer Fielder

MONTANA STATE AGENCIES

- Department of Fish, Wildlife, and Parks, director– Helena, Montana, Region 1–Kalispell, State Wildlife Grants–Great Falls
- Department of Natural Resources, director–Helena, Montana, local office
- Department of Transportation, local office

- Montana Historical Society and Preservation Office
- Natural Heritage Program, Helena

COUNTY AND LOCAL GOVERNMENTS

- Lake County Commissioners
- Sanders County Commissioners
- Flathead County Commissioners

ORGANIZATIONS AND EDUCATIONAL INSTITUTIONS

- Backcountry Hunters and Anglers, Montana Chapter, Missoula, Montana
- Blue Goose Alliance, Albuquerque, New Mexico
- Defenders of Wildlife, Washington D.C.
- Five Valleys Audubon, Missoula, Montana
- Flathead Audubon Society, Kalispell, Montana
- Flathead Lakers, Polson, Montana
- Flathead Wildlife Inc., Kalispell, Montana
- Glacial Lake Missoula, Missoula, Montana
- Headwaters Montana, Whitefish, Montana
- Montana Conservation Voters, Billings, Montana
- National Wildlife Federation, Missoula, Montana
- Natural Resources Defense Council, Bozeman, Montana
- Protect Public Land, Polson, Montana
- Public Employees for Environmental Responsibility, Silver Spring, Maryland
- Sierra Club, Bozeman, Montana; Missoula, Montana
- Sunrisers Lions Club, Kalispell, Montana
- Walleyes Unlimited of Montana, Flathead Chapter
- The Wilderness Society, Bozeman, Montana
- The Wildlife Conservation Society, Bozeman, Montana

PUBLIC LIBRARIES

- Montana State University Libraries—Billings, Bozeman, Havre, Montana
- U.S. Fish and Wildlife Service, National Conservation Training Center Library, Shepherdstown,West Virginia
- Flathead County Library – Kalispell, Montana
- Missoula Public Library – Missoula, Montana
- Plains Public Library – Plains, Montana
- Ronan City Library – Ronan, Montana
- Polson City Library – Polson, Montana
- St. Ignatius School-Community Library – St. Ignatius, Montana

Appendix C—Key Legislation and Policies

This appendix briefly describes the guidance for the National Wildlife Refuge System and other policies and key legislation that guide the management of the National Bison Range (NBR).

National Wildlife Refuge System

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. (National Wildlife Refuge System Improvement Act of 1997).

Goals of the National Wildlife Refuge System

Conserve a diversity of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered.

Develop and maintain a network of habitats for migratory birds, anadromous and interjurisdictional fish, and marine mammal populations that is strategically distributed and carefully managed to meet important life history needs of these species across their ranges.

Conserve those ecosystems, plant communities, wetlands of national or international significance, and landscapes and seascapes that are unique, rare, declining, or underrepresented in existing protection efforts.

Provide and enhance opportunities to participate in compatible wildlife-dependent recreation (hunting, fish, wildlife observation and photography, and environmental education and interpretation).

Foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats.

Guiding Principles of the National Wildlife Refuge System

There are four guiding principles for management and public use of the Refuge System established by Executive Order 12996 (1996)

Public Use—The Refuge System provides important opportunities for compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

Habitat—Fish and wildlife will not prosper without quality habitat, and without fish and wildlife, traditional uses of refuges cannot be sustained. The Refuge System will continue to conserve and enhance the quality and diversity of fish and wildlife habitat within refuges.

Partnerships—America's sportsmen and women were the first partners who insisted on protecting valuable wildlife habitat within wildlife refuges. Conservation partnerships with other Federal agencies, State agencies, Tribes, organizations, industry, and the public can make significant contributions to the growth and management of the Refuge System.

Public Involvement—The public should be given a full and open opportunity to participate in decisions about acquisition and management of national wildlife refuges.

Other Legal and Policy Guidance

Management actions on national wildlife refuges are constrained by many mandates, including laws and Executive Orders. The more common regulations that affect refuge management are listed below.

American Indian Religious Freedom Act (1978): Directs agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve Native American religious cultural rights and practices.

Americans with Disabilities Act (1990): Prohibits discrimination in public accommodations and services.

Antiquities Act (1906): Authorizes the scientific investigation of antiquities on Federal land and provides penalties for unauthorized removal of objects taken or collected without a permit.

Archaeological and Historic Preservation Act (1974): Directs the preservation of historic and archaeological data in Federal construction projects.

Archaeological Resources Protection Act (1979), as amended: Protects materials of archaeological interest from unauthorized removal or destruction and requires Federal managers to develop plans and schedules to locate archaeological resources.

Architectural Barriers Act (1968): Requires Federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

Bald and Golden Eagle Protection Act (1940): Provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds.

Clean Air Act (1970, amended 1990): Restricts the amount of pollutants that can be emitted into the air.

Clean Water Act (1977): Requires consultation with the U.S. Army Corps of Engineers (404 permits) for major wetland modifications.

Data Quality Act (2001): Requires government agencies to ensure and maximize the quality, objectivity, utility, and dissemination of information by Federal agencies.

Dingell-Johnson Act (1950): Authorizes the Secretary of the Interior to provide financial assistance for State fish restoration and management plans and projects. Financed by excise taxes paid by manufacturers of rods, reels, and other fishing equipment.

Emergency Wetlands Resources Act (1986): Promotes wetland conservation for the public benefit to help fulfill international obligations in various migratory bird treaties and conventions. The act authorizes buying wetlands with Land and Water Conservation Fund monies.

Endangered Species Act (1973): Requires Federal agencies to carry out programs for the conservation of endangered and threatened species.

Executive Order 3596 (1921): Directs National Bison Range, Sullys Hill National Park Game Preserve, and Elk Refuge to be reserved and and set apart for the use of the Department of Agriculture as refuges and breeding grounds for birds.

Executive Order 11987, Exotic Organisms (1977): Executive agencies shall, to the extent permitted by law, restrict the introduction of exotic species into the natural ecosystems on lands and waters which they own and shall encourage States, local governments and private citizens to prevent the introduction of exotic species into natural ecosystems.

Executive Order 11988, Floodplain Management (1977): Requires Federal agencies to provide leadership and take action to reduce the risk of flood loss, minimize the impact of floods on human safety, and preserve the natural and beneficial values served by the floodplains.

Executive Order 11990, Protection of Wetlands (1977): Agencies shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and preserve and enhance the natural and beneficial values of wetlands.

Executive Order 12898, Environmental Justice (1994): Focuses Federal attention on the environmental and human health effects of Federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities.

Executive Order 12996, Management and General Public Use of the National Wildlife Refuge System (1996): Defines the mission, purpose, and priority public uses of the National Wildlife Refuge System. It also presents ten directives to guide management of the Refuge System.

Executive Order 13007, Indian Sacred Sites (1996): Directs Federal land management and other agencies to accommodate access to and ceremonial uses of Indian sacred sites by Indian religious practitioners, avoid adversely affecting the physical integrity of such sacred sites and, where appropriate, maintain the confidentiality of sacred sites.

Executive Order 13175 Consultation and Coordination with Indian Tribal Governments (2000): Reaffirms the Federal government's commitment to Tribal sovereignty, self-determination, and self-government. Its purpose is to ensure that all Executive departments and agencies consult with Indian Tribes and respect Tribal sovereignty as they develop policy on issues that impact Indian communities.

Executive Order 13352, Cooperative Conservation (2004): Directs Federal agencies to implement laws relating to the environment and natural resources in a manner that promotes cooperative conservation with an emphasis on appropriate inclusion of local participation in Federal decision making in accordance with respective agency missions and policies.

Executive Order 13474, Recreational Fisheries (2008): Ensures that recreational fishing shall be managed as a sustainable activity in national wildlife refuges, consistent with applicable law; Amends EO 12962

Executive Order 13592, Improving American Indian and Alaska Native Educational Opportunities and Strengthening Native Colleges and Universities (2011): Seeks to improve

educational opportunities for students attending Tribal Colleges and Universities.

Executive Order 13751, Safeguarding the Nation from the Impacts of Invasive Species (2016): Directs actions to continue coordinated Federal prevention and control efforts related to invasive species and maintains the National Invasive Species Council (Council) and the Invasive Species Advisory Committee.

Executive Order 13807, Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects (2017): Ensures that the federal environmental review and permitting process for infrastructure projects is efficient, coordinated, predictable, transparent, and expeditious.

Executive Order 13834, Efficient Federal Operations (2018): Prioritizes actions that reduce waste, cut costs, enhance the resilience of federal infrastructure and operations, and enable more effective accomplishment of its mission.

Federal Activities Inventory Reform Act (1998): Provide a process for identifying the functions of the Federal Government that are not inherently governmental functions, and for other purposes.

Federal Noxious Weed Act (1990): Requires the use of integrated management systems to control or contain undesirable plant species and an interdisciplinary approach with the cooperation of other Federal and State agencies.

Federal Records Act (1950): Requires the preservation of evidence of the government's organization, functions, policies, decisions, operations, and activities, as well as basic historical and other information.

Fish and Wildlife Act (1956): Provides direction with regard to increase public opportunities for recreational use of fish and wildlife resources.

Fish and Wildlife Coordination Act (1958): Allows the U.S. Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes.

Migratory Bird Conservation Act (1929): Establishes procedures for acquisition by purchase, rental, or gifts of areas approved by the Migratory Bird Conservation Commission.

Migratory Bird Hunting and Conservation Stamp Act (1934): Authorizes the opening of part of a refuge to waterfowl hunting.

Migratory Bird Treaty Act (1918): Designates the protection of migratory birds as a Federal responsibility and enables the setting of seasons and other regulations including the closing of areas, Federal or non-Federal, to the hunting of migratory birds.

Native American Policy (1994): Articulates the general principles that guide the Service's government-to-government relationship to Native American governments in the conservation of fish and wildlife resources.

National Environmental Policy Act (1969): Requires all agencies, including the Service, to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate this act with other planning requirements and prepare appropriate documents to facilitate better environmental decision making. [From the Code of Federal Regulations (CFR), 40 CFR 1500]

National Historic Preservation Act (1966), as amended: Establishes as policy that the Federal Government is to provide leadership in the preservation of the Nation's prehistoric and historical resources.

National Wildlife Refuge System Administration Act (1966): Defines the National Wildlife Refuge System and authorizes the Secretary of the Interior to permit any use of a refuge, provided such use is compatible with the major purposes for which the refuge was established.

National Wildlife Refuge System Improvement Act (1997): Sets the mission and administrative policy for all refuges in the National Wildlife Refuge System; mandates comprehensive conservation planning for all units of the Refuge System.

Native American Graves Protection and Repatriation Act (1990): Requires Federal agencies and museums to inventory, determine ownership of, and repatriate cultural items under their control or possession.

Paleontological Resources Preservation Act (2009): Requires the Secretary of Interior and Agriculture to manage and protect paleontological resources on Federal land using scientific principles and expertise.

Performance and Management of Inherently Governmental and Critical Functions (2011): Policy statement that provides Executive Departments and agencies guidance on managing the performance of inherently governmental and critical functions [76 FR 56227].

Public Law 85-622 (1958): An Act to provide for a display pasture for the bison herd on the Montana National Bison Range in the State of Montana, and for other purposes.

Refuge Recreation Act (1962): Allows the use of refuges for recreation when such uses are compatible with the refuge's primary purposes and when sufficient funds are available to manage the uses.

Rehabilitation Act (1973): Requires programmatic accessibility in addition to physical accessibility for all facilities and programs funded by the Federal government to ensure that any person can participate in any program.

Secretarial Order 3206 (1997): American Indian Native Rights, Federal-Native Trust Responsibilities, and the Endangered Species Act: This Order clarifies the responsibilities of the Departments of Interior and Commerce to carry out their responsibilities in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the Departments, and that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species, so as to avoid or minimize the potential for conflict and confrontation.

Secretarial Order 3317 (2011): DOI Policy: Department of the Interior Policy on Consultation with Indian Tribes: Updates, expands and clarifies the Department of Interior policy on consultation with American Indian and Alaska Native Tribes.

Secretarial Order 3335 (2014): Reaffirmation of the Federal Trust Responsibility to Federally Recognized Indian Tribes and Individual Indian Beneficiaries: Sets forth guiding principles to ensure that he Department of Interior fulfills its trust responsibility to all federally recognized Indian tribes.

Secretarial Order 3355 (2017): This Order is intended to implement certain improvements to National Environmental Policy Act (NEPA) reviews conducted by the Department of the Interior (Department).

Secretarial Order 3347 (2017): Enhances conservation stewardship, increases outdoor recreation, and improves the management of game species and their habitat.

Volunteer and Community Partnership Enhancement Act (1998): Encourages the use of volunteers to help in the management of refuges within the Refuge System; facilitates partnerships between the Refuge System and non-Federal entities to promote public awareness of the resources of the Refuge System and public participation in the conservation of the resources; and encourages donations and other contributions.

White House Memorandum on Government-to-Government Relationships with Native Governments (2004). Affirms executive branch's commitment to continuing to work with federally recognized tribal governments on a government-to-government basis and strongly supports and respects tribal sovereignty and self-determination for tribal governments in the United States.

Wilderness Act (1964): The act (Public Law 88–577) [16 USC 1131–36]) defines wilderness as "A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."

Appendix D—Compatibility Determinations

D.1 Compatible Uses

In accordance with the Improvement Act, the Service has adopted a Compatibility Policy (603 FW 2) that includes guidelines for determining if a use proposed on an unit of the Refuge System is compatible with the purposes for which that unit was established. A compatible use is defined in the policy as a proposed or existing wildlife-dependent recreational use or any other use of a unit of the Refuge System that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the Refuge System mission or the purposes for which the unit of the Refuge System was established and contributes to the maintenance of biological integrity, diversity, and environmental health. The Compatibility Policy also includes procedures for documentation and periodic review of existing Refuge System unit uses.

The first step in determining if a use is compatible is to determine if the use is *appropriate* (called an appropriateness finding). Wildlife-dependent recreational uses are automatically considered appropriate. The Service evaluates each non-wildlife–dependent use to determine if it is appropriate based on several factors, including compliance with applicable laws and regulations, consistency with Executive Orders and policies, consistency with public safety, consistency with goals and objectives in an approved management plan, and availability of resources (see 603 FW 1 Section 1.1 (A) for a complete list of factors). If a use is not appropriate, the Service prepares, signs, and maintains a Finding of Appropriateness of a Refuge Use determination, then the use is not further considered, and a compatibility determination is not required. If a use is determined to be appropriate, the Service must prepare a compatibility determination. When a determination is made as to whether a proposed use is compatible or not, this determination is provided in writing and is referred to as a compatibility determination.

An opportunity for public review and comment is required for all compatibility determinations. For compatibility determinations prepared concurrently with a Comprehensive Conservation Plan (CCP) or step-down management plan, the opportunity for public review and comment is provided during the public review period for the draft plan and associated National Environmental Policy Act document. This appendix includes the compatibility determinations prepared in association with this CCP/EIS for the following uses:

- Fishing
- Wildlife Observation and Photography
- Environmental Education and Interpretation
- Collecting Shed Antlers
- Collecting Cultural or Traditional resources
- Research and Monitoring
- Horseback riding/Saddle Club Trail Ride
- Commercial Filming, Audio Recording and Still Photography

D.2 Refuge Establishing Authorities and Purposes

35 Stat. 267-8, dated May 23, 1908

" ... for a permanent national bison range for the herd of bison ... "

35 Stat. 1051, dated March 4, 1909

provides for fencing, buildings, and "enlarging the limits heretofore established so as to make the total acreage not to exceed twenty thousand acres .. "

Executive Order 3596, dated December 22, 1921

" ... as refuges and breeding grounds for birds."

72 Stat. 561, dated August 12, 1958

authorized the Secretary to procure title to lands to provide for a display pasture for the bison

herd; " ... to provide adequate pasture for the display of bison in their natural habitat at a location readily available to the public, .. "

National Wildlife Refuge System Mission:

The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

D.3 Description of Use: Fishing

It is proposed that portions of Mission Creek and the Jocko River on the National Bison Range remain open to public fishing in accordance with Joint State/Tribal regulations and in accordance with the special refuge regulations. Mission Creek runs through the northern end of the Bison Range for a distance of approximately 7 miles, with approximately 3.75 miles open to fishing during season. This includes a section of over .75 mile from the west boundary extending east past the Nature Trail and day use area up to the first bridge upstream near the maintenance area at headquarters. No fishing access is permitted for .50 miles from the first bridge near maintenance area upstream to the environmental education site. Another open fishing section starts just east of the maintenance area and extends approximately 3 miles east. Access is by parking in designated areas in the headquarters vicinity and then reaching open areas of the creek by foot. Bison could be present along Mission Creek at times when the bison breeding season and fishing season overlap resulting in a safety conflict. During this seasonal overlap, the 1 1/2 mile section east of headquarters will be posted "closed" to prevent conflict between fishermen and bison.

The Jocko River passes through the southern edge of the Bison Range for a distance of approximately 1/2 mile. That section is open during season. Since bison are fenced away from the Jocko River, there is not conflict between bison and the fishing activity.

Fishing pressure is light, averaging about 15 visits per week. Refuge staff estimate approximately 250 fishing visits annually. Rainbow trout are the primary species caught in Mission Creek, while brown trout dominate in the Jocko River. Fishing visits during the extended whitefish season, which lasts all year, are practically nonexistent.

Availability of Resources:

The fishing program could continue to be administered using current resources.

Anticipated Impacts of the Use:

Due to the low level of use, impacts to refuge purposes are minimal. Bison normally move away from people on foot, and then resume their previous activity, so the occasional disturbance is not anticipated to become a problem. Some level of disturbance to waterfowl and other birds is also anticipated, although not anticipated to be a problem.

Public Review and Comment:

This compatibility determination was prepared concurrently with the draft CCP and Environmental Impact Statement (EIS) for the refuge. Public review and comment was solicited concurrently with the public review and comment period for the draft CCP and EIS.

Determination (Check one below):

____ Use is NOT Compatible

__X__ Use IS Compatible with the following stipulations

Stipulations Necessary to ensure compatibility:

Stipulations for the fishing program would be made available in the refuge's fishing brochure. These stipulations specify when the activities would be allowed, describe access restrictions, and outline special regulations.

- Access to the streams is by walk-in only.
- No vehicle access to streams. Parking is permitted only in designated areas.
- No canoes, boats or other floating devices allowed.
- All visitors accessing the public fishing areas along Mission Creek must remain within 100 feet of the stream.

Justification for compatibility determination:

Fishing is one of the six wildlife-dependent, priority public uses specified in the Improvement Act. It can be allowed at the refuge without interfering with the designated purpose for the refuge. No significant adverse impacts to the wildlife resource is expected from the primary or supporting uses.

Mandatory 15 year reevaluation date: 2034

D.4 Description of Use: Wildlife Observation and Photography

As two of the six priority recreational uses identified in the National Wildlife Refuge System Improvement Act of 1997, wildlife observation and photography provide recreational activities on the refuge with no definable adverse effects to biological resources.

We will continue to provide wildlife observation and photography opportunities on the refuge and support them with auto tour drive opportunities, hiking trails (Bitterroot and High Point) on Red Sleep Mountain Drive, and a day use area with a pedestrian trail. Such facilities and support will continue to help bring people closer to wildlife.

The Red Sleep Mountain Drive will provide seasonal opportunities (closed in the winter) for wildlife viewing and photography via auto, and pedestrian (designated trails only). Hazardous road conditions, such as the flooding or wash out of roads occasionally require closures for safety. The West Pasture Drive and Prairie Drive will provide year round opportunities for wildlife viewing and photography via auto tour only (no pedestrian trails). The day use area is open year round, and provides opportunities for wildlife viewing and photography via foot traffic. Facilities providing more opportunities for wildlife observation and photography include the short walking trail located just outside and adjacent to the refuge Visitor Center.

Availability of Resources:

Wildlife Observation and Photography will be administered by refuge staff and volunteers. The refuge will rely on Refuge Law Enforcement Officers and informational signing to inform the public of open and closed areas of the refuge. Public facilities such as public trails and restrooms will be maintained as needed to provide wildlife observation and photography opportunities.

Anticipated Impacts of the Use:

Impacts associated with the wildlife observation and photography uses of the refuge resources are managed in various ways. These uses are ongoing, and potential disturbances are being managed with temporary closures of auto drive, or trail areas as needed. Law enforcement is available to enforce closures as needed, as well as using the refuge website, social media, temporary signs, and gates to announce closures.

Public Review and Comment:

This compatibility determination was prepared concurrently with the draft CCP and EIS for the refuge. Public review and comment was solicited concurrently with the public review and comment period for the draft CCP and EIS.

Determination (Check one below):

____ Use is NOT Compatible

_X___ Use IS Compatible with the following stipulations

Stipulations Necessary to ensure compatibility:

- Visitors participating in wildlife observation and photography will follow all public use regulations.
- Seasonal closures will be implemented to protect sensitive wildlife areas, and reduce disturbance to priority species and habitat.
- Non-Service vehicles will be restricted to public access roads on the refuge.
- Viewing areas are primarily provided from the auto tour drives, or from the designated pedestrian trails. Viewing opportunities will be designed to decrease disturbance effects to wildlife and all refuge resources while providing a good opportunity to view wildlife in their natural environments.
- Foot travel, biking, and motorcycles will be prohibited from all gravel road areas on the refuge. The only areas allowed for pedestrian foot travel, biking and motorcycles is the paved roads in and around the headquarters location.
- Pets must be leashed and under owners' control at all times and only allowed outside of a vehicle in the day use area and paved roads around the headquarters locations.

Justification for compatibility determination:

Wildlife observation and photography are identified as priority public uses in the Improvement Act and will help meet Refuge System goals with only minimal conflict. Wildlife observation and photography can instill, in citizens of all ages, a greater appreciation for wildlife and its habitat. This appreciation may extend to the Refuge System and other conservation agencies.

Based on anticipated biological effects described above, we have found that wildlife observation and photography on the refuge will not interfere with our habitat goals and objectives or with the purposes for which the refuge was established. Limiting access and watching use closely could help limit any adverse effects. The refuge contains unique habitats and supports wildlife populations, particularly the bison herd, other large ungulates and mammals, migratory birds, and upland game birds in excess of what can be observed on neighboring private lands. These uses promote an appreciation for the natural resources at the refuge. In addition, these uses support conservation programs at the refuge.

Mandatory 15 year reevaluation date: 2034

D.5 Description of Use: Environmental Education and Interpretation

As two of the six priority recreational uses identified in the Improvement Act, environmental education and interpretive activities on and off the refuge provide activities with little to no definable adverse effects to biological resources when properly managed. The refuge will continue to offer the following opportunities:

- Interpretive and Education Visitor Center
- Tour Groups and Interpretive Walks as resources are available

- Wildlife Viewing Drives (West Pasture Drive, Prairie Drive, Red Sleep Mountain Drive)
- Exhibition Pasture when used to hold bison
- Interpretive Displays and Foot Trails (Bitterroot and High Point Trails)
- Environmental Education Programs including Teacher Workshops, School Group Tours, Summer Day Camps, Nature Study Sites and Use of Natural Materials Collections as resources are available.
- ACCESS Program for People with Disabilities
- Annual Bison Roundup Viewing
- day use area in Support of the above activities
- Wildlife Viewing Area off Highway 93 at Ravalli Hill

The refuge will continue to offer, and make necessary adjustments and or improvements to:

- Interpretive panels and auto tour brochures provide information about habitat, wildlife, management actions, and activities. Interpretation is passive in nature, from self-guided opportunities to interpretive panels, brochures, websites, and tearsheets. We will continue to use social media, and update it frequently, to increase contact with, and exposure to, the refuge.
- We will provide interpretive programs both by request and as scheduled activities as staff and time allow.
- We will continually evaluate our interpretive media, such as brochures, signs, and displays, for relevance, effectiveness, and timeliness, and we will update them as needed, and as funding allows.

This CCP proposes to continue environmental education and interpretation and add the following to improve these programs:

- Replace the existing Visitor Center with funding potentially available starting 2020. The location of the new Visitor Center has not been determined, but could likely be located in the same general area as the existing facility.
- We will expand the opportunities for environmental education and interpretation in cooperation with partner organizations and agencies, as staff and time allows.
- We will continue to enhance the interpretation of "Glacial Lake Missoula" at ideal locations around the refuge, but only in areas available to the public.
- We will interpret the cultural history of the National Bison Range area, including Tribal uses, and early settlement.

Availability of Resources:

Payment for environmental education and interpretation activities, directional signs, and informational brochures will come from annual recreation fee, and operations/maintenance money. Other sources, such as grants, regional project proposals, challenge cost-share agreements, deferred maintenance and others will also be sought and used as they became available.

The opportunity to receive funding for larger capital improvement projects or facilities will be sought from Regional or National maintenance management funding systems.

Anticipated Impacts of the Use:

Impacts are anticipated to be minimal. Bison have become accustomed to vehicle traffic on auto tour roads, and are not generally not disturbed by vehicles. Restrictions against hiking off tour roads or designated foot trails, and prohibition on driving off auto tour roads prevents disturbance to bison and native birds and their habitats. There are minor impacts on habitat at areas of interpretive, educational and support facility developments.

The use of the refuge for onsite activities by groups of teachers and students for environmental education or interpretation may minimally affect the immediate and surrounding areas (i.e. day use area) in the short term. Effects may include the trampling of vegetation and temporary disturbance to nearby bison, waterfowl, or other wildlife species.

Public Review and Comment:

This compatibility determination was prepared concurrently with the draft CCP and EIS for the refuge. Public review and comment was solicited concurrently with the public review and comment period for the draft CCP and EIS.

Determination (Check one below):

____Use is NOT Compatible

_X_ Use IS Compatible with the following stipulations

Stipulations Necessary to ensure compatibility:

- No hiking on the refuge except at the Nature Trail and day use area, and on designated foot trails on the Red Sleep Mountain Drive.
- No driving off designated auto tour roads.
- Special activities such as annual bison capture operations, teacher workshops, school group activities and special group tours are supervised and/or regulated by time and space zoning as directed by refuge personnel.
- Visitors participating in environmental education and interpretation programs will

follow all of our regulations. Onsite activities will be held where minimal effect to wildlife and habitats will occur.

- We will review new environmental education and interpretation activities to make sure that these activities meet program objectives and are compatible.

Justification for compatibility determination:

The environmental education and interpretation program at the National Bison Range accomplishes the mission for which the refuge was established and meets the goals of the National Wildlife Refuge System. Both programs are legislated, wildlife-dependent priority public uses. Properly managed, they would have minimal impact to the resource. Both public use programs would contribute to the mission of the Refuge System by increasing knowledge and support of the stewardship of natural resources.

The refuge contains unique habitats and supports wildlife populations—particularly the bison herd, other large ungulates and mammals, migratory birds, and upland game birds—in excess of what can be observed on neighboring private lands. These uses promote an appreciation for the natural resources at the refuge. In addition, these uses support conservation programs at the refuge.

Mandatory 15 year reevaluation date: 2034

D.6 Description of Use: Collecting Shed Antlers

Allow special user groups such as the Girl and Boy Scouts to collect shed elk, and deer antlers on the National Bison Range for the annual auction during summer (late June/early July). Collection for personal use is prohibited, and will not be allowed. Collecting is not a priority public use.

Collection would be allowed in areas on the National Bison Range (NBR) as identified by maps at the time a permit is issued authorizing the collecting.

Special groups will be informed when a permit is issued of the date, time, and location where they may collect shed antlers. Collecting will occur during the daylight hours starting in early spring and will be permitted only during regularly scheduled public use days.

Special groups will be assigned to areas on the refuge where shed antlers may be collected. The specific details as to the restrictions governing the collecting will be outlined by the permit and within refuge specific regulations to ensure that the activity is appropriate and compatible with the refuge's mission and purpose. Shed antlers may be found by walking areas on the refuge frequently utilized by elk and deer herds. In most cases, the collection will be in areas where general public access is prohibited. All antlers are to be collected and stored at a designated collection area on the refuge, and cannot be removed from the refuge for personal use or sold. Access to closed areas on the refuge will be determined at the time the permit is issued, and will be is strictly enforced.

There is considerable public demand for the collection of shed elk and deer antlers on the refuge, but there is also adequate public use opportunities for this activity on public lands across the State. The refuge will continue to allow the collection of antlers by special user groups under a special use permit, with 65% of the proceeds from sale going toward the refuge recreational fee account.

Availability of Resources:

National Wildlife Refuges are typically opened for wildlife-dependent recreation. As a result, roads, parking lots, signs and other facilities as well as staff to enforce regulations and maintain these facilities have been provided by the Service. These facilities will be maintained to meet the needs of the recreating public and will be used incidentally by those special use groups who are collecting shed elk and deer antlers. These uses will not require a significant increase in additional maintenance or enforcement staff expenditures. Public access fees can be used to offset refuge expenditures resulting from this type of use. Proceeds (65%) from sale of the antlers during the annual auction will be submitted to the refuge for expenditures related to this activity. The Service will not have to provide special equipment.

Based on a review of the refuge budget allocated for recreational use management, there is adequate funding to ensure compatibility and to administer and manage this recreational use.

Anticipated Impacts of the Use:

The quantity and frequency of shed antler collecting is not expected to significantly damage wildlife habitat, or jeopardize wildlife survival. It may have a negligible to minor effect on the amount of an important source of minerals to wildlife who chew on bones and antlers. Special use group participation in the collection of antlers on the refuge is expected to be low and insignificant. The refuge manager will determine areas on the refuge required for closure or restricted access to antler collection.

Short-term disturbance to wildlife may occur during antler collection activities, but will be insignificant. Most of the collecting will occur in late winter, early spring/summer. This activity should not result in short or long-term impacts that adversely affect wildlife populations on the refuge, migratory birds, or the purposes of the refuge or the mission of the National Wildlife Refuge System.

Permitting special user groups to collect antlers on

the NBR can help to deter trespassing and illegal antler collecting in sensitive bighorn sheep lambing and Rocky Mountain elk calving areas.

Public Review and Comment:

This compatibility determination was prepared concurrently with the draft CCP and EIS for the refuge. Public review and comment was solicited concurrently with the public review and comment period for the draft CCP and EIS.

Determination (Check one below):

____Use is NOT Compatible

_X___Use IS Compatible with the following stipulations

Stipulations Necessary to ensure compatibility:

- Collection is not open to the public.
- Collection for personal use is prohibited.
- Only designated areas at the time of collection will be open.
- All antlers collected will be stored at the refuge until sold.

Justification for compatibility determination:

This use will have limited and localized impacts when conducted within the stipulations above. Administration of the use will require a minimal increase in staff resources. This use will not diminish the primary purposes of the refuge, or the conservation of other migratory birds and wildlife because the use is on a small scale and localized.

This use will meet the mission of the National Wildlife Refuge System by providing resources for the benefit of the American public while conserving fish, wildlife and plant resources on these lands.

Mandatory 10 year reevaluation date: 2029

D.7 Description of Use: Collecting Cultural or Traditional Resources (Non Artifacts)

Allow refuge visitors to collect cultural, or traditionally valuable plants (sage), berries, bison fur, or bison dung on the NBR for personal use only. The collection of bison skulls, bones, or other wildlife parts will not be included in this determination. Collecting is not a priority public use.

Collection would be allowed in areas on the NBR as identified by maps at the time a permit is issued authorizing the collecting.

Visitors who request a collection permit will be informed when a permit is approved and issued of the date, time, and location where they may collect plants (sage), berries, bison fur, or bison dung, and the quantity that would be allowed. Collecting will occur during the daylight hours primarily starting in early spring, and throughout the summer. Collecting will be permitted only during regularly scheduled public use days.

Visitors will be allowed access to areas on the refuge where plants (sage), berries, bison fur, or bison dung may be collected. The specific details as to the restrictions governing the collecting will be outlined by the permit and within refuge specific regulations to ensure that the activity is appropriate and compatible with the refuge's mission and purpose. Plants (sage) or berries are hand harvested by picking the portions from the plant, gathering what has fallen to the ground, or cutting by hand. Bison fur and dung are readily found throughout the refuge along roads, sign posts, or fences where bison tend to congregate. Access to harvest or collection sites is accomplished by walking from a designated roadways or trails. Plants (sage), berries, bison fur, and dung are for personal use only and cannot be sold. Entry into closed areas on the refuge is strictly prohibited unless authorized under the special use permit.

There are frequent public requests for the collection of sage, bison fur, and occasionally bison dung for traditional or ceremonial purposes. The collection amount, and limited duration of the collection will result in little to no impact on available forage (plants) for wildlife. The collection of bison fur or dung will result in negligible to minor impact to refuge wildlife or habitat.

Availability of Resources:

National Wildlife Refuges are typically opened for wildlife-dependent recreation. As a result, roads, parking lots, signs and other facilities as well as staff to enforce regulations and maintain these facilities have been provided by the Service. These facilities will be maintained to meet the needs of the public and will be used incidentally by those who are collecting plants (sage), bison fur, or dung. These activities will not require a significant increase in additional maintenance or enforcement staff expenditures. The Service will not have to provide special equipment to any requests for collection activities.

Based on a review of the refuge budget allocated for recreational use management, there is adequate funding to ensure compatibility and to administer and manage this recreational use.

Anticipated Impacts of the Use:

The quantity and frequency of plants (sage), bison fur, and dung collecting is not expected to significantly diminish wildlife food sources or jeopardize wildlife survival of any sort. Participation in the collection of these items on the refuge is expected to be neutral or minor, . Areas

designated as "Closed to Access" on the refuge will be strictly off limits to all collections, and identified in the special use permit.

Short-term disturbance to wildlife may occur during these activities, but will be insignificant. Most of these activities occur in early spring or late summer or fall. These activities should not result in short or long-term impacts that adversely affect the purposes of the refuge or the mission of the National Wildlife Refuge System.

Public Review and Comment:

This compatibility determination was prepared concurrently with the draft CCP and EIS for the refuge. Public review and comment was solicited concurrently with the public review and comment period for the draft CCP and EIS.

Determination (Check one below):

____Use is NOT Compatible

_X_ Use IS Compatible with the following stipulations

Stipulations Necessary to ensure compatibility:

- Only shed Bison fur found loose on the ground is allowed. Removing fur from hides, or collection of other parts of Bison (bones, horns, etc.) is prohibited.
- The collection of any other part from any other animal is prohibited.
- Digging of plants or their roots is prohibited.
- Materials authorized for collection will be for traditional or ceremonial purposes and may not be sold.
- Specific collection areas will be identified on a map.

Justification for compatibility determination:

This use will have limited and localized impacts when conducted within the stipulations above. Administration of the use will require a minimal increase in staff resources. This use will not diminish the primary purposes of the refuge, or the conservation of other migratory birds and wildlife because the use is on a small scale and localized.

This use will meet the mission of the National Wildlife Refuge System by providing resources for the benefit of the American public while conserving fish, wildlife and plant resources on these lands.

Mandatory 10 year reevaluation date: 2029

D.8 Description of Use: Research and Monitoring

The NBR receives numerous requests each year to conduct research, scientific collections and surveys on refuge lands. Priority is given to studies that contribute to the enhancement, protection, preservation, and management of the refuge's native plant community, fish and wildlife populations, and their habitats. Studies that provide practical management data or can be used to advance the body of knowledge within scientific communities are also considered. Research conducted on the refuge must conform to Service guidelines and applicants who are not employees of the USFWS must submit an application on Service form 1383 detailing the following:

- objectives of the study
- justification for the study
- detailed method and schedule
- potential effects on wildlife and habitat including short- and long-term disturbance, injury, or mortality
- description of measures the researcher will take to reduce disturbances or effects
- staff required and their qualifications and experience
- status of necessary permits, such as scientific collection permits and endangered species permits
- costs to the Service, including staff time requested, if any
- anticipated progress reports and end products, such as reports or publications

The Service's Research and Management Studies (4 RM 6) and Appropriate Uses (603 FW1.10D(4)) policies indicate priority for scientific investigatory studies that contribute to the enhancement, protection, use, preservation and management of native wildlife populations and their habitats in their natural diversity. Projects that contribute to refuge-specific needs for resource and/or management goals and objectives will be given a higher priority over other requests.

Refuge staff will review research proposals case by case and issue special use permits if approved. Criteria for evaluation will include, but will not be limited to, the following:

- Research that would contribute to specific refuge management issues will be given higher priority over other requests.
- Research that would conflict with other ongoing research, monitoring programs, or management programs will not be approved.
- Research that would cause undue disturbance or would be intrusive will likely not be approved. The degree and type of disturbance will be carefully weighed when evaluating a research request.
- Proposals will be evaluated to decide if any effort was made to decrease disturbance through study design, including adjusting the location, timing, and number of permittees, study methods, and the number of study sites.

- The length of the project will be considered, and agreed on, before approval.
- Research proposals involving threatened and endangered species will require concurrence and Section 7 Endangered Species Act review before approval.

Availability of Resources:

Current resources will be adequate to administer research and monitoring programs on a limited basis. A refuge biologist will be necessary to administer large and long-term projects, which generally require more in-depth evaluation of applications, management of permits, and oversight of research projects. The biologist will identify research and monitoring needs and work with our other staff, universities, and scientists to develop studies that will help the refuge and address the goals and objectives in this CCP.

Anticipated Impacts of the Use:

Some degree of disturbance is expected with all research activities because researchers may use our roads or enter areas that are closed to the public. In addition, some research may require the collection of samples or the handling of wildlife. However, research studies will be expected to minimally affect wildlife and habitats because special use permits will include conditions on their effects.

Public Review and Comment:

This compatibility determination was prepared concurrently with the draft CCP and EIS for the refuge. Public review and comment was solicited concurrently with the public review and comment period for the draft CCP and EIS.

Determination (Check one below):

____ Use is NOT Compatible

_X___ Use IS Compatible with the following stipulations

Stipulations Necessary to ensure compatibility:

Extremely sensitive wildlife habitats and species will be sufficiently protected from disturbance by limiting research activities in these areas. All refuge rules and regulations will be followed unless otherwise exempted by our refuge management. Projects will be reviewed annually.

Our refuge staff will use the above criteria for evaluating and determining whether to approve a proposed study. If research methods were found to have potential effects on habitat or wildlife, it must be shown that the research is necessary for the conservation management of resources on the refuge. Measures to decrease potential effects will need to be developed and included as part of the study design; these measures will be conditions on the special use permit.

Our refuge staff will watch research activities for compliance with conditions of the special use permit. At any time, staff may accompany the researchers to look for potential effects. They may decide that research that was approved for special use permits before is terminated because of observed effects. Our refuge manager will also have the ability to cancel a special use permit if the researcher was out of compliance or for wildlife and habitat protection.

Justification for compatibility determination:

Potential effects of research activities on refuge resources will be decreased through restrictions included as part of the study design, and research activities will be checked by our refuge staff. Results of research projects will contribute to the understanding, enhancement, protection, preservation, and management of the refuge's wildlife populations and their habitats.

Mandatory 10 year reevaluation date: 2029

D.9 Description of Use: Horseback riding/Saddle Club Trail Ride

Allow user groups to conduct a horseback ride on the National Bison Range under an approved Special Use Permit. Although horseback riding is not a priority public use as defined by the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act), it is supportive of wildlife-dependent recreational uses, including wildlife observation and photography.

Areas for the horseback ride on the National Bison Range will be determined and identified by maps and clear guidelines at the time a permit is issued authorizing the horseback ride. The permitted trail ride area could vary by year and season.

Working with the manager, user groups will be informed of the date and time for the ride when a permit is issued. The specific details as to the restrictions governing the ride will be outlined by the permit and within refuge specific regulations and general conditions to ensure that the activity is compatible with the refuge's mission and purpose. Any access to closed areas on the refuge will be determined at the time the permit is issued.

The tradition of an annual saddle club ride on the National Bison Range has been popular with the public for many years and although horseback riding is not a wildlife-dependent recreational use, it supports greater opportunity for wildlife observation and wildlife photography. It also

fosters and appreciation of the refuge and its resources with the public.

Availability of Resources:

National Wildlife Refuges are typically opened for wildlife-dependent recreation. As a result, roads, parking lots, signs and other facilities as well as staff to enforce regulations and maintain these facilities have been provided by the Service. These facilities will be maintained to meet the needs of the recreating public and will be used incidentally by those user groups who are conducting the horseback ride. The special use permit will include conditions for the ride so that it will not require a significant increase in additional maintenance or enforcement staff expenditures. The Service will not have to provide special equipment.

Based on a review of the refuge budget allocated for recreational use management, there is adequate funding to ensure compatibility and to administer and manage this recreational use.

Anticipated Impacts of the Use:

An annual horseback ride is not expected to significantly damage wildlife habitat, or jeopardize wildlife survival. Horses can impact soft habitats with their hooves, cause damage to trees and other vegetation if tied to them, and invasive species of plants may be introduced in areas from seeds deposited from fecal matter or from hay and other feeds transported into the areas. Presence of horses in the refuge can also result in potential conflicts with other visitors and disturbance to wildlife, including bison, other ungulates and ground-nesting birds. These potential impacts will be avoided or minimized by strict adherence to the stipulations in the special use permit. The refuge staff believes that with the proper management, horseback riding will not result in any short or long-term impacts that will adversely affect the purposes of the refuge or the mission of the Refuge System. In the long term, allowing horseback riding will enhance visitor opportunities to participate in wildlife-dependent recreational uses on refuge lands, particularly wildlife observation, and wildlife photography.

Public Review and Comment:

This compatibility determination was prepared concurrently with the draft CCP and EIS for the refuge. Public review and comment was solicited concurrently with the public review and comment period for the draft CCP and EIS.

Determination (Check one below):

____Use is NOT Compatible

_X_ Use IS Compatible with the following stipulations

Stipulations Necessary to ensure compatibility:

Sensitive wildlife habitats and species will be protected from disturbance and other impacts by limiting horseback riding in these areas. All refuge rules and regulations will be followed unless otherwise exempted by the refuge manager. Measures to decrease potential effects will need to be developed as conditions on the special use permit.

Justification for compatibility determination:

While horseback riding is not a priority public use as defined by the Improvement Act, it supports other priority wildlife-dependent recreational uses such as wildlife observation and photography. It is anticipated that wildlife will find sufficient food resources and resting places such that the wildlife's abundance and use of the refuge will not be lessened from allowing horseback riding under the prescribed conditions. Thus, under these conditions, the use does not materially interfere with or detract from the mission of the Refuge System, diminish the purposes for which the refuge was established, pose significant adverse effects on refuge resources, or cause any undue administrative burden.

This activity will not conflict with any of the other priority public uses or adversely impact biological resources. Therefore, through the compatibility determination process, the refuge staff has determined that horseback riding on the refuge, in accordance with the stipulations provided above, is a compatible use that will not materially interfere with or detract from the fulfillment of the Refuge System mission or the purposes of the refuge.

Mandatory 10 year reevaluation date: 2029

D.10 Description of Use: Commercial Filming, Audio Recording and Still Photography

Commercial filming refers to the film, electronic, magnetic, digital, or other recording of a moving image by a person, business or other entity for a market audience with the intent of generating income. Examples include but are not limited to feature film videography, television broadcasts, documentaries, videos created for and distributed via the internet, or other similar projects. Commercial filming activities may include the advertisement of a product or service, or the use of actors, models, sets, or props.

Audio recording activities will require a special use permit only if the activity takes place in a closed area, involves more than handheld equipment, and/or requires agency oversight.

Still photography only requires a permit if it uses models, sets, or props, takes place in areas closed to the public, or requires monitoring by agency staff to minimize resource damage or visitor conflict.

News gathering is not considered a commercial activity.

Refuge staff will review requests for commercial filming, audio recordings and still photography and issue a special use permit if the request is approved. Each request is evaluated on an individual basis, using several DOI, USFWS, and National Wildlife Refuge System policies. The regulation governing commercial filming and still photography is found at 43 CFR part 5 subpart A. New definitions are found at 43 CFR 5.12, including definitions for commercial filming, models, news gathering activities, set and props, and still photography. Permittees will be assigned to specific areas and date/times on the refuge where the activity may be conducted. Any access to closed areas on the refuge will be determined at the time the permit is issued.

The National Bison Range provides tremendous opportunities for commercial filming and photography of wildlife and scenery. Although commercial filming, audio recordings and still photography are not wildlife-dependent recreational uses, these activities can be a means to increase public appreciation and understanding of wildlife or natural habitats, enhance public knowledge, appreciation, and understanding of the Refuge System, or facilitate outreach and education goals of the refuge.

Availability of Resources:

The commercial filming, audio recording, and still photography uses are administered with current resources. Administrative costs for review of applications, issuance of special use permits, staff time to conduct compliance checks, replacement of any damage to refuge property, operational costs of government equipment or any other direct costs may be offset by a fee system designated for the agencies within the DOI.

Anticipated Impacts of the Use:

Wildlife filmmakers and photographers tend to create the greatest disturbance of all wildlife observers. While observers frequently stop to view wildlife, photographers are more likely to approach the animals. Even a slow approach by photographers tends to have behavioral consequences to wildlife. Photographers often remain close to wildlife for extended periods in an attempt to habituate the subject to their presence. Furthermore, photographers with low-power lenses tend to get much closer to their subjects. This usually results in increased disturbance to wildlife as well as habitat including the trampling of plants. Handling of animals and disturbing vegetation (such as cutting plants and removing flowers) or cultural artifacts is prohibited on Service lands.

Issuance of special use permits with strict guidelines and follow-up by refuge complex staff for compliance help to reduce or avoid these effects. Permittees who do not follow the stipulations of their special use permits could have their permits revoked, and further applications for filming or photographing on refuge complex lands would be denied.

Public Review and Comment:

This compatibility determination was prepared concurrently with the draft CCP and EIS for the refuge. Public review and comment was solicited concurrently with the public review and comment period for the draft CCP and EIS.

Determination (Check one below):

____Use is NOT Compatible

_X___Use IS Compatible with the following stipulations

Stipulations Necessary to ensure compatibility:

Commercial filming or still photography must (1) show a means to extend public appreciation and understanding of wildlife or natural habitats, (2) enhance education, appreciation, and understanding of the Refuge System, or (3) facilitate outreach and education goals of the refuge complex. Failure to show any of these criteria will result in a special use permit being denied.

All commercial filming requires a special use permit that would (1) describe conditions that protect the refuge complex's values, purposes, resources, and public health and safety, and (2) prevent unreasonable disruption of the public's use and enjoyment of the refuge complex. Such conditions may be, but are not limited to: specifying road conditions when access would not be allowed, establishing time limitations, and identifying routes of access. These conditions are identified to prevent excessive disturbance to wildlife, damage to habitat or refuge complex infrastructure, or conflicts with other visitor services or management activities.

The special use permit stipulates that imagery produced on refuge lands will be made available for use in environmental education and interpretation, outreach, internal documents, or other suitable uses. In addition, any commercial products must include proper credits to the refuge, the Refuge System, and the Service.

Audio recording activities will require a special use permit only if the activity takes place in a closed area, involves more than handheld equipment, and/or requires agency oversight.

Still photography only requires a permit if it uses models, sets, or props, takes place in areas closed to the public, or requires monitoring by agency staff to minimize resource damage or visitor conflict.

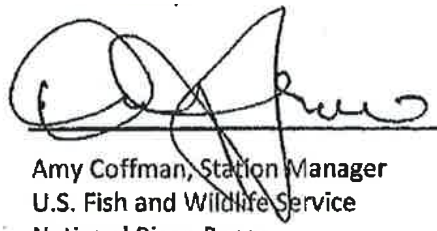
To reduce the impact on Service lands and resources, the refuge complex staff will make sure that all commercial filmmakers and commercial still photographers (regardless of whether a special use permit is issued) comply with policies, rules, and regulations. The staff will watch and assess the activities of all filmmakers, audio recorders, and still photographers.

Justification for compatibility determination:

Commercial filming, audio recording, and still photography are economic uses that must contribute to the achievement of the refuge complex purposes, mission of the National Wildlife Refuge System, or the mission of the Service. Providing opportunities for these uses should result in an increased public awareness of the refuge's ecological importance as well as advancing the public's knowledge and support for the Refuge System and the Service. The stipulations outlined above and conditions imposed in the special use permits issued to commercial filmmakers, audio recorders, and still photographers would make sure that these wildlife-dependent activities occur with minimal adverse effects to resources or visitors.

Mandatory 10 year reevaluation date: 2029

Submitted by:



8/19/19

Amy Coffman, Station Manager
U.S. Fish and Wildlife Service
National Bison Range
Moiese, Montana

Date

And

8/19/19

Benjamin Gilles, Project Leader
U.S. Fish and Wildlife Service
Western Montana Complex
Great Falls, Montana

Date

Reviewed by:

Lisa Talcott 8/19/19

Lisa Talcott, Refuge Supervisor
U.S. Fish and Wildlife Service
National Wildlife Refuge System
Lakewood, Colorado

Date

Approved by:

8/19/19

Will Meeks, Assistant Regional Director
U.S. Fish and Wildlife Service
National Wildlife Refuge System
Lakewood, Colorado

Date

Appendix E—Bison Donation Transfer Protocol

Background on FWS Approach to Bison Donations from Refuge System Lands

Since the late 19th century, the Department of the Interior (DOI) has served as the primary national conservation steward of North American plains bison (*Bison bison bison*). At that time, the species –whose population was once estimated at upwards of 40 million—neared extinction. However, through the efforts of private individuals and organizations, American Indian Tribes, States and the U.S. Government, the species was saved from extinction, including at places like Yellowstone National Park, where the last wild, free-roaming bison herd in the United States was protected. Over the course of the 20th century, DOI's bison management focused on stabilizing the bison population and protecting and promoting its remaining genetic diversity. Overall this goal has been successful. DOI lands now support 17 bison herds in 12 states, whose total population accounts for one third of all bison managed for conservation purposes in North America. However, our conservation efforts on behalf of bison are not complete. The U.S. Fish and Wildlife Service (USFWS) has been a significant contributor to bison conservation and its contributions remain a vital component of continental bison conservation. Not only has a Bison Conservation Initiative been established for DOI, bison conservation is a high priority for the public and many new bison conservation partners are seeking to participate in the re-establishment of conservation-oriented bison herds (DOI 2008).

The mission of the USFWS is to work with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. Conservation of bison has been at the heart of the USFWS refuge system from the very early days of refuges. In 1905, William T. Hornaday and others organized the American Bison Society and on October 11, 1907, 15 bison from the New York Zoological Park were shipped by rail to the Wichita National Forest and Game Preserve in Oklahoma (now the Wichita Mountains NWR). Also, President Theodore Roosevelt established the National Bison Range (NBR) on May 23, 1908 when he signed legislation authorizing funds to purchase suitable land for the conservation of bison. The original herd of bison were released in 1909 were also donated by American Bison Society to the refuge. Approximately 2500 bison range over 100,000 acres on 6 refuges currently. Wichita Mountains NWR remains the largest herd on refuge lands.

But while the species is no longer threatened by extinction, in most cases bison managed on DOI lands play only a limited ecological role on the landscape. Fenced herds, which constitute the majority of DOI, including USFWS bison holdings, face limitations for scaling up towards the long-term conservation of the full array of bison ecological processes. Recognizing these limitations, DOI chartered the Bison Conservation Initiative in 2008 which set the goal of restoring bison herds to their ecological and cultural role on appropriate landscapes within the species' historical range. The Bison Conservation Initiative aimed to achieve improved conservation management of the species by strengthening existing and building new partnerships. To achieve ecological restoration of bison across large landscapes, we cannot rely solely on DOI lands. Instead, we need to build partnerships to weave together landscapes large enough to cultivate the full interplay between bison and the surrounding ecology. As identified in the DOI Bison Conservation Initiative, bureaus are to utilize prevailing authorities to plan and implement collaborative bison conservation and to ensure involvement by Tribal, state, and local governments and the public; and adhere to all prevailing and applicable legal and policy mandates. The Bison Conservation Initiative recognizes the broad sweep of conservation partners specifically: "Any bison conservation initiative will only be realized by working integrally with states, which have management responsibility for most of the bison within their boundaries; with agricultural interests, both landowners and those with public land leases; with Native Americans, whose culture in many instances is tied to bison; with conservation groups dedicated to bison and other wildlife conservation; with the Governments of Canada and Mexico and with other interested parties."

The DOI Bison Conservation Initiative established specific goals, including:

- The Working Group will actively seek to coordinate opportunities to increase existing DOI herds to 1,000 or more bison, or establish new herds or metapopulations that can reach that size, without impacts from non-native diseases and with little or no cattle allele introgression.

- The working group will actively consult with BIA and Tribal partners to determine the best way to coordinate and assist with Tribal bison initiatives.

USFWS approaches bison conservation planning and management on all USFWS lands, except the National Elk Refuge (due to endemic brucellosis), according to a FWS metapopulation with primary emphasis on conservation genetics and health management. Within the metapopulation, comprising 6 refuges in 6 states, bison can be relocated among the participating USFWS refuges as needed, and the combined number of animals is sufficient to maintain the greatest level of genetic diversity across all herds while managing them as a closed population—one that is generally closed to outside animal introductions. However, bison ecological carrying capacity on refuge lands is limited and surplus animals are produced annually. To maintain the ecological integrity of refuge lands, bison in excess of the ecological carrying capacity must be transferred to other conservation partners.

To achieve these important bison conservation goals of establishing new herds of 1,000 or more bison as part of the metapopulation, bison conservation on non-refuge lands must be a priority for National Wildlife Refuge System (NWRS) bison. USFWS has established a system for contributing NWRS bison to other conservation partners. It is imperative for bison removed from NWRS lands be utilized for conservation purposes (to establish new herds or supplement other conservation herds) and not simply disposed. Among the conservation partners to be considered as recipients are other federal agencies (to assist with DOI-wide metapopulation goals), federally recognized Tribes, states, local governments, etc. It's important for bison recipients to document their conservation goals to receive these bison for conservation purposes. Tribes can be considered for other uses as well, but conservation is a priority. USFWS has already established partnerships with these entities, including Tribes to receive bison from NWRS lands to establish new or enhance existing conservation herds. We recognize that some Tribal requests will originate from individual Tribes and/or the InterTribal Buffalo Council (ITBC). DOI bureaus work closely with the ITBC, an officially recognized Tribal organization which serves to coordinate bison restoration among 59 member Tribes in 19 states. ITBC maintains existing agreements with multiple DOI units to receive and redistribute bison to member Tribes. However, not all Tribes are members of ITBC and individual Tribal requests must also be considered. Frequently, requests for NWRS bison from ITBC exceed the numbers available for relocation.

B. AUTHORITIES

- National Wildlife Refuge System Administration Act (16 USC §§ 668dd and 668ee; as amended)
- American Indian Religious Freedom Act (Public Law 95-341)
- Indian Self-Determination and Education Assistance Act (P.L. 93-638, as amended)
- Native American Policy of the U.S. Fish and Wildlife Service (510 FW 1)
- Fenced Animal Management policy (701 FW 8.11)
- Collections, Donations, and Disposals policy (701 FW 5)
- Surplus Range Animals (50 CFR 30.1)
- Disposition of Surplus Range Animals (50 CFR 30.2)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
National Wildlife Refuge System
Regions 2, 3, and 6

July 11, 2018

Memorandum

To: Refuge Managers

From: NWRS Regional Chief, Region 2
NWRS Regional Chief, Region 3
NWRS Regional Chief, Region 6

Subject: Bison Management

The National Wildlife Refuge System (NWRS) has contributed significantly to bison conservation over the past century and bison now thrive on several units of the NWRS. Healthy bison populations produce more offspring each year than available habitat can support, and a variety of methods have been used by the NWRS over the years to manage bison populations System-wide. With this memorandum, we are providing guidance for the consistent management of surplus bison throughout the Refuge System.

The 2008 Department of the Interior (DOI) Bison Conservation Initiative, followed by the 2014 DOI Bison "Looking Forward" Report, recognized our historic success and provided guidance for developing innovative partnerships with conservation organizations, tribes and intertribal organizations. The attached Bison Donations Transfer Protocol (Protocol) shall be provided to all parties interested in receiving donated surplus NWRS bison, including proactive outreach to tribes and intertribal organizations. Donation requests must be received by the Wildlife Health office (WHo) bison coordinator by August 1 of each year, per 701 FW8.

The Bison Donations Request Review Team (Review Team), facilitated by the WHo and comprised of Refuge Managers from each of the bison Refuges, will review all donation requests and develop a prioritized list based on the authorities outlined in the Protocol. Recommendations for donation requests will be made by the Review Team, through the Refuge Supervisor, to the Regional NWRS Chief, respectively.

From this point forward, Refuge Managers will work towards donating 100 percent of the surplus bison on Refuge System lands to conservation partners, including other DOI units, states, tribes or intertribal organizations. In cases where there is not enough interest in bison donations from bison conservation organizations, tribes or intertribal organizations, Refuge Managers will use an open, competitive, public bid process for the remaining surplus bison. Recognizing this guidance may change what has historically occurred at a refuge, the Regional NWRS Chief may phase the implementation of this guidance at their discretion.

If you have any questions, contact your Regional NWRS Chief.

U.S. Department of the Interior

Fish and Wildlife Service

Regions 2, 3, and 6

BISON DONATIONS TRANSFER PROTOCOL

A. PURPOSE

This Protocol describes the process for the donation of the available surplus bison from the U.S. Fish and Wildlife Service (Service) to eligible organizations, tribes or intertribal organizations as outlined in 50 CFR 30.1, 701 FW 5 and 701 FW 8 of the U.S. Fish and Wildlife Service policy. Surplus bison are offspring that exceed the ecological carrying capacity of the Service bison metapopulation. The primary purposes of donating these bison are to support conservation of the species and to assist in the restoration of self-sustaining bison herds on conservation partner lands, including tribal lands.

In 2008 the U.S. Department of the Interior (DOI) published the Bison Conservation Initiative, recognizing bison as a wildlife species in need of conservation. Consistent with this Initiative, the U.S. Fish and Wildlife Service's policy identifies the cultural, scientific and aesthetic values of bison as nationally and/or historically significant animals. The DOI Bison Conservation

Initiative also acknowledges the ecological and cultural role of bison on the American landscape.

B. AUTHORITIES

- National Wildlife Refuge System Administration Act (16 U.S.C. §§ 668dd and 668ee; as amended)
- American Indian Religious Freedom Act (Public Law 95-341)
- Indian Self-Determination and Education Assistance Act (P.L. 93-638, as amended)
- Native American Policy of the U.S. Fish and Wildlife Service (510 FW 1)
- Fenced Animal Management policy (701 FW 8.11)
- Collections, Donations, and Disposals policy (701 FW 5)
- Surplus Range Animals (50 CFR 30.1)
- Disposition of Surplus Range Animals (50 CFR 30.2)

C. STATEMENT OF MUTUAL INTEREST

The 2010 Bison Conservation Genetics Workshop: Report and Recommendations (2010 Report) identifies DOI bison herds as a valuable source with which to start new conservation herds proposed by other federal, state/provincial, or tribal governments. The 2010 Report also outlines the basic tenets of genetic management for DOI bison conservation herds, with emphasis on increasing herd sizes and maintaining large populations, including the management of satellite herds, as part of metapopulations to achieve genetic diversity goals.

Landscape scale opportunities for bison conservation are currently limited, resulting in the need for the periodic reduction in the size of Service bison herds to remain within the ecological carrying capacity of each refuge. Selection of bison available for donation is coordinated acrosall refuges to support maximum conservation of genetic diversity, both within and across Service bison herds, and donation requests will be prioritized for bison conservation purposes, consistent with the DOI meta-population goals. The DOI Bison Report: Looking Forward (2014 Report) acknowledges the challenges to achieving bison restoration on DOI lands and emphasizes the importance of partnerships for achieving bison conservation and ecological restoration. Both the 2010 and 2014 Reports also identify the potential for bison herds maintained by Indian Tribes for cultural and nutritional purposes to contribute to species conservation, and the Servicerecognizes that such bison may also support tribal cultural rights and practices.

D. PROVIDED BY THE SERVICE UNDER THIS PROTOCOL:

The Service will estimate the total number of bison that exceed ecological carrying capacity after achieving Service conservation genetics goals, using the best population information available including the number of calves born and the number of mortalities that occurred after the most recent bison capture operation.

We will randomly select a representative percentage of apparently healthy bison for donation from the total group of surplus offspring exceeding the Service ecological carrying capacity. Variation may occur in the age, sex or in the total number of bison actually available for donation, depending on the difference between actual population demographics and estimates made prior to the bison capture operation.

We will provide the sex, age, and any identification information such as microchip number (also called "PIT tags") and/or eartag number at the time of bison pickup from the refuge. We will ensure humane care of donated bison, including feed and water, until the date of pickup.

The Service will arrange for and provide Certificates of Veterinary Inspection as required for interstate transport by State animal health authorities. The Service does not routinely vaccinate or provide therapeutic treatment for bison, and veterinary testing may vary between refuges and across years. The Service makes no certification as to the suitability of any animal for human consumption.

E. THE _____UNDERSTANDS THAT:

Requesting Organization, Tribe or Intertribal Organization

Humane treatment of bison is essential, including handling, transport and general care of all bison received, regardless of the specific purpose for which they are used. Any questions regarding handling, transport or care of bison may be discussed with the Fish and Wildlife Service Wildlife Health office or the Project Leader prior to receiving them.

The Service must be informed of the destination State for donated bison no less than 30 days prior to scheduled bison capture operation to allow the Service time to meet interstate transport regulatory testing requirements. Additional veterinary testing or vaccinations desired by recipient, above and beyond that performed routinely by the refuge, is the responsibility of the recipient after donation.

Donated bison should be used for the purposes specified in this Protocol. Donation recipients found to be in violation of this Protocol will be ineligible for future donations.

Bison should be claimed and removed from the refuge according to guidelines and timeframes issued by the Refuge Manager. The Service does not provide transportation, and the donation recipient arranges for and assumes all costs for transportation. Unclaimed bison will be donated to other organizations, sold through a public auction or returned to the refuge herd.

Transport equipment must be thoroughly cleaned prior to entering the refuge to reduce the risk of introducing invasive species or infectious disease. Vehicles or trailers with unclean beds will not be permitted on the refuge.

F. IT IS MUTUALLY UNDERSTOOD BY BOTH PARTIES THAT:

Bison are wild animals. Handling and transport of bison can be dangerous regardless of the age or sex of the animal. Ensuring human safety is essential.

Animal welfare is a high priority. Handling and transport of bison for any purpose will be done in a manner that results in the lowest stress possible for the bison. Transport equipment must be sturdy, well ventilated and sufficiently enclosed to prevent bison from seeing outside the trailer during transport. A dark environment with minimal outside visual stimuli reduces stress. Bison must be transported in segregated groups of similar size, age, sex and behavior. Bison exhibiting aggressive or dominant behavior must be transported separately from other bison.

A conservation herd is defined for the purposes of this Protocol, consistent with that provided by

701 FW 5.3B, as a free-ranging (freely occupying habitat adequate in size and quality to provide for all biological needs and allowed to reproduce freely) population. A herd that routinely requires supplemental forage (hay or other feed not occurring naturally within the habitat) does not meet the conservation herd

criteria. Recipients of bison donated for conservation purposes will provide documentation that their project or program meets the definition of a conservation herd as defined in this Protocol.

Non-governmental conservation organizations requesting donated bison to establish or augment a herd must demonstrate charitable status and contribution to the public resource.

Educational and research organizations requesting donated bison must demonstrate the educational contribution of the donation to increasing public knowledge and appreciation of the wildlife values of bison.

No guarantee of pregnancy or reproductive performance is given or implied. Female bison have been exposed to bulls and yearling pregnancies can occasionally occur, but female bison do not generally breed until two years of age. Yearlings are approximately 16 months old but may vary several months in actual age and size.

The Service has a standardized general health monitoring program for bison. Any questions regarding herd health status can be answered by the Wildlife Health office at 406-587-2169.

Bison requested for donation will be used to/for (requestor enters the number of bison for each option listed or percentage of total donation):

or %

__ Establish a free-ranging conservation herd

__ Supplement or augment a free-ranging conservation herd

__ Establish a self-sustaining herd for non-conservation purposes

__ Supplement or augment a self-sustaining herd for non-conservation purposes

__ Public display, educational purposes and/or research

__ Tribal spiritual or cultural purposes

__ Other:

G. SIGNATURES

Both parties have read and understand this Protocol for donation of Service bison.

Signature at donation request Date # of bison requested

Organization or Tribe official

Signature at donation approval Date # of bison approved

Assistant Regional Director, Region

Signature at bison pickup Date # of bison donated

Refuge official

Appendix F—Objectives, Strategies and Rationales for All Alternatives

A summary of each alternative was provided in Chapter 2. This appendix describes the specific objectives and strategies for each of the alternatives, as well as supporting rationales. Objectives are concise statements of what needs to be achieved; how much, when, and where it would be achieved; and who would be responsible. To the extent possible, each objective has been developed to be specific, measurable, achievable, results oriented, and time fixed (USFWS 2000). Timeframes for the objectives are based on the assumption that implementation will begin following the record of decision for the final Comprehensive Conservation Plan (CCP) and will occur over 15 years. Objectives provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating success in meeting the goals. Strategies are specific tools or techniques that could be used to carry out the objectives. An explanation, or rationale, for each objective describes how and why the objectives' actions are important to achieving the associated goal in conjunction with the alternative's emphasis. Where an objective or strategy is similar or the same as for another alternative, this has been noted and for conciseness it is generally not repeated.

Habitat Management Goal: Conserve, restore, and promote biological integrity in functional and sustainable ecologically diverse habitats of the inter-montane ecosystem of western Montana.

Objectives for Grasslands - Alternative A

Grassland 1A

By 2021, seek funding to contract a range condition survey to assess condition and utilization levels available to update forage allocations for large ungulate use of 14,000 acres of grasslands on the refuge.

Strategies

- Include updated vegetation and soil map
- Use existing protocol from 2005 and 2010 assessments to ensure consistent methods
- Use the final report to inform future habitat management plans and other step-down plans

Rationale

Rangelands are defined as "land on which the indigenous vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs and is managed as a natural ecosystem" (Pellant et al 2005). Throughout this document, the term rangelands is used interchangeably with grasslands and bunchgrass prairie. The survey style recommended in this alternative has been used historically to determine the "condition" of rangelands on the National Bison Range (NBR) by measuring vegetative yield with respect to soil types at specific sites that are representative of larger areas. These results are then compared with the vegetative potential of that site if climax vegetation was present and given a rating ranging from poor to excellent accordingly. Measurement of available forage is expressed in Animal Unit Months (AUM) and are calculated based on yield, a take-half/leave-half philosophy and estimated consumption. The NBR has conducted assessments approximately every 10-15 years, with the most recent being completed in 2005 and 2010 (CSKT 2005, Marlow et al 2014). This alternative will continue to use the Parker Three-Step Method (Parker 1950) for measuring range condition in between surveys.

Grassland 2A

Over the next 15 years, maintain 100% of those acres of native grasslands that are currently >75% native composition (good and/or excellent range condition).

Strategies

- Use prescribed fire when applicable
- Mechanically remove encroaching trees
- Manage large ungulate populations according to established targets (see Grassland Objective 1A)
- Implement Integrated Pest Management (IPM) strategies according to the best available science
- Continue to partner with the USFWS Mountain-Prairie Region Invasive Species Strike Team

to identify new invaders and conduct early detection and rapid response monitoring
- Limit grassland monitoring to alternate years Parker three-step surveys, observation and decadal range condition assessments

Rationale

This objective strives to maintain the highest quality grasslands currently on the refuge. Historically, refuge grasslands were dominated by cool-season perennial bunchgrass species (rough fescue, Idaho fescue, bluebunch wheatgrass), with strong components of perennial forbs and remnant low-growing shrubs. The most recent rangeland assessment for the refuge indicates that grassland communities have likely transitioned to an "altered" condition that is more likely to be dominated by Idaho fescue and have a higher percentage of non-native species (NRCS 2009).

Invasive species are a key threat to meeting this objective and under this alternative we will strive to keep invasive species at <25% using a combination of integrated management tools. (e.g. herbicide, mechanical treatment [pulling, cutting, etc.], and prescribed fire). Early detection and rapid response would be especially important as new pathways for invasion can be created in a changing climate. Change in water temperatures, changing environmental constraints, such as temperatures or precipitation, that no longer help to hold invasions in check or alterations in other processes like fire, nutrient flow, or flooding can lead to more invasion. In addition, the effectiveness of management tools may be affected by climatic changes such increased tolerance to certain herbicides with rising carbon dioxide levels or impacts to biological control agents as they adapt (USFWS 2003).

Although this objective does not seek to restore native grasslands to the reference community composition, it does seek to maintain native species as at least 75% of the total vegetative cover and maintain as much diversity as the reference community as possible (NRCS 2009, Marlow et al 2014). Grazing of native ungulates will also be managed to support the maintenance of the highest quality grasslands on the refuge. In order to measure success, the NBR staff will use ocular estimates, Parker three-step transects (complete all transects over a 3-year period), and major range condition surveys.

Grassland 3A

Over the next 15 years, enhance 4,000 acres of grasslands that have 25-74% cover of native vegetation (fair-good) to increase native vegetation cover by at least 10%.

Strategies

- Use all integrated pest management tools, including biological control, when effective or otherwise prioritize limited resources and herbicides on established species to vector pathways (riparian corridors, roads, parking lots) and small, satellite infestations
- Promote clean, dry, and inspect techniques for equipment
- Limit off-road driving for management activities
- Monitor native vegetation with ocular estimates, Parker three-step transects, andcontinued range condition surveys
- Work cooperatively with experts (e.g. county weed departments, extension agents, research scientists, land managers, etc.) in managing established species, getting up-to-date tactical advice on chemical efficacy, and implementing new trials

Rationale

Approximately one third of refuge grasslands are dominated by non-native species, but there is still at least 25% native plant cover (CSKT 2005, Marlow et al 2014). In these areas where non-native species have become established, complete eradication would be very expensive and unlikely to succeed. However, in these areas, the refuge will manage the grasslands to promote native species and contain and reduce non-natives. Developing an updated Integrated Pest Management plan in conjunction with partners will be key to prioritizing treatments, assessing all potential tools and identifying the treatment strategies most likely to succeed.

Grassland 4A

Over the next 15 years, on 2,000 acres of grasslands that are <25% native plants (poor condition), prevent the spread of highly invasive plants outside of this area.

Strategies

- Focus treatments on satellite populations and perimeters of infestations
- Use integrated pest management tools when feasible and identify long-term biocontrol options for containment and/or control
- Manage native ungulate populations according to population targets (see Wildlife Objectives), i.e. incorporate rest
- Monitor and assess informally

Rationale

The portion of refuge grasslands indicated in the 2014 habitat condition assessment as fair and poor correlate strongly with existing infestations of invasive grasses that threaten the integrity of this ecosystem (Marlow et al 2014). Under this alternative, the refuge would simply work to prevent additional spread and degradation of other refuge grasslands.

Grassland 1B

Same as Grassland Objective 1A.

Strategies

- Same as 1A, plus
- Survey public to distinguish important areas for a high-quality visitor experience
- Ensure that interpretive products interpret the grassland types of the refuge

Rationale

A range condition survey, similar to that in alternative A, would be conducted to assess forage availability for large grazing ungulates. In combination with a range survey, this alternative supports a visitor survey to answer questions including but not limited to: 1) how much does the public know about grasslands?, 2) where along the grassland section of tour road are most visitors pulling over?, 3) where along the grassland section of tour road are visitors seeing the most wildlife?, and 4) what type of interpretive materials do they prefer? The intent of this survey effort is to improve our visitor experience by 1) creating interpretive messages that speak to areas of interest and cover information gaps, 2) designing interpretive materials that are aesthetically pleasing and draw public attention, 3) placing those interpretive materials along the auto tour route in a way that will increase visitor knowledge without detracting from wildlife observation opportunities, and 4) identify areas where restoration of wildlife habitat may also improve visitors' experience.

Grassland 2B

Over the next 15 years, prioritize management on 100% of acres of native grassland identified as important to visitor's experience for >50% native composition consistent with reference bunchgrass communities.

Strategies

- Same as 2A, plus
- Prioritize invasives treatment in areas of high public visibility using all the tools available as defined by objective, site conditions, impacts, and feasibility
- Use prescribed fire to restore and sustain the original fire regime to the maximum extent possible
- Each wildfire will receive a management response. All wildfire ignitions determined to be human caused will be full suppression. Consider managing wildfires caused by natural sources for multiple objectives. When considering managing a wildfire for multiple objectives, evaluate the risks to firefighter and public safety, the circumstances under which a wildfire occurs including weather and fuel conditions, natural and cultural resource management objectives, values to be protected, and protection priorities.
- Conduct outreach to internal and external audiences to increase awareness and support invasive species prevention, early detection and rapid response
- Continue to partner with Lake County for chemical storage and late season invasive plant spraying along roads

Rationale

Same as 2A, plus in this alternative, management to maintain native vegetation as the dominant cover would be focused in the areas identified in Objective 1B as the highest priority or value to visitors. The target percentage of native cover is somewhat less than Alternative A because focusing on providing information and interpretative materials to the public will slightly reduce availability of funds for direct management, however offering areas of high value to the public can increase awareness and overall support for the mission of the NBR. Also, some areas along the auto tour route and those that are readily accessible to the public may include a higher percent of grasslands that are in an altered state, requiring extra resources and time to manage and improve, therefore allowing for less overall acres.

Grassland 3B

Over the next 15 years, prioritize preventing spread of invasive species into areas of high visitation to provide for quality wildlife observation and photography and provide natural areas for environmental education and interpretation.

Strategies

- Same as 3A, plus
- Develop interpretive and educational materials to inform the public about invasive species issues and the treatment efforts implemented by the refuge
- Provide opportunity for visitors to aid refuge staff in prevention and early detection efforts (e.g. vehicle wash station, boot brushes at trailheads, new invader handouts)
- Survey for and treat annually using integrated pest management tools, sites identified in Objective 1B
- Continue to partner with Lake County for chemical storage and invasive plant spraying

Rationale

This objective would place additional emphasis on prevention and treatment of invasive species, with assistance from the public and with an emphasis on areas that were identified in Grassland Objective 1B as priority and areas that may be at the highest

risk due to visitor use. Development of a more robust outreach program, to include curriculum specific to refuge issues, and interpretive materials that inform the public of invasive species management tactics and signage to increase public awareness would be supported under this alternative.

Grassland 4B

Over the next 15 years, on 2,000 acres of grasslands that are <25% native plants (poor condition) prevent the spread of highly invasive plants outside of this area and use these areas to educate the public about invasive species management.

Strategies

- Same as 4A, plus
- Provide additional interpretive materials and signs on invasive species management

Rationale

Same as 4A, plus these areas with high levels of invasive species provide an opportunity to communicate with the public about invasive species management.

Objectives for Grasslands—Alternative C

Grassland 1C

By 2021, conduct a robust rangeland health assessment to describe the current ecological status of vegetation and soils on 14,000 acres of bunchgrass prairie on the NBR and to better inform management regarding the matter of ecological carrying capacity.

Strategies

- Update assessment methods and monitoring protocols to conduct a more comprehensive assessment of overall rangeland health
- Work with USFWS biologists and other partners (e.g. NRCS, CSKT, universities) to develop and conduct wildlife-specific (e.g. birds, pollinators) assessments
- Investigate and apply for additional grants and funding opportunities
- Use the final report to inform future habitat management plans and other step-down plans
- Complete an Integrated Pest Management plan for the refuge in partnership with Tribes, counties, State and Federal agencies, and universities
- Develop new protocols for mapping and monitoring invasive species on refuge

Rationale

Rangelands are defined as "land on which the indigenous vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs and is managed as a natural ecosystem" (Pellant et al 2005). A rangeland health assessment is intended to comprehensively describe the current ecological status of grasslands. This assessment will include yield data from historical sites and utilization data specific to NBR wildlife with respect to the effects of variables including, but not limited to slope, aspect, plant species composition, wildlife species distribution patterns, and distance to water. This assessment will measure ecological carrying capacity based on an estimate of total herbivory (from grasshoppers to bison) on the NBR with consideration of the ecological needs of all priority species (e.g. bison, native birds, Threatened and Endangered (T&E), and/or species of concern). Another important component of a thorough rangeland evaluation is to document and provide options for management on how and where to focus resources (e.g. maintain intact habitats on X acres in Y unit, provide for trust species by developing novel ecosystems where departure from reference is greater than 60% or as a buffer along refuge boundaries, consult with experts to address climate change prior to implementing restoration efforts, etc.) The intent of this assessment is to conduct a robust analysis prior to development and implementation of the HMP. Our priority is to better inform habitat objectives in a manner that addresses issues such as species diversity, invasive species, soils, birds etc. If the best available science and current knowledge were to indicate a significant benefit to rangeland health by implementing yet a new system of grazing management (rotational or otherwise), we will adapt accordingly.

This alternative seeks to emphasize the importance of monitoring and data management in the maintenance of healthy ecosystems. The refuge will work cooperatively with partners and experts to develop methodology for monitoring grasslands annually that is achievable and supports continuing rangeland assessments every 15 years. Current methods (Parker 1950) are outdated and the refuge needs a protocol that can be used long term and is resilient to changes based on fluctuations in staff and resources. Careful consideration will be given to the fact that a change in monitoring methods impairs the ability to accurately track trends over time, and options for mitigating this will be included. We will also explore the possibility of including a citizen science component.

Grassland 2C

Over the next 15 years, increase the number of grassland acres that are >75% native composition (excellent range condition) by 15%.

Strategies

- Focus management where there is the highest chance of success (triage)
- Use prescribed fire to restore and sustain the original fire regime to the maximum extent

possible
- Each wildfire will receive a management response. All wildfire ignitions determined to be human caused will be full suppression. Consider managing wildfires caused by natural sources for multiple objectives. When considering managing a wildfire for multiple objectives, evaluate the risks to firefighter and public safety, the circumstances under which a wildfire occurs including weather and fuel conditions, natural and cultural resource management objectives, values to be protected, and protection priorities.
- Remove or girdle encroaching trees, leaving some stumps for pollinator nesting sites and snags for cavity-nesting birds and bats
- Minimize impacts to grassland pollinators and proactively conserve grassland pollinator habitats
- Prioritize prevention and early detection/ rapid response techniques for invasive species occurrences in this habitat type (e.g. restrict off-road driving for management activities; promote clean, dry, and inspect techniques for equipment)
- Continue to partner with Lake County for chemical storage and late-season invasive plant spraying along roads
- Increase communication and collaboration with partners (e.g. universities; NGOs; Tribal, state, and federal agencies)

Rationale

Under this objective, the refuge would strive to increase the acres of high-quality grasslands currently on the refuge. Based on the results from the rangeland assessment in Objective 1C, those grasslands with slight departure from the reference state would be managed to maintain this high-quality condition. In addition, areas with moderate departure would be managed to increase the overall refuge acreage in this category by 15%.

Grazing management, climate change, drought, and invasive species are some of the key challenges to achieving habitat objectives. Each of these topics will be addressed across all objectives to the extent integrated tools and best available science allows. For this objective, invasive species efforts will combine preventing and reducing spread with herbicide, mechanical, and cultural techniques. Herbivory will be monitored and population objectives for native ungulates will also be adjusted to support the maintenance of the highest quality grasslands on the refuge.

Under this alternative, the refuge will increase its efforts to work with partners to improve grasslands on a landscape scale. Doing so would also capitalize on habitat management expertise in order to improve range conditions for a diversity of species recognizing the importance of bison to NBR.

Grassland 3C

Over the next 15 years, prioritize management of grassland acres that are currently in fair to good (25-74% native) vegetative condition in areas that are primary habitat for priority species to reduce invasive species, using species and structural diversity (defined for the reference bunchgrass communities) as measures for success.

Strategies

- Investigate passive management tactics to minimize impacts from grazing in these areas and maintain internal fences to restrict or defer grazing to allow for periods of rest
- Work cooperatively with partners and experts implementing up-to-date, innovative practices for invasive species management and use all integrated pest management tools
- Use wildland fire in a manner that promotes heterogeneity and species diversity in this habitat class
- Promote clean, dry, and inspect techniques for equipment
- Limit off-road driving for management activities
- Use all integrated pest management tools, including biological control when effective, or otherwise prioritize limited resources and herbicides on established species to vector pathways (riparian corridors, roads, parking lots) and small, satellite infestations

Rationale

For grasslands in good condition, the highest priority for management would be those areas identified as highly used by priority species (e.g. bison, native birds, T&E, and/or species of concern) to assure maintenance of these grassland systems in areas of high wildlife use. This objective seeks to not only maintain or improve plant species' diversity on these acres but also implement management actions that will increase structural diversity across these acres (e.g. vegetation height and density, litter depth, etc).

Grassland 4C

Over the next 15 years, manage 15% of poor condition (<25% native) grassland acres with feasible restoration opportunities to create a novel ecosystem that will increase forage for bison and also provide grassland birds with vegetative structure.

Strategies

- Same as 4A, plus
- Seed and plant desirable species post invasive species treatment that are tolerant to grazing, resist invasions, provide palatable forage, and are non-invasive
- Consult with experts on ethnobotany and

traditional ecological knowledge to inform management

- Work with experts and partners to identify best management practices, successes, and failures and to monitor results

Rationale

The portion of refuge grasslands indicated in the 2014 habitat condition assessment as fair and poor correlate strongly with existing infestations of invasive grasses that threaten the integrity of this ecosystem (Marlow et al 2014). Efforts to renovate these will prioritize a halt to the spread of annual invasive grasses and focus on an integrated approach to construction of a novel ecosystem. This "novel" system could be one that is a substantial departure from the historic climax plant community but is improved to the point where native and/or non-invasive species provide some diversity, integrity, and resilience.

Objectives for Forest—Alternative A

Forest 1A

By 2021, complete an inventory to assess forest health, identify old growth ponderosa pine stands, and inform management how to prioritize treatments on 3,700 acres that will improve site conditions.

Strategies

- Conduct assessment in partnership with CSKT as part of Reserve Treaty Rights Lands Initiative
- Describe species composition, diameter at breast height, snag density, percent canopy cover, stand density, insect damage, disease, fire evidence, age structure, forest ecology, and fire history
- Determine what the pre-contact era forest condition was, establish what current ecological site and climatic conditions are, and use this to inform achievable restoration objectives and associated costs for the refuge
- Determine appropriate indices or thresholds to trigger management action (e.g. tree age, rate of Douglas fir in-growth)

Forest 2A

Over the next 3 years, treat 1,000 acres of forest to reduce density of second-growth Douglas fir and subsequent risk of stand-replacing wildfires in conjunction with information from Forest Objective 1A.

Strategies

- Update forest management objective with quantitative forest inventory information on forest health attributes from the Forestry Assessment
- Conduct prescribed fire/patch burning, active thinning, and slashing in coordination with the CSKT under the Reserved Treaty Rights Lands Initiative
- Partner with Tribal, State, Montana Department of Natural Resources and Conservation, U.S. Forest Service, and private organizations on forest management projects

Rationale (Forest 1A and 2A)

Western Montana forests composed of ponderosa pine were shaped by surface fires that swept through these forest stands at intervals of between 3 and 30 years (Arno 1976). Most of those fires were not hot enough to kill mature trees but they did thin out the forest understory. The result was open forest dominated by widely spaced old growth ponderosa pine with predominantly grass undergrowth (Vance and Luna 2017, Fisher and Bradley 1987, Pyne 1982). It was also common to find trees mostly in rocky areas and other locations where little ground fuel was present (Wakirnoto, as quoted in Second Growth Douglas Fir on the NBR. Miwa 1992).

Wildfires have been fully suppressed form many decades and prescribed fires have been used only sparingly. As a result, plant succession, fuel accumulations, structure and composition of vegetation, insect and disease populations, nutrient cycling, productivity, diversity, and habitats for wildlife are being affected. Longer fire intervals result in Douglas fir regeneration establishing as thickets of saplings and poles creating a fuel ladder that increases the chance of stand-replacement fire. This result can be seen currently on the refuge. Some stands of Douglas fir are infested with mistletoe and insects and several stands have a thick understory composed primarily of young trees commonly described as "dog-hair."

Currently, forest management on the refuge is guided by the Environmental Assessment for the Management of Mixed-Conifer Forests on the NBR (USFWS 2002). Completing a forest assessment will assist the refuge with updating the appropriate historical reference point for forest conditions, inventorying the current condition of forest stands and describing what might be achievable with management to improve the health of forest stands. The information from this study will also identify what forest indicators can serve as useful triggers or thresholds for management actions. As time and resources are limited for managing forests on the refuge, this assessment will also help the refuge prioritize forest stands for management treatment.

A variety of resource management tools would be used to treat forest stands and achieve desired future results. Low-intensity prescribed fire and mechanical fuel reduction operations would be used to reduce the number of trees and the fuel loading. In some cases, the preferred treatment would only be prescribed fire, in others, only mechanical means would be used, or the two treatments would be used in combination to achieve the desired results.

Scheduling the various units for treatment would depend on environmental and habitat conditions, potential impacts, and the availability of required staffing. All factors associated with prescribed fire would have to meet parameters indicated in a site-specific prescribed burn plan before a burn could be implemented. Currently, all wildfires are suppressed using the appropriate management response as outlined in the current Fire Management Plan. Mechanical equipment would not be used when weather conditions produce conditions that would increase the likelihood of increased soil disturbance.

Objectives for Forest—Alternative B

Forest 1B

By 2021, complete an inventory to assess forest health, identify old growth ponderosa pine stands, and inform management how to prioritize treatments on 3,700 acres in a way that will enhance visitor opportunities for quality wildlife observation, photography, environmental education and interpretation.

Strategies

- Same as 1A, plus
- Prioritize and actively manage areas that are accessible to visitors (along scenic tours, trails, etc.)
- Provide interpretive materials informing the public of treatments, tactics, and purposes
- Survey public to distinguish significant areas for a high-quality visitor experience

Forest 2B

To provide a more native forest ecosystem experience for the public; over the next 15 years, renovate 1,000 acres of forest retaining ponderosa pine overstory, reducing Douglas fir densities, and increasing understory plant diversity.

Strategies

- Same as 2A, plus
- Prioritize managing forest acres identified in objective 1B
- Restore and sustain the original fire regime to the maximum extent possible
- Wldfire will receive a management response. All wildfire ignitions determined to be human caused will be full suppression. Consider managing wildfires caused by natural sources for multiple objectives.

Rationale (Forest 1B and 2B)

Under this alternative, the forest assessment would include all of the information described under Alternative A, as well as determining which forest areas are most accessible to visitors and which forest wildlife species might be of greatest interest to the public. Possible considerations might include those forest areas visible from public roads, along trails, including unique and diverse forest stands that attract particular wildlife species or stands that provide an opportunity for education and interpretation of forest management. These additional factors would be included in the overall prioritization framework for forest management.

In this alternative, the Service would seek to renovate 1,000 acres of forest, rather than simply treat forest stands, as described under Alternative A. Through the forest assessment, we will identify what is feasible for renovation of forest stands, composition and ecosystem functions. We are using the term *renovation* rather than *restoration* because restoration often suggests a complete return to historic conditions, which is unlikely to be feasible. Renovation is used in this context to indicate improvements in forest stand health and resiliency, but not necessarily complete return to an entirely "natural," self-sustaining or historical condition.

Once a feasible renovation outcome has been defined, and the stands have been prioritized with consideration of public access and interest, a variety of resource management tools would be used to achieve desired future results. These would include the management tools described in Alternative A, as well as restoring and sustaining the original fire regime to the maximum extent possible.

As described under Alternative A, wildfires have been fully suppressed for many decades and prescribed fires have been used only sparingly. As a result, plant succession, fuel accumulations, structure and composition of vegetation, insect and disease populations, nutrient cycling, productivity, diversity, and habitats for wildlife are being affected. Under this alternative, each wildfire will still receive a management response. All wildfire ignitions determined to be human caused will be full suppression. However, we will consider managing wildfires caused by natural sources for multiple objectives. When considering managing a wildfire for multiple objectives, we will evaluate the risks to firefighter and public safety, the circumstances under which a wildfire occurs including weather and fuel conditions, natural and cultural resource management objectives, values to be protected, and protection priorities. We will revise the fire management plan, in cooperation with our partners to utilize wildland fires within NBR.

In addition to managing the trees and shrubs, in this alternative we would also increase efforts to treat invasive species and promote the diversity of native plants in the understory. Management activities intended to improve overall forest health and function would still be balanced with the habitat needs of priority wildlife species such as Lewis's woodpecker and other species of

conservation concern. For example, management prescriptions may include leaving snags or girdling trees for cavity-nesting birds and bats, where appropriate.

Objectives for Forest - Alternative C

Forest 1C

Same as Forest 1A.

Strategies

- Same as 1A, plus
- Identify primary factors for building resiliency and prioritize forest stands accordingly
- Manage at a larger scale, where appropriate

Forest 2C

Over the next 15 years, renovate 1,000 acres of forest retaining ponderosa pine overstory, reducing Douglas fir densities and increasing understory plant diversity

Strategies

- Same as 2A and 2B, plus
- Identify forest composition and acres that are important to priority wildlife species
- Consider what NBR forests can offer in terms of habitat that is different from surrounding forests
- Design and implement monitoring protocol

Rationale (Forest 1C and 2C)

Under this alternative, the forest assessment would include all of the information described under Alternative A, with an emphasis on those factors and management actions that increase resiliency in forest stands. Refuge forests would also be evaluated with consideration of the larger landscape. For example, forest stands with rare or unique qualities, as compared to similar sites off the refuge, may be a higher priority for management or a focus of special treatments. Similarly, identification of forest structures (composition, density, number of snags/stumps) that are most suitable to priority species (e.g. bison, birds, T&E species, and Montana species of concern) that may be underrepresented in surrounding forested areas should also be considered for prioritization.

In this alternative, the Service would focus treatment efforts on 1,000 acres of forests where benefits to the forest habitat and/or focal species can best be achieved. Once a feasible outcome has been defined in the assessment, and the stands have been prioritized, a variety of resource management tools, as described in Alternative B, would be used to achieve desired future results.

We would also seek to continue cooperation with our partners in management activities, especially prescribed fire. A monitoring protocol to track forest health and management actions would also be designed and implemented under Alternative C.

Objectives for Wetland and Riparian—Alternative A

Wetland and Riparian 1A

Over the next 15 years, maintain 500 acres of riparian and wetland habitats in existing condition.

Strategies

- Prioritize invasive plant management in riparian and wetland areas
- Use an integrated pest management approach with tools such as herbicide, prescribed fire, biocontrol, and mechanical (pulling, cutting, etc.)

Rationale

Riparian and wetland habitats on the refuge are extremely important for all wildlife, especially in providing protective cover and water. The Mission Creek riparian area is also important for providing excellent wildlife viewing opportunities for the public. Riparian and wetland habitats are also areas where new invasive plants frequently enter the refuge and/or become established. Treating invasive species in the riparian and wetland areas using an integrated pest management approach with tools such as herbicide, prescribed fire, biocontrol, and mechanical (pulling, cutting, etc.) is a high priority for refuge management.

Objectives for Wetland and Riparian–Alternative B

Wetland and Riparian 1B

Over the next 15 years, reduce juniper density by 50% on 50 acres along Mission creek to enhance opportunities for wildlife viewing and photography and maintain or improve existing conditions on remaining 450 acres of riparian and wetland habitat.

Strategies

- Same as 1A, plus manage acreage of juniper encroachment by mechanical removal and wildland fire in partnership with CSKT as part of Reserved Treaty Rights Lands Initiative

Rationale

Same as 1A, plus juniper dominate this stretch due to alterations in seasonal flooding along its banks and a lack of fire. There is concern that this is having a negative impact on overall plant and wildlife diversity.

Objectives for Wetland and Riparian–Alternative C

Wetland and Riparian 1C

Over the next 15 years, reduce juniper density by 50% on 50 acres along Mission creek and maintain or improve existing conditions on the remaining 450 riparian and wetland acres to promote habitat heterogeneity and species diversity.

Strategies

- Same as 1A and1B, plus
- Investigate options for restoring natural flood events to existing riparian and wetland habitats along Mission Creek
- Evaluate opportunities to work with CSKT to expand or collaborate on restoration efforts on the Jocko River and Mission Creek

Rationale

Same as 1B, plus dynamic flooding events are important for maintaining habitat heterogeneity and species diversity in riparian habitats (Vance et al 2017). The CSKT has an established restoration project on the Jocko River which provides an excellent opportunity for collaboration on the portion of the river within the refuge that contributes to achieving the goals for the Jocko River overall (CSKT 2008).

Wildlife Management Goal: Protect, maintain, and restore healthy and diverse wildlife populations with respect to species that are endemic, migratory, and mandated species of concern

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Objectives for Bison–Alternative A

Bison 1A

Maintain and improve bison genetic integrity, as measured by gene diversity, heterozygosity, and allelic richness, within ecological carrying capacity (currently 285-300 individuals) using science-supported management strategies to contribute to species conservation goals of 1,500–2,000 bison within the National Wildlife Refuge System (NWRS) metapopulation. While we intend to explore opportunities to cooperate with CSKT on bison management, any specific proposals or ideas would be discussed in collaboration with CSKT Tribal Council and staff.

Strategies

- Use a metapopulation framework to ensure appropriate gene flow
- Use mean kinship selection to reduce inbreeding through at least the first 3-5 years of a proposed transition to a DOI metapopulation management strategy to conserve genetic diversity
- Conduct bison capture operations as needed to manage the population
- Prioritize low-stress handling techniques
- Collect biological samples for health and genetic analysis as guided by the USFWS Wildlife Health office
- Prioritize bison donations for NWRS and DOI bison conservation efforts through the Service-wide donations process as facilitated by the USFWS Wildlife Health office
- Support establishment and augmentation of Tribal herds, as well as cultural and spiritual uses of bison through the Service-wide donations process as facilitated by the USFWS Wildlife Health office
- Conduct disease surveillance and respond to health concerns, under the guidance of the USFWS Wildlife Health Office, to ensure healthy populations and to minimize wildlife disease transmission
- Maintain the boundary fence, corral system, and water sources (springs, riparian, wetlands)
- Manage invasive species (*see Habitat Objectives*)
- Establish population size based on habitat conditions while maintaining a genetically diverse bison herd
- Manage elk population to balance habitat use among priority wildlife species (*see Other Ungulates Objective 2A*)

Rationale

The 18,800 acre refuge was established "for a permanent National Bison Range for the herd of bison to be presented by the American Bison Society" (35 Statute 267, May 23, 1908). In 2007, bison managers across the NWRS, with the recommendation and support of the Service's Wildlife Health Office, agreed to adopt a metapopulation management framework. This framework recognizes that gene flow between spatially separated populations of the same species is essential to species conservation. Where range will not support populations of 1,000 or more animals, the creation of satellite herds is considered to increase the viable population size (DOI 2008).

Because the role of natural selection is limited in range-restricted bison populations that are managed within ecological carrying capacity, the NWRS bison may best contribute to species conservation through genetic diversity (Gross et al. 2005; Hedrick 2009; Dratch and Gogan 2010). Herds of moderate size (200-650 bison) generally lose genetic variation at a rate relative to its size; however, removal strategy also plays a role (Traylor-Holzer 2017). Using the best available science, conservation of diversity within populations and promotion of gene flow across

populations is accomplished using mean kinship values (Giglio et al. 2016, Giglio et al. 2018). Based on available microsatellite detection data, NBR bison are highly diverse among Department of Interior (DOI) herds (Halbert and Derr 2008, Dratch and Gogan 2010).

The NBR population objectives are currently between 285 and 300 bison, reduced after a 2010 ecological assessment reported a decline in carrying capacity since 1989 and recommended a variety of management options to aid in grassland recovery (Marlow et al. 2014). The NBR developed a hybrid plan from these recommendations that includes using experimental techniques for managing distribution and optimizing range utilization passively (e.g. prescribed fire, water manipulation, exclosure vs. enclosure). Body condition, behavior, herd health, and habitat quality are used as measures of success.

Bison capture operations are conducted across the NWRS, on refuges with bison, in order to maintain population objectives and involve "rounding up" bison into a corral system designed specifically for bison handling. The NBR corrals are upgraded periodically to accommodate implementation of low-stress bison handling techniques and to facilitate animal movement through the system. The "low-stress animal handling" techniques are considered an animalcentered, behaviorally correct, psychologically oriented method of working animals that is based on mutual communication and understanding, not correction (Hibbard 2017). Surplus bison are those that exceed carrying capacity within a unit but have not been identified for retention within the metapopulation and can be made available for donation using the NWRS bison donation protocol.

Objectives for Bison–Alternative B

Bison 1B

Maintain and improve bison genetic integrity, as measured by gene diversity, heterozygosity, and allelic richness, within ecological carrying capacity (currently 285-300 individuals) using science-supported management strategies to contribute to species conservation goals of 1,500–2,000 bison within the National Wildlife Refuge System metapopulation and for public observation, photography, interpretation, and environmental education.

Strategies

- Same as A, plus
- Update the corral system to better accommodate low-stress handling techniques and increase handling capacity and efficiency, incorporating viewing areas and technologies to best accommodate public viewing, photography, and environmental education in a way that minimizes stress on bison

Rationale

Same as 1A, plus bison are the namesake species of the NBR and remain a high priority for the public to view and enjoy. In most years, the public is able to observe the annual bison capture operations. Under this alternative we would investigate options for updating the corral system (e.g. cameras and/or audio systems, catwalks in areas post handling) to better accommodate public interest in bison management while maintaining low-stress handling protocols.

Objectives for Bison—Alternative C

Bison 1C

Same as Bison 1A.

Strategies

- Same as 1A, plus
- Improve bison genetic diversity and integrity by expanding the NBR bison conservation resource in cooperation with the CSKT

Rationale

Same as A, plus the Service would explore opportunities to cooperate with the CSKT on bison conservation and management. Any specific proposals or ideas would be discussed in collaboration with CSKT Tribal Council and staff. We recommend completing a feasibility study to investigate and document all options. Possibilities could include: 1) identification of land bases available to the Tribes to start a new bison population with NBR surplus bison that is managed by CSKT; 2) provide NBR surplus animals to start a new population that would be considered a full partner in the NWRS bison metapopulation management program, possibly with the opportunity for shared facility use, under specific genetic management criteria; 3) provide NBR surplus animals to start a new CSKT Tribally managed population that would be considered a full partner in the NWRS bison metapopulation management program with an emphasis on reducing detectable cattle introgression under specific genetic management criteria, also with the possibility of shared facility use.

Objectives for Other Ungulates–Alternative A

Other Ungulates 1A

Annually maintain representative native ungulate populations that are ecologically compatible with bison for species diversity on NBR according to fenced animal management or other updated plan (current objectives 130 elk, 200 mule deer, 175 white-tailed deer, 125 pronghorn, and 75 bighorn sheep), through active management and partner participation without negatively affecting habitat or other wildlife species.

Strategies

- Monitor elk population and reduce as necessary
- Augment, translocate, or manage predation as necessary to maintain population targets
- Work with the USFWS Wildlife Health Office to monitor wildlife health via opportunistic surveillance and sampling
- Work with partners
- Manage invasive plant species (*see also Habitat Objectives*)
- Incorporate traditional ecological knowledge into wildlife management

Rationale

Shortly after the refuge was established, representative populations of other ungulates native to Montana were also brought to the NBR. Secretary of Agriculture, James Wilson, is credited with envisioning the refuge as a "natural setting" with a host of big game species that could prosper and serve as source populations on other public lands. For example, prior to this time period, pronghorn were threatened to the point of extinction and a species in need of conservation. After building the original boundary fence, additional funds were allocated to add strands of barbed wire suitable for enclosing species like elk and pronghorn. Population objectives on the NBR are set according to measurements of available forage and in order to provide for a diversity of species without causing damage to available grassland and browse resources. Stocking rates have been traditionally expressed in animal unit months which is the amount of forage needed by an "animal unit" for one month. These calculations were adapted specifically to the wildlife species present on NBR. New stocking rates will be developed under this alternative and an annual population census will allow refuge staff to maintain identified population targets.

Objectives for Other Ungulates—— Alternative B

Other Ungulates 1B

To provide for quality wildlife observation, photography, and environmental education, annually maintain representative populations of other native ungulate species that are ecologically compatible with bison for species diversity on NBR (including elk, mule deer, white-tailed deer, pronghorn, and bighorn) without negatively affecting habitat or other wildlife species.

Strategies

- Same as 1A, plus
- Involve public through citizen science projects

Rationale

The auto tour routes on the refuge provide visitors with an excellent opportunity to observe, photograph, and interpret the wildlife of northwestern Montana. Engaging the public in research and monitoring efforts involving native ungulates on the refuge is another way to enhance the quality of their experience on the refuge.

Objectives for Other Ungulates— Alternative C

Other Ungulates 1C

Within 10 years, evaluate impacts of other native ungulate species that are ecologically compatible with bison, on habitat, species diversity, and species conservation.

Strategies

- Collaborate with universities to research impacts
- Identify and consider prioritizing species that are less well represented in adjacent landscapes
- Evaluate and implement passive grazing management techniques that will encourage spatial heterogeneity and species diversity
- Review and update environmental assessment for coyote control on the NBR; involve partners and public in the process
- Work with partners and private landowners around the NBR (and other local priority landscapes) to promote awareness of wildlife and livestock conflicts and create an open discussion forum for solutions
- Collaborate with adjacent landowners, state agencies, Tribes and non-government Organizations (NGOs) to discuss how the NBR can participate in landscape-level management of ungulate species
- Evaluate ungulate cross-boundary movements and consider effects of connectivity with other populations
- Convert fenced animal management plan to a Habitat Management Plan with consideration to fenced populations
- Increase communication about wildlife health concerns and major disease threats among partners and work to develop outreach messages
- Develop robust survey techniques that allow for adequate population estimates and minimized staff effort
- Develop an adaptive management framework for evaluating habitat management actions and adjusting to meet management goals

Rationale

Under this alternative, we will investigate and prioritize population objectives for ungulates according to ecological carrying capacity with an emphasis on priority species and with consideration of their representation on the landscape, partner interest or concerns, and research benefits. Managing for healthy wildlife and healthy ecosystems is a priority for the NBR and over the past several decades, the ungulate populations on the NBR have provided numerous research scientists, students

and teachers with unparalleled opportunity. These opportunities have garnered the attention of leading scientists in the fields of genetics, genomics, disease, behavioral ecology, epidemiology, veterinary science and more. The outcome of this research, mostly in the form of publications (e.g. journal articles, theses, books, and dissertations) but also summary reports and annual narratives, has informed managers and the scientific community as a whole, well beyond the boundary of this refuge.

Research and Science Goal: Encourage high-quality research and promote the use of scientifically sound management decisions.

Objectives for Research—Alternative A

Research 1A

Over the next 15 years, continue to collaborate with research that will inform management decisions or help inform and identify resource issues of concern.

Strategies

- Manage, provide guidance for, and enforce special use permitting process
- Continue to coordinate with existing researchers and support academic classes
- Collaborate with partners to identify information needs in regards to wildlife health so data collected is comparable among studies/time and information can be utilized for better management and disease management
- Support wildlife health research (e.g. *Mycoplasma ovipneumoniae* [MOVI]) in bighorn sheep
- Participate in the USFWS Refuge Visitor Survey (every five years starting in 2020)

Rationale

The Service currently works with several universities and research scientists, providing a unique opportunity to support long-term research. Under this objective, maintaining a balance between amount of staff time or oversight required with other management needs is a priority. Research focused on bison and grassland birds, or other priority species, will continue to take precedence over other topics when time and funding is limited. Current long-term and ongoing efforts include behavioral, genetic, and disease research of Rocky Mountain bighorn sheep; breeding behavior and genetic research of pronghorn; and an environmental biology investigation of effects the variation in ecosystem structure have on nutrient availability and primary production over time.

(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1560318/) - bighorn

(http://www.webpages.uidaho.edu/biosci/labs/byers/research/index.html) - pronghorn

(http://belovskylab.nd.edu/national-bison-range-ltreb-database/) - environmental biology

Research gathered by participating in the USFWS Refuge Visitor Survey enables the refuge to better understand visitor experiences and trip characteristics, gauge visitors' levels of satisfaction with existing recreational opportunities, and garner feedback to inform the design of programs and facilities.

Research 2A

Continue to build and develop best scientific information to inform management decisions by initiating a more coordinated effort to include traditional ecological knowledge (TEK) as part of research or other scientific information gathering efforts at NBR, consistent with USFWS guidance (Rinckevich et al 2011, USFWS 2018a).

Strategies

- Proactively seek Regional Tribal Liaison input on gathering TEK
- Initiate discussions with the Confederated Salish and Kootenai Tribes regarding methods of collecting TEK
- Initiate discussions with the Salish-Pend d'Oreille Culture Committee and the Kootenai Culture Committee and seek the Committees' counsel on how best to collect TEK
- Proactively reach out to Salish Kootenai College (SKC) for opportunities to work with professors, instructors, staff, and students in effort to collect TEK, and engage in reciprocal exchanges of information and research/work opportunities that foster collection of TEK, for purposes of research and scientific uses. This could include proposing a memorandum of understanding (MOU) with SKC regarding TEK and opportunities to collaborate

Rationale

TEK refers to the evolving knowledge acquired by indigenous and local peoples over hundreds or

thousands of years through direct contact with the environment. This knowledge is specific to a location and includes the relationships between plants, animals, natural phenomena, landscapes, and timing of events that are used for lifeways, including but not limited to hunting, fishing, trapping, agriculture, and forestry. An increasing number of scientists and Native people believe that western science and TEK are complementary. Although an integration of indigenous and western scientific ways of knowing and managing wildlife can be difficult to achieve, it is important to continue to integrate both methods when possible. The USFWS has guidance for incorporating TEK into Service activities including a "TEK Fact Sheet" (Rinkevich et al 2011) and additional materials on "Integrating Use of Traditional Ecological Knowledge into the U.S. Fish and Wildlife Service" (USFWS 2018a).

Objectives for Research—Alternative B

Research 1B

Over the next 5 years, increase knowledge in areas of study that are pertinent to refuge resources and can be accomplished through public involvement.

Strategies

- Same as 1A, plus
- Identify research needs that citizen science projects could address and, when appropriate, recruit interested public
- Partner with CSKT, local, state and federal agencies, and universities to develop a list of high-priority research topics
- Encourage school research projects that support management of the refuge
- Publicize research results on refuge web page, in handouts for Visitor Center, in area newspapers, magazines, public radio, and evening programs
- Offer public evening programs on refuge research topics

Rationale

Engaging the public in research projects (citizen science) and interpretive programs (activities, talks, publications, audio-visual media, signs, tours and exhibits) on the NBR provides a unique opportunity for the public to learn about key natural resource issues through hands-on involvement, gives individuals an opportunity to become actively involved in conservation issues that are important to them, and furthers the vision of this alternative by having volunteers, visitors, and managers alike develop messages to convey key natural resource issues that speak to broader groups. After visiting the refuge or participating in refuge programs, visitors will understand and care about their relationships to and impacts on these resources (USFWS 2011b).

Research 2B

Strategies: Same as 2A

Rationale

Same as 2A, plus promote the understanding, dissemination, and respectful use of TEK in ecological research, application and education, and encourage education in traditional ecological knowledge.

Research 3B

Within the next 5 years, work with partners to conduct a research project to better understand visitor use and impacts not covered by the National Visitor Survey.

Strategies

- Design and initiate a Visitor Use Study to better understand NBR-specific visitor wants and needs and their level of visitation satisfaction while also determining the specific impacts to NBR resources of providing these public services
- Complete survey on public attitudes and preferences
- Develop protocol to more accurately quantify visitation to NBR

Rationale

The majority of visitation at the NBR involves non-consumptive uses such as wildlife observation, photography, education, and interpretation. As a refuge with relatively high visitation, a regular and consistent visitor services program evaluation is vital to determine the strengths and weaknesses of ongoing visitor services programs in the field and developing a visitor services program for the future (USFWS 2011b). Two area colleges, the University of Montana and Salish and Kootenai College have excellent programs for assessing public attitudes and preferences.

Objectives for Research—Alternative C

Research 1C

Over the next 5 years, identify information gaps and increase knowledge in areas of study that are pertinent to refuge resources and are unique learning opportunities to further ecological sustainability and priority species on the NBR.

Strategies

- Same as 1A, plus
- Focus on identifying data gaps and needs in order to move NBR towards ecological sustainability and manage priority species
- Partner with CSKT, local, state and federal agencies, and universities to develop a list of high-priority research topics

- Work with Mountain-Prairie Region Division of Science Resources to complete an Inventory and Monitoring plan for the refuge
- Offer public evening programs on refuge research topics
- Prepare and make available in the Visitor Center important research topics and results in a layman-friendly document
- Publish research in peer-reviewed scientific publications

Rationale

An adaptive management framework along with biological planning, monitoring, and research help build a foundation for identifying conservation targets while describing current and desired future conditions, deficits, and species-habitat relationships. Through targeted and purposeful monitoring and research, managers can learn and improve conservation outcomes.

Research 2C

Same as 2A.

Strategies

- Same as 2A, plus
- When appropriate, encourage the integration of TEK as part of partner-generated research or other scientific information gathering efforts

Rationale

Same as 1A plus stimulate research which incorporates the traditional knowledge and participation of indigenous people.

Research 3C

Over the next 15 years, support research that substantially informs the scientific community or informs the NBR regarding the ecology and management of refuge species and habitats.

Strategies

- Same as 1A, plus
- Continue to support ongoing long-term ungulate research
- Identify knowledge gaps and develop a list of research topics to guide future interested scientists, educators, and students to investigate areas of greatest need
- Develop research under the Reserved Treaty Rights Lands Initiative in partnership with CSKT to inform both parties of resource responses to planned activities
- Collaborate on research with other federal, state, Tribal, and local governments, non-governmental organizations, and universities
- Improve coordination with universities and colleges to increase student participation in monitoring or research
- Strive to plan and take actions consistent with existing USFWS and partner climate change plans
- Evaluate, through research, existing corridors for priority species and landscape-level opportunities

Rationale

Same as 1A, plus future priority research projects will concentrate on identifying and answering key management questions and needs. Examples include impacts of fire and herbivory, impacts of bison grazing and fire on grassland birds, and managing riparian habitats for migratory birds.

Monitoring and Adaptive Management Goal: Through the life of this plan, we will monitor and evaluate the consequences of our actions and use adaptive management to reach desired outcomes

Objectives for Monitoring—Alternative A

Monitoring 1A

Over the next 15 years, annually track population trends across all observed bird species and a range of habitats on the refuge.

Strategies

- Use eBird.org as a platform
- Use citizen science (volunteer observers)
- Continue to explore additional analysis possibilities
- Generate an annual report from data downloaded
- Distribute information to recruit and educate volunteers

Rationale

Though best known for its role in conserving American bison, the NBR also is also explicitly directed by Executive Order to provide "refuges and breeding grounds for birds" (Executive Order 3596, December 22, 1921). Over the past several decades, the Complex has executed a number of relatively small, short-term, and disconnected studies on breeding birds on the NBR proper and on units across the Complex. By developing and implementing a long-term monitoring program for population trends, we can ensure that the NBR continues to support the purpose

of this Executive Order. Furthermore, such a program will both benefit, and be strengthened by, concurrent efforts being undertaken by the Complex biological program to improve and refine its habitat management, invasive species, and wildlife population management efforts. The NBR is part of a much larger, interconnected landscape and intends to coordinate and collaborate with others in better understanding the bird and habitat relationships in western Montana.

In 2013, the Service partnered with the University of Montana Avian Science Center to provide the NBR with technical assistance related to development and field testing of monitoring protocols, statistical design of monitoring techniques, and quantitative analysis of monitoring data by:

- Providing statistical and biometric assistance with the design of a long-term monitoring protocol for trends in populations of breeding land birds and their habitats at the Complex.
- Linking the above protocol explicitly to other major wildlife management activities on the refuge, including but not limited to bison rotational grazing systems, prescribed fire, and invasive plant species treatment
- Providing statistical and biometric assistance with the analysis of ecological datasets

The NBR is now has several eBird hotspots (https://ebird.org/hotspot/L3801959). eBird is the world's largest biodiversity-related citizen science project, with more than 100 million bird sightings contributed each year by eBirders around the world. Data collected by the public on NBR will help document when and where bird species occur on the refuge, thereby providing time and site-specific information about the occurrence and abundance of bird species. eBird data has the potential to contribute to refuge habitat management and conservation decisions.

Monitoring 2A

Over the next 15 years, continue to support and expand existing monitoring projects for high-priority management actions to identify successes, barriers, or issues needing attention.

Strategies

- Monitor bird hotspots using citizen science (eBird)
- Continue passive, opportunistic, and active wildlife health monitoring
- Continue bison demographics, genetics, health monitoring
- Monitor species of concern occurrences
- Continue public use monitoring
- Continue opportunistic surveillance by staff and volunteers as part of daily management

Rationale

Monitoring protocols that are well designed, achievable, and supportive of refuge objectives also improve the efficacy of refuge programs and allow for more effective and adaptive management.

Monitoring wildlife health is an essential component of wildlife management, in order to minimize disease transmission. In order to maintain a high level of confidence in the health of populations, monitoring is conducted consistently throughout the year and applies both passive strategies through observation (by staff and public), opportunistic sampling (e.g. through mortality), and active strategies (e.g. blood screening) periodically during the capture operations. Existing wildlife health surveillance includes observation and documentation of unusual conditions or behavior for all wildlife, and collection of biological samples when appropriate, as mentioned above (e.g. opportunistic or periodic) or through approved research (e.g. bighorn sheep). Increased surveillance is triggered by refuge biologists if unusual conditions are observed and are cause for concern, through USFWS Wildlife Health Office guidance because of identified regional or local threats or if concerns are identified through partners. In addition, we will respond aggressively to issues arising in targeted species.

Monitoring the genetics of the bison population continues to be a high priority to support genetic diversity conservation within the NBR herd with samples collected from calves or yearlings during capture operations.

Objectives for Monitoring—Alternative B

Monitoring 1B

To gather the best information to enhance wildlife viewing and photography, over the next 15 years, annually track, and share with the public, population trends across all observed bird species in a range of habitats on the refuge.

Strategies

- Same as 1A, plus
- Share monitoring results in the Visitor Center, online, and in area media (e.g. newspapers, magazines, public radio)

Rationale

In addition to 1A, the overarching goal of wildlife-dependent recreation on refuges is to enhance opportunities for, and increase access to, quality visitor experiences. NBR provides a beautiful and unique setting for wildlife observation and photography. Recreational wildlife viewing and photography are priority public uses within the NWRS and are appropriate uses of the NBR when and where compatible. Recreational wildlife photography programs will promote understanding

and appreciation of natural resources and their management on NBR.

Monitoring 2B

To engage the public in refuge programs, over the next 15 years, continue to support and expand existing monitoring programs with an emphasis on citizen science projects and volunteer engagement.

Strategies

- Same as 2A, plus
- Develop school monitoring projects relevant to the NBR
- Add volunteer routes to bird monitoring program using eBird
- Share monitoring results in the Visitor Center, online, and in area newspapers, magazines, public radio, evening programs, etc.
- Recruit and involve interested public and volunteers on projects, when appropriate

Rationale

Monitoring protocols that are well designed, achievable, and support refuge objectives also improve the efficacy of refuge programs and allow for more effective and adaptive management. In addition to 2A, the involvement of volunteers in research (citizen science) can increase the scale of ecological field studies on refuges. It is also an opportunity for citizens to meaningfully participate in scientific research while learning about and making connections to refuge wildlife and their habitats.

Monitoring 3B

In the next 5 years, work with partners to develop a plan to monitor visitor impacts on wildlife habitat and populations.

Strategies

- Use information to modify management to both enhance visitor experience and protect wildlife and habitats
- Work with the Service's Mountain-Prairie Region Division of Science Resources, Branch of Visitor Services and Outreach, and other partners

Rationale

As public use opportunities are changed or enhanced under this alternative, an associated monitoring program to assess visitor impacts to refuge resources would be beneficial. This would allow the refuge staff to make adjustments where any negative impacts were occurring.

Objectives for Monitoring—Alternative C

Monitoring 1C

Same as Monitoring 1A.

Rationale

Same as 1A, plus this alternative highlights the importance of native bird species that are endemic to the native grasslands represented on the NBR and seeks to further the relationship with academic entities and other agencies in a way that informs management and facilitates habitat improvement specific to the ecological needs of these species.

Monitoring 2C

Over the next 15 years, continue to support and expand existing monitoring programs focused on resilience, integrity, and sustainability for priority species and refuge habitats. Monitoring will be linked to management to determine if intended outcomes are being achieved through management actions.

Strategies

- Same as 2A, plus
- Prioritize special use permits based on resilience, integrity, and sustainability for priority species
- Support development of plans that are consistent with ecological timeframes and sustainability
- Seek partner input and collaboration actively on developing new monitoring projects
- Develop effective monitoring protocols aligned with management objectives for sustainable forest management

Rationale

Same as Monitoring 2A.

Monitoring 3C

In the next 10 years, develop a grassland adaptive management project that allows refuge management to assess wildlife and vegetative responses (including invasives), to various management activities such as water management, wildland fire management, and invasive weed control.

Strategies

- Use adaptive management to identify uncertainties such as disturbance return interval (grazing and fire) that minimizes non-native plant invasion on NBR native bunchgrass sites
- Include monitoring protocol suggestions in next grassland assessment (*Grassland Objective 1C*)

- Review existing protocols from other refuges and other partners
- Work with USFWS Mountain-Prairie Region Division of Science Resources to complete an Inventory and Monitoring plan for the refuge
- Seek additional support from partners and volunteers

Rationale

Adaptive management (AM) is an approach to achieve objectives when the outcomes of available management actions are uncertain but decisions must still be made (Walters 1986, Kendall 2001). The central tenet of the AM approach is that systemic knowledge can be gained if management is treated as an ecological experiment. Management actions are *de facto* hypothesis (experimental) tests that iteratively (repeatedly) seek to manipulate an ecological system by altering hypothesized limiting factors and measuring the response. The refuge will identify where learning through management is most needed and develop AM approaches to address those knowledge gaps. Grassland management is one of the highest priorities for the refuge and is coupled with several uncertainties, making this an appropriate topic to invest the additional resources for a well-designed and rigorous AM project.

Cultural Resources Goal: Preserve and value the cultural resources and history of the National Bison Range Complex to connect staff, visitors, and community to the area's past and continuing traditions

Objectives for Cultural Resources—Alternative A

Cultural Resources 1A

Through the life of the plan, provide cultural resources interpretation and education about Tribal citizens' and early people's use of the lands within the NBR at the Visitor Center. Currently, the Visitor Center has one interpretive panel that provides information and interpretation regarding the CSKT.

Strategies

- Encourage collaboration with the CSKT, and other interested Tribes in developing relevant education and interpretive materials, including exhibits, interpretive panels, and programs
- Continue interpreting historical and cultural resources in and around the NBR
- Collaborate with the CSKT to develop signage and interpretive materials that incorporate traditional Tribal place names and Tribal names for plants and animals

Rationale

Western Montana contains a rich and diverse prehistory. The varied microenvironments in the Rocky Mountains contain abundant animal populations and assorted vegetation coverage that have supported Native Peoples for at least ten thousand years. Both the oral history and the archaeological record of the region reflects dynamic adaptation to a variety of environments and continual technological advancements.

Salish and Kootenai families relied heavily on bison from east of the continental divide (CSKT 2000). The Mission Valley has long been used as a traditional gathering place by the western Montana Tribes. Its setting offered excellent hunting and gathering opportunities that provided sufficient economic resources to accommodate short-term gatherings of large contingents of Tribes. The valley was used as a rendezvous site where bartering and gaming was conducted by Tribes of the Kalispel, Kootenai, Pend d'Oreille, and Bitterroot Salish (CSKT 2000).

The 1855 Hellgate Treaty defined the ceded aboriginal territory of the Bitterroot Salish, Upper Pend d'Oreille, and Kootenai Tribes and set up reserved lands for their "exclusive use and

benefit." Today those reserved lands are known as the Flathead Indian Reservation. The NBR is located entirely within the exterior boundaries of the Flathead Indian Reservation (CSKT 2000).

Place names on the landscape in and around the NBR indicate the time-depth of use and the activities that took place in the area. Some of the oldest words in the Salish language are associated with place names in the Mission Valley. These names also identify particular landforms or areas that are significant in the early traditions and cultural history of the Salish people. For most place names, there are important stories that go with the names that further explain Tribal use and important events and activities documented in the Tribal history (CSKT 2000).

The NBR Visitor Center provides some cultural resource interpretation and education about Tribal citizens' and early people's use of the lands within the NBR. This includes a visual display, titled *Symbol of a Nation*, depicting the cultural and traditional uses of bison. This display was developed entirely by the CSKT. The Visitor Center also provides educational handouts describing the history of the Salish and Pend d'Oreille, provided by the Salish and Pend d'Oreille Cultural Committee.

Two Depression-era programs, the Civilian Conservation Corps and the Works Progress Administration, were active at the NBR during the mid-1930s. A few of their projects are still visible on the NBR and additional interpretive opportunities would be explored.

Cultural Resources 2A

Through the life of the plan, provide permitted collection of specific natural resources that are used for cultural traditional values and provide permitted access to traditional or culturally significant sites. Access will be allowed under a "special use permit," and will be approved by the refuge manager on a case-by-case basis. Requests for profit or commercialization will not be permitted.

Strategies

- In consultation with the CSKT, determine what culturally significant sites exist on the NBR and develop guidelines on how best to regulate access to those sites in a way that doesn't interfere with Service's mission and the purposes of the NBR
- Provide permits, as appropriate, to access traditional or culturally significant sites
- In consultation with the CSKT, determine what culturally significant plant and animal resources exist on the NBR and develop guidelines on how best to regulate access and collection of those resources in a way that doesn't interfere with Service's mission and the purposes of the NBR
- Provide permits, as appropriate, for the limited collection of traditional or culturally significant plant and animal resources (e.g. sage plants, bison hair, bison dung)

Rationale

Although much of the knowledge base and traditional values remain, the Tribes lost unrestricted access to traditional harvest grounds when the NBR was fenced and managed as a bison refuge. Although unregulated site visitation was curtailed under federal management, the ties that were established with ancestral use remain strong and continue to be a recognized and important aspect of Tribal heritage. In the face of mounting pressures toward acculturation, Tribal heritage sites are even more important because they represent a tangible connection with a way of life and cultural identity integral to the past, present, and future survival of tribal people (CSKT 2000).

The United States' trust responsibility is a well-established legal obligation that originates from the unique, historical relationship between the United States and Indian Tribes. The trust responsibility consists of the highest moral obligations that the United States must meet to ensure the protection of Tribal and individual Indian lands, assets, resources, and treaty and similarly recognized rights (see Secretarial Order 3335). As a result of treaties, statutes, Executive Orders, and court rulings, certain Tribal governments and State governments may have shared responsibilities to co-manage fish and wildlife resources. In such cases, and where Service jurisdiction is involved, we will consult and collaborate with Tribal governments and affected State or local resource management agencies to help meet the objectives of all parties while honoring the Federal trust responsibility.

The Service should provide Native Americans access to Service lands and waters for exercising cultural, ceremonial, medicinal, and traditional activities recognized by Tribal governments to the extent practicable, permitted by law, and not inconsistent with essential Service functions. In doing so, we should (1) avoid adversely affecting the physical integrity of sacred sites while managing our lands; (2) accommodate and, as needed, collaborate with Tribal governments for access to and maintenance of appropriate settings for ceremonial use of Indian sacred sites; and (3) consider Tribal government protocols and procedures to give their members access to and use of cultural resources. The Service recognizes that many Native Americans use federally protected birds, bird feathers and remains, and other animal and plant material for their Tribal cultural and religious expression. We will work in collaboration with Tribal governments to protect traditional, customary, ceremonial, medicinal, spiritual, and religious uses of plants and animals for Tribal members where it is not contrary to our

legal mandates and conservation goals (510 FW 1 - Native American Policy). Permits for these purposes would take into consideration the impacts to refuge species of concern.

There is a particular site on the NBR that is known by the Salish Elders and has been identified as a traditional cultural property by the Salish Culture Committee. It provides views of lands and early trail routes used by native peoples. According to reports by Elders, it experiences ongoing cultural use (CSKT 2000).

Objectives for Cultural Resources—Alternative B

Cultural Resources 1B

Through the life of the plan, enhance interpretation and education programs about Tribal citizen's and early people's use of the lands within the NBR.

Strategies

- Same as 1A, plus
- Collaborate with the CSKT and other partners on the development of topic specific prehistory and history interpretation and education programs
- Encourage the development and presentation of programs or events hosted by the CSKT for the purpose of informing the public about Tribal history
- Encourage the development and presentation of programs or events for the purpose of informing the public about early fur traders, missionaries, miners, Civilian Conservation Corp, and homesteaders
- Develop a Cultural Interpretation and Heritage Committee (CSKT, USFWS, and other relevant partners) to plan and host a minimum of two on-site programs annually.
- Develop strong collaboration with the CSKT, and other interested Tribes in planning, producing and providing relevant materials, exhibits, signs and educational materials, and correct interpretation
- Provide outreach programs to educate about cultural natural resources, and Tribal heritage sites
- Develop and present ethnobotanical information, particularly for environmental education opportunities

Rationale

Same as 1A, plus due to the increased emphasis on public use in this alternative, we would like to improve the message of the historical significance of the Tribes on the development and use of the land that is now the NBR. Given the extensive history of the CSKT on and around the NBR, it is paramount that we work with them and other Tribal partners to provide information that shares and correctly interprets that history. The NBR has been a presence in the community for over 110 years. Its history and effects on conservation and species management have helped shaped the community since its inception.

Cultural Resources Objective 2B

Same as Cultural Resources 2A

Strategies

- Same as 2A, plus
- By 2021, develop and implement station specific guidance to improve efficiency on how special use permits will be permitted and issued to the public. Within the guidance, determine when permits will not be issued due to excessive or inappropriate disturbance to ecological conditions
- Develop a Memorandum of Understanding with the CSKT or other Tribal organizations that will manage the requests for, and distribution of bison skulls, bones, or parts

Rationale

Same as 2A, plus in general, each special use permit application contains its own set of unique circumstances. Processing and administering special use permits can require substantial staff time and effort. Current policies and legal guidance do not clearly define culturally significant sites or what natural resources are used for their traditional cultural values. These ambiguities could be rectified by collaborating with the CSKT and other Tribal organizations and aid the NBR in developing specific guidance on these topics. Once guidance is developed, the CSKT and other Tribal organizations would more efficiently be able to process and fulfill requests for bison skulls, bones, or parts when it is not contrary to our legal mandates and conservation goals.

Objectives for Cultural Resources—Alternative C

Cultural Resources 1C

Same as Cultural Resources 1B

Strategies

- Same as 1B, plus
- Encourage collaboration with the CSKT, and other interested Tribes in planning, producing and providing relevant materials, exhibits, signs and educational materials, and interpretation
- Provide outreach with/to local groups (CSKT, Ninepipes Museum) to provide a presence of NBR history in conservation and species management in the area

- Develop and present ethnobotanical information, particularly for environmental education opportunities, with emphasis on species of particular interest

Rationale

Given the extensive history of the CSKT on and around the NBR, it is paramount that we work with them and other Tribal partners to provide information that shares and interprets that history. TEK and ethnobotanical information can inform future management practices and can help show how and why native people are connected to the land. In addition, the NBR has been a presence in the community for over 110 years. Its history and effects on conservation and species management have helped shaped the community since its inception.

Cultural Resources 2C

Same as Cultural Resources 2B

Strategies and Rationale

Same as 2B

Public Use Goal: Provide compatible, wildlife-dependent recreational opportunities, for persons of all abilities, to learn, enjoy, and appreciate the inter-montane landscape of western Montana, the fish, wildlife, and plants.

Objectives for Fishing—Alternative A

Fishing 1A

Throughout the life of the plan, allow fishing on three and three quarters (3.75) miles of Mission Creek and the one and one-half miles (1.5) of Jocko River with minimal disturbance to other wildlife and the natural aquatic ecosystem.

Strategies

- Allow fishing, in accordance with State, Tribal, and Federal regulations, year-round on designated sections of Mission Creek and the Jocko River where they run through the refuge
- Provide and maintain accessible fishing access in a designated area along Mission Creek for visitors with disabilities
- Continue to provide relevant information about fishing via appropriate communication products
- Close portions of Mission Creek and the Jocko River when significant risks to public safety or potential for significant disturbance to species of concern exist

Rationale

Fishing is one of the six wildlife-dependent, priority public uses specified in the Improvement Act. It can be allowed at the refuge without interfering with the designated purpose for the refuge. Fishing is a tool to help the public connect with nature and to promote existing and future programs. Fishing and its promotion provides a type of compatible public use that is encouraged by both the Service and DOI.

Portions of Mission Creek and the Jocko River on NBR will remain open to public fishing in accordance with Joint State/Tribal regulations and in accordance with the special refuge regulations. Mission Creek runs through the northern end of the NBR for a distance of approximately 7 miles, with approximately 3.75 miles open to fishing during season. Fishing is closed to the remaining miles of Mission Creek to minimize disturbance to wildlife, maintain closures in administrative areas, and to prevent conflicts between other public uses. The Jocko River meanders in and out of the southern edge of the NBR for a distance of approximately 1.5 miles, and this entire section is open to fishing.

In the event of a threat or emergency endangering the health and safety of the public or property or to protect the resources of the area, the refuge manager may close or curtail refuge uses of all or any part of an opened area to public access and use in accordance with the provisions in § 25.31,

without advance notice (50 CFR 25.21). In addition, fishing or entry on all or any part of individual areas may be temporarily suspended by posting upon occasions of unusual or critical conditions of, or affecting, land, water, vegetation or fish and wildlife populations (50 CFR 32.4).

Objectives for Fishing—Alternative B

Fishing Objective 1B

Same as Fishing 1A

Strategies

- Same as 1A, plus
- Provide additional information to enhance the quality of the fishing experience, including, angling methods and techniques, available fish species and their biology, best times, seasons and strategies to catch each fish species, and other local fishing locations
- Examine opportunities to allow fishing on Mission Creek from the Environmental Education Area to the west bridge or in other areas that do not conflict with other public uses
- Examine opportunities to increase accessible fishing access for people with disabilities (e.g. by hardening or paving trails or roads, or providing public access and parking at the Mission Creek west bridge, middle bridge, or at the Jocko River fishing trail)
- Seek additional funding to improve and enhance the fishing program

Rationale

Same as 1A, plus under this alternative, the refuge will focus efforts to enhance the quality of the fishing experience. Enhancements would be made by increasing potentially expanding access areas, increasing accessible opportunities and improved communication pertaining to fishing.

Objectives for Fishing—Alternative C

Fishing 1C

Throughout the life of the plan, allow fishing on three and three quarters (3.75) miles of Mission Creek and the one and one-half miles (1.5) of Jocko River when the use is not in conflict with priority species or habitat

Strategies

- Same as 1A, plus
- Provide additional information to enhance the quality of the fishing experience, including, angling methods and techniques, available fish species and their biology. This information would highlight the conservation importance of native species, especially bull trout and westslope cutthroat trout

Rationale

Same as 1A, plus decisions to close areas accessible to fishing would pay special attention to the conflict or disturbance to priority species or habitat. Westslope cutthroat trout and bull trout exist in the Mission Creek and Jocko River. Providing the angling public with biological information about these species can help the public better understand their conservation importance and aid in the proper identification of these species to reduce the incidental take of these species.

Objective for Wildlife Observation and Photography—Alternative A

Wildlife Observation and Photography 1A

Throughout the life of the plan, provide opportunities for high-quality, self-directed wildlife observation and photography of western Montana inter-montane landscapes and wildlife by maintaining services to accommodate at least 180,000 visitors per year.

Strategies

- Maintain the 19 miles of auto tour routes
- Maintain year-round access to West Loop and Buffalo Prairie Drive and seasonal access to Red Sleep Mountain Drive
- Continue to provide relevant information about wildlife observation and photography via appropriate communication products
- Maintain open hours from dawn to dusk and regulate with automatic entrance gate
- Maintain 3 miles of walking trails including High Point, Bitterroot, Nature, Visitor Center, and Fishing trails
- Close portions of the refuge when significant risks to public safety or potential for significant disturbance to species of concern exist
- Participate in the National Visitor Survey on a 5-year rotation schedule

Rationale

Wildlife observation and photography are identified as priority public uses in the Improvement Act. Wildlife observation and photography can instill, in citizens of all ages, a greater appreciation for wildlife and its associated habitats. This appreciation may extend to the Refuge System and other conservation agencies.

The refuge contains unique habitats and supports wildlife populations, particularly the bison herd, other large ungulates and mammals, migratory birds, and upland game birds in excess of what can be observed on neighboring private lands.

These uses promote an appreciation for the natural resources at the refuge. In addition, these uses support conservation programs at the refuge.

NBR is best known for the bison herd that roams openly across more than 18,000 acres of the refuge. The bison herd is maintained at 285-300 animals and is managed to maintain a high level of genetic diversity that can be shared with other agencies and Tribes. The beautiful setting of the Mission Valley combined with the diversity of wildlife species attracts up to 180,000 visitors annually (USFWS 2017a). In the summer months, these visitors come to drive the Red Sleep Mountain Drive, that travels through the various habitats found on the Bison Range, hike the trails, and see the Visitor Center. A portion of the auto tour route is open throughout the rest of the year, weather and road conditions permitting. The tour drive and associated hiking trails provide excellent opportunities for wildlife viewing and photography.

Objective for Wildlife Observation and Photography—Alternative B

Wildlife Observation and Photography 1B

Throughout the life of the plan, consistently strive to increase visitor satisfaction of opportunities for highly unique, wildlife viewing and photography of western Montana inter-montane landscapes and wildlife by improving services to accommodate at least 180,000 visitors per year.

Strategies

- Same as 1A, plus
- Create a local Visitor Services team made up of Service employees, and other partners to develop and implement a Visitor Services Plan
- In addition to the national survey, conduct a NBR specific visitor satisfaction survey every 5 years for the life of the plan
- Develop enhanced communication programs and products, on-site, online, and printed, for wildlife observation and photography (e.g. best practices, techniques, when and where, and best times for viewing and photographing wildlife, special tours); update standard bird/wildlife list
- Regularly update website with recent wildlife observation and photography resources
- Ensure all information on the interpretive kiosk outside of the Visitor Center (e.g. wildlife and native flora-viewing location opportunities, current events, etc.) is accurate and up to date
- Facilitate workshops and guided wildlife observation and photography tours through the use of staff or partner organizations
- Facilitate wildlife observation and photography tours in current closed areas through staff led excursions or by providing special use permits when appropriate (e.g. mule deer rut)
- Expand the accessible wildlife observation opportunities on the refuge. Improve the 19 miles of wildlife drive auto tour routes, by exploring possibilities to pave sections or the entire tour route
- Investigate the opportunity to increase trail miles and increase trail accessibility
- Work with partners to develop year-round wildlife viewing areas along US 93, Highway 200 or Highway 212
- Seek additional funding to improve and enhance the wildlife observation and photography program
- Investigate options (feasibility analysis or other) for expanding the season of public access on Red Sleep Mountain Drive
- Analyze opportunities for increasing entrance fees

Rationale

Same as 1A, plus wildlife observation and photography accounts for the majority of visitation the NBR (168,000 out of 180,000 visitors). Under the proposed alternative, the refuge would plan actions and activities that enhance visitor experiences through wildlife observation and photography. A Visitor Service Plan would direct the NBR on how best to accomplish this objective. Wildlife observation and photography programs would be developed under the Mountain-Prairie Region visitor services and outreach level guidance (USFWS 2018b). A visitor satisfaction survey would inform the NBR on how well they are achieving the objective of increasing visitor satisfaction. Visitors routinely want to know where the bison and other large ungulates can be observed. This alternative would seek to keep that information up to date and readily available to the public.

The NBR Entrance Fee Pass is $5 per vehicle per day. The cost of this pass has not increased for approximately 15 years (personal communication, Pat Jamieson). If the cost of the pass was adjusted for inflation over that same time period it would now cost approximately $7 (Bureau of Labor Statistics). Current regulations allow for the NBR to charge up to $7.50 per vehicle. The increased revenue could provide for additional services that directly benefit the public.

Objective for Wildlife Observation and Photography—Alternative C

Wildlife Observation and Photography 1C

Throughout the life of the plan, prioritize opportunities for highly unique, self-directed wildlife viewing and photography of western Montana inter-montane landscapes and wildlife by maintaining services to accommodate at least 180,000 visitors per year when not in conflict with priority species or habitat.

Strategies

- Same as 1A, plus
- Close trails or portions of trails with minimal use or substantial maintenance needs

Rationale

Same as 1A, plus the NBR has a limited amount of trails. The vast majority of high-quality wildlife viewing and photography is from the auto tour routes. The auto tour routes also serve as administrative roads and are necessary to maintain. All the trails, besides High Point Trail, do not serve any administrative function, and are provided solely for the benefit of the public. Trails require a small amount of routine maintenance, but over time can require substantial maintenance. Staff time and money can be reallocated to wildlife and habitat projects when trails that are minimally used by the public or require substantial time and money to repair are closed.

Objective for Education, Interpretation and Outreach—Alternative A

Environmental Education, Interpretation, and Outreach 1A

Throughout the life of the plan, continue to provide educational and interpretive information via visitor center exhibits and refuge interpretive panels to reach a minimum of 30 percent of annual visitors (180,000 overall visits in 2017). Encourage awareness of and provide an opportunity to learn about conservation and mission of the refuge system and to highlight the unique history of bison conservation and cultural and historical significance of the NBR.

Strategies

- Continue providing, on a case by case basis as staff time allows, environmental education, interpretation and outreach services to the public; typically 10 or less per year
- Encourage environmental education and interpretation by partner organizations and agencies
- Continue to provide environmental education and interpretation handouts, backpacks and hands-on kits to groups that request them
- Maintain publications (e.g. brochures), interpretive panels exhibits, website, and social media accounts that provide information about habitat, wildlife, management actions, and activities on the refuge
- Interpretation is passive in nature, from self-guided opportunities using interpretive panels, brochures, and websites
- Maintain websites and social media accounts by utilizing Regional Office staff and volunteers to enhance and increase visitors' awareness of and interest in exploring the refuge.
- Replace the existing refuge Visitor Center with funding potentially available starting in 2020
- Continue to operate the Visitor Center from May – October (5 days a week), Thursday – Monday from 9am – 5pm and provide staff or volunteers to interact with visitors
- Periodically evaluate products and brochures for effectiveness and update them as funding and staff time allows
- Update interpretive exhibits in the Visitor Center when it is replaced within the next 5 years
- Work with the CSKT to incorporate native languages in educational and interpretive materials to the maximum extent possible
- Partner with Glacial Lake Missoula organization to enhance the interpretation of the geologic history of the area at one additional location around the refuge
- Continue to interpret the cultural history of the NBR area, including Tribal uses, and early settlement through current displays in the Visitor Center
- Develop a general brochure that meets agency standards

Rationale

The Refuge Improvement Act identifies environmental interpretation as one of the six priority public uses. Environmental interpretation includes activities, talks, publications, events, programs, audio-visual media, signs, and exhibits that convey key messages about natural and cultural resources to visitors, but that do not address a specific educational curriculum requirement. It provides opportunities for visitors to make their own connections to nature and wildlife, which invites participation in resource stewardship and helps refuge visitors understand their relationships to, and impacts on, those resources.

The environmental education and interpretation program at the NBR accomplishes the mission for which the refuge was established and meets the goals of the Refuge System. Both programs are legislated, wildlife-dependent priority public uses. Both public use programs would contribute to the mission of the Refuge System by increasing knowledge and support of the stewardship of natural resources.
The refuge contains unique habitats and supports wildlife populations—particularly the bison herd, other large ungulates and mammals, migratory birds, and upland game birds—in excess of what can be observed on neighboring private lands. These uses promote an appreciation for the natural resources at the refuge. In addition, these uses support conservation programs at the refuge.
It is estimated that during 2017 approximately 180,000 persons visited NBR for one or more uses (USFWS 2017a). It is estimated that 168,000 visitors went on one or all of the wildlife drive auto tour routes. Approximately 32% (56,823) of visitors annually are estimated to have come through the refuge Visitor Center. The location of the new

Visitor Center has not been determined, but could likely be located in the same general area as the existing facility.

Objectives for Education, Interpretation and Outreach—Alternative B

Environmental Education, Interpretation, and Outreach 1B

Throughout the life of the plan, increase environmental education and interpretation opportunities and provide general information contacts at the Visitor Center to a minimum of 45 percent of annual visitors (180,000 overall visits in 2017). Encourage awareness of and provide an opportunity to learn about conservation and the mission of the refuge system and to highlight the unique history of bison conservation and cultural and historical significance of the refuge.

Strategies

- Same as 1A, plus
- Employ a full-time, on-site, visitor services specialist
- Work with partners and volunteers to increase environmental education, interpretation and outreach programming that meets the needs of the refuge, surrounding communities, and out-of-town visitors; programs may include activities for specific grades or groups, teacher trainings, and tours in normally closed areas
- Seek to provide at least 20 environmental education and interpretation presentations and attending at least 10 environmental outreach events
- Reach out to communities who are currently underserved
- Ensure that environmental education programs support the Montana State School benchmarks and standards and the State Office of Public Institution guidelines for educators
- Develop communication products on specialized topics, such as bison conservation and the native bunchgrass ecosystem
- Within 2 years, conduct a complete sign inventory and develop a work plan for a comprehensive replacement (as needed) and maintenance of refuge wayfinding, regulatory, and interpretive signage
- Explore sources for alternative funding, such as grants or increased visitor use fees, to improve and enhance the environmental education, interpretation and outreach program
- Expand the Visitor Center operations to 5 days a week, 8am-4:30pm, from November – April and 7 days a week, 9am-7pm, May – October and provide staff or volunteers to interact with visitors
- Within 5 years, and working with the State Office of Public Instruction guidelines for educators, work with partners to produce materials for use in the classroom and on the refuge to provide high-quality environmental education programs
- Create an on-line calendar of annual refuge events and post on website

Environmental Education, Interpretation, and Outreach 2B

Throughout the life of the plan, increase public awareness and appreciation of bison, native birds, and their habitats.

Strategies

- Develop a mobile phone application that provides educational information on bison, native birds, and their habitats and provides daily updates of bison and other ungulate locations on the NBR. This application will be regularly be updated by NBR staff and volunteers
- Facilitate public participation through citizen science projects and other volunteer opportunities
- Provide information on bison management and bison capture operations
- Develop bison, native bird, and habitat specific educational programs and tours

Rationale (Environmental Education, Interpretation, and Outreach 1B and 2B)

Same as 1A, plus even though the primary focus, by necessity, will be providing visitor services and information during day to day contacts with public visitors, there will be opportunities for education and interpretation programs with outreach to local schools, special groups (ie., Scouts), and other organizations that request them. Refuge partners and volunteers will be crucial to helping the refuge, and the Service meet conservation goals. Because refuge resources are limited and much of the staff and volunteer time will be focused on seasonal and daily interactions with public visitors, environmental education programming for youth audiences will focus on more teacher-led programs with less direct involvement from staff and trained volunteers. Ultimately, our goal will be for most educators of these audiences to independently lead refuge programming or their own program with minimal input from staff. When staff time and other resources allow, refuge staff, volunteers, and other partners will work directly with these audiences. Environmental education, interpretation and outreach programs would be developed under the Mountain-Prairie Region visitor services and outreach level guidance (USFWS 2018b).

Objectives for Education, Interpretation and Outreach—Alternative C

Environmental Education, Interpretation, and Outreach 1C

Throughout the life of the plan, provide environmental education and interpretation through general information contacts at the Visitor Center to a minimum of 30 percent of annual visitors, with a special consideration given to priority species and habitat. Use Visitor Services staff to provide outreach to schools with a focus on providing education pertaining to priority species and habitat. All environmental education and interpretation programs will emphasize that wildlife and habitat are the priority for the management of the NBR. Educate the public about the importance and necessity of rules and regulations that seek to protect priority species and habitat.

Strategies

- Same as 1A, plus
- Employ a full-time visitor services specialist to provide environmental education and interpretation on priority species and habitat
- Train seasonal employees and volunteers to provide environmental education, interpretation and outreach that focuses on priority species and habitat
- Educational and interpretive materials, displays, signs will prioritize information relevant to priority species and habitats on the refuge
- Resume conducting at least 1 (one) teacher workshop per year centered around NBR resources, habitats, wildlife and management with emphasis on species management
- All interpretive materials will emphasize species-based management
- The Visitor Center may be open 7 days a week, May - October, subject to funding and availability of interns, seasonal employees and or volunteers
- Create an on-line calendar of annual refuge events and post on website

Rationale

Same as 1A

Environmental Education, Interpretation, and Outreach 2C

Same as 2B

Strategies

- Develop a mobile phone application that provides educational information on bison, native birds, and their habitats and provides updates of bison and other ungulate locations on the NBR. This application will be updated by the visiting public and volunteers
- Encourage public participation through citizen science projects and other volunteer opportunities
- Provide information on bison management and bison capture operations
- Develop educational materials on bison, native bird, and habitat that can be utilized by educators on and off the NBR

Rationale

Same as 2B

Objective for Other Uses—Alternative A

Other Uses 1A

Throughout the life of the plan, provide appropriate and compatible opportunities for non–wildlife dependent recreation that support the six priority public uses or contribute to the appreciation of the refuge. These opportunities will not be allowed to disturb wildlife and will not be allowed when areas are closed for safety reasons.

Strategies

- As appropriate, allow special user groups, such as educational institutions or organizations, camping with a special use permit
- As appropriate, allow antler collection for special user groups with a special use permit (with fee). All antlers collected will be sold through an annual auction, with 65% of the proceeds going to the refuge to support refuge programs. Collection of antlers for personal benefit will not be allowed
- Continue to maintain the day use area for environmental education uses and also allow non-wildlife dependent public uses

Rationale

The Improvement Act states that other uses can occur within the Refuge System, but they must support, or not conflict with, a priority public use. Furthermore, a use may not keep a national wildlife refuge from accomplishing its purposes or the mission of the Refuge System.

The CCP describes the desired future conditions of the refuge and provides long-range guidance and management direction to accomplish NBR purpose(s) and the Refuge System mission. We prepare CCPs and include a review of the appropriateness and compatibility of existing refuge uses and of any planned future public uses (Appendix D). If, during preparation of the CCP, we identify previously approved uses we can no longer consider appropriate on the refuge, we will clearly explain our reasons to the public and describe how we will eliminate or modify the use. When uses are reviewed during the CCP process,

the appropriateness finding will be documented for the refuge files.

Objective for Other Uses—Alternative B

Other Uses 1B

- Same as 1A, plus
- Evaluate and identify opportunities for an annual Saddle Club Trail ride to occur under a Special Use Permit with specific conditions (included in Chapter 4 Impacts) to support wildlife-dependent recreation and management activities.

Rationale

The refuge supports various forms of nature based outdoor recreation that, while not strictly wildlife dependent, may support or facilitate wildlife-dependent recreation. These activities include social gatherings in the day use area and allowing special user groups to collect antlers. Under this alternative, the refuge would allow an annual Saddle Club Trail ride to occur under a Special Use Permit that includes specific conditions (included in Chapter 4 Impacts) to support wildlife observation, other wildlife-dependent recreation activities and management activities. These proposed activities will be allowed to the extent possible, as long as the use does not conflict or cause disturbance to priority species or habitat.

Objective for Other Uses—Alternative C

Other Uses 1C

Throughout the life of the plan, evaluate non-wildlife dependent recreation and design uses that substantially contribute to the appreciation or management of the refuge. Any consideration given to permitting a special use will weigh the effects that use may have on staff time, the benefit to refuge or Refuge System resources. Proposed activities would be managed in a way that the use would not conflict with or cause disturbance to priority species or habitats.

Strategies

- Same as 1A, plus
- Identify opportunities for an annual Saddle Club Trail ride to occur under a Special Use Permit with specific conditions (included in Chapter 4 Impacts) to support management activities and wildlife-dependent recreation.
- Evaluate the long-term management of the day use area. Facilitate this by utilizing volunteers and/or reducing the overall size of the day use area and/or the number of vault toilets, picnic tables, and fire pits.
- As appropriate and necessary, allow educational institutions with specific educational objectives to camp on the refuge with a Special Use Permit.
- Evaluate the costs and benefits of permitting antler collection.

Rationale

The refuge supports various forms of nature based outdoor recreation that, while not strictly wildlife dependent, may support or facilitate wildlife-dependent recreation. These activities include, social gatherings in the day use area, and allowing special user groups to collect antlers. Under this alternative, the refuge would allow an annual Saddle Club Trail Ride under a Special Use Permit that includes specific conditions to support management activities (included in Chapter 4 Impacts) and wildlife dependent recreation Proposed activities would be managed in a way that the use would not conflict with or cause disturbance to priority species or habitats.

Objectives for Communication—Alternative A

Communications 1A

Communicate to the public how the Service incorporates traditional ecological knowledge (TEK) into its management practices, and how TEK benefits natural resource management as well as relationships among resource managers.

Strategies

- Incorporate TEK messaging in communication products (educational materials, signage, outreach materials and public statements in media, etc.)
- Discuss, with the Salish-Pend d'Oreille Culture Committee and the Kootenai Culture Committee, ways to coordinate TEK information that the Committees may have that they wish to share with the public through the NBR

Communications 2A

Over the life of the plan, incorporate native languages into educational materials, signage, and outreach materials to the maximum extent possible, to highlight the rich cultural history associated with the Mission Valley.

Strategies

- Work with CSKT, including Salish Kootenai College and the Salish-Pend d'Oreille and Kootenai Culture Committees, to include native words and language, including place names and flora/fauna names, into exhibits, educational materials, signage, and outreach materials

Rationale (Communications 1A and 2A)

The process to obtain and include TEK into

refuge processes begins at the lowest level with communication. The refuge proposes to continue working with Tribal partners to incorporate messaging into printed materials such as with the new general brochure, and with refuge informational signs indicating specific locations on or around the refuge, rivers, creeks or other landmarks. The incorporation of TEK will also be included in outreach materials, biological publications, and into interpretation and outreach programs.

Incorporating TEK will be one way the refuge can uphold the federal trust responsibility to CSKT with regard to priority biological resources of mutual interest. Communicating how, and in what manner TEK is utilized allows a mutually beneficial relationship to be created, and maintained between conservation educators, managers, biologists and local people (Rinkevich et al 2011).

Objectives for Communication—Alternative B

Communications 1B and 2B

Same as Communications 1A and 2A

Strategies and Rationale

Same as Communications 1A and 2A

Objectives for Communication—Alternative C

Communications 1C and 2C

Same as Communications 1A and 2A

Strategies and Rationale

Same as Communications 1A and 2A

Partnerships and Collaboration Goal: Maintain and cultivate partnerships that help achieve the vision and supporting goals and objectives of the National Bison Range Complex to support wildlife and habitat conservation, research, foster awareness and appreciation of natural and cultural resources of the inter-montane ecosystem of western Montana and provide education along with all necessary infrastructure.

Recognizing its importance, we will collaborate with the Confederated Salish and Kootenai Tribes and other Tribal governments in a manner consistent with the Service's Native American policy and with other Federal, State, and local government entities in a manner consistent with applicable Service policies.

Objectives for Partnership—Alternative A

Partnership 1A

Over the life of the plan, continue a strong and effective working relationship with existing partners for the purpose of achieving our habitat, wildlife, and visitor services goals.

Strategies

- Work with the CSKT and the Inter-Tribal Buffalo Council on donations and transfers of bison, as well as other parts such as skulls, bones, and hides
- Work with the Partners for Fish and Wildlife Program on priority stream and riparian restoration projects
- Work with the CSKT, MTFWP, NRCS, Pheasants Forever, other governmental agencies and non-governmental organizations on priority riparian, wetland, and grassland restoration opportunities
- Work with CSKT in all aspects of wildland fire management within NBR.
- Work with Federal, State, County, and Tribal law enforcement agencies for the safety and protection of wildlife and visitors
- Work with the Avian Science Center on grassland bird surveys
- Work with the Partnership for Regional Invasive Species Management (PRISM) and Counties in the development of invasive species partnerships
- Work with private landowners on priority resource related issues to seek common conservation goals

Partnership 2A

Further the agency's trust responsibilities by fostering a constructive relationship and capacity-building with the CSKT regarding natural resources on the Flathead Indian Reservation and the NBR, consistent with USFWS guidance (Rinkevich et al 2011).

Strategies

Maintain current means of communication between the Service and CSKT on matters of common interest and resource protection

Rationale (Partnership 1A and 2A)

Partnerships are vital to achieving the Service's mission, including the vision for the NBR. Many of NBR's wildlife, habitat, and public use programs and habitat projects could not continue without the funding and support from refuge partners, and if appropriate, volunteers too.

The Service must emphasize working cooperatively with others; develop a more integrated approach to problem solving and share resources to get the job done; and make choices and find efficiencies in both resource and business management practices. This focus reinvigorates NBR's current intergovernmental coordination efforts. Numerous federal, state, Tribal, and local agencies and private citizens could be considered partners for the refuge. However, more could be done to inform and educate the partners about the refuge's value and goals. The Service seeks to help other agencies with issues, such as invasive plant control and specific wildlife conservation issues. Much of this coordination is accomplished through regular meetings and by developing personal relationships with individuals within other agencies and surrounding communities.

Objectives for Partnership—Alternative B

Partnership 1B

Over the next 15 years, maintain a strong and effective working relationship with existing partners and develop new partners for the purpose of achieving greater quality for public use opportunities for the primary purpose of achieving a high standard of visitor services goals.

Strategies

- Same as 1A, plus
- Develop a not-for-profit 501(c)(3) organization, or Friends group to support refuge priority goals
- Develop partnership with colleges and university to recruit students in educational programs to work with and develop environmental education programs for grades K-12, both on and off refuge
- Develop partnerships with applicable groups to enhance wildlife recreational opportunities, such as birding groups (e.g. Audubon), photography groups (e.g. North American Photography Association) to develop and fund observation blinds and events
- Reestablish the volunteer program
- Reestablish book store (Friends group or Cooperating Association)

Partnership 2B

Same as Partnership Objective 2A

Strategies

- Same as 2A, plus
- Initiate discussions with the Confederated Salish and Kootenai Tribes regarding methods of collecting TEK
- Initiate discussions, and possibly propose a memorandum of understanding (MOU), with SKC regarding TEK and opportunities to collaborate.
- Initiate discussions with the Salish-Pend d'Oreille Culture Committee and the Kootenai Culture Committee and seek the Committees' counsel

Rationale (Partnership 1B and 2B)

Same as Partnership 1A and 2A

Objectives for Partnership—Alternative C

Partnership 1C

Over the next 15 years, maintain a strong and effective working relationship with existing partners and develop new partnerships for the purpose of achieving our priority habitat and wildlife goals.

Strategies

- Same as 1A, plus
- Reinvigorate PRISM and solicit new partners (e.g. private landowners) for a comprehensive approach to invasive species management on the Flathead Indian Reservation (FIR)
- Consider expanding opportunities for donations of bones, skulls, hides etc. to the CSKT, the Inter-Tribal Buffalo Council or other Tribes for cultural or educational purposes
- Work with neighboring private landowners and other partners (CSKT) to develop priority conservation areas within the FIR that model and ultimately promote wildlife friendly livestock management
- Expand partnerships with the CSKT, MTFWP, NRCS, Pheasants Forever, other governmental agencies and non-governmental organizations to include working on wildlife management issues, specifically on priority species and their habitats and use of wildland fire on refuge lands

Partnership Objective 2C

Same as Partnership Objective 2A

Strategies

Same as Partnership 2A

Rationale (Partnership 1C and 2C)

Same as Partnership 1A and 2A

Administration and Operations Goal: Effectively use funding, staff, partnerships, volunteers, and equipment to restore and manage Complex habitats, conduct programs, and improve and maintain all necessary infrastructures to the benefit of the Complex and the Refuge System.

Objectives for Funding and Staff—Alternative A

Funding and Staff 1A

Throughout the life of the plan, strive to keep funding level for existing 7.5 permanent staff full-time equivalents (FTEs) at the NBR. Continue to seek funding for vacant, seasonal, temporary, and youth positions.

Strategies

- Continue to accurately document budget and staff needs through memos and reports
- Continue to support additional hiring with funding from other agencies or organizational partners to provide three biological aids and or range technicians
- Provide office space at NBR for a Partners for Fish and Wildlife private lands biologist, and for other program staff as needed
- Use the Montana Conservation Corps program to help accomplish refuge goals and objectives
- Seek funding through grants and initiatives, such as AmeriCorps and other youth programs to supplement our staff and projects
- Continue to utilize student internship trainees to support public use and visitor services activities

Rationale

Current staff at the refuge consists of seven permanent full-time employees including a refugemanager, budget analyst, law enforcement officer, biologist, engineering equipment operator, and a maintenance worker, as well as a permanent seasonal range technician (Table 2.2). The budgetanalyst and law enforcement officer assist other stations as well as the NBR. All staff are part of a larger Complex and also assist other stations within the Complex at various times. Contingent on annual funding, biological aids or range technicians have been employed seasonally. Funding from grants and organizational partners has allowed the NBR to utilize personnel from the Montana Conservation Corps and other youth programs. The NBR has contracted with the Student Conservation Association and American Conservation Experience to provide interns. The goals and objectives in Alternative A were developed with the current funding and staffing levels.

The NBR supports the Montana Partners for Fish and Wildlife program by providing office space for a private lands biologist. This position can provide support for the refuge's biological and maintenance projects, but their program duties take precedence.

Funding and Staff 2A

Throughout the life of the Plan, build staff capacity for understanding and interpreting local indigenous culture, history, and TEK.

Strategies

- Encourage or require staff and volunteers to take the online TEK course from the National Conservation Training Center, or equivalent training
- Encourage or require staff and volunteer training with respect to the indigenous Salish, Pend d'Oreille and Kootenai cultures and histories. Consult with the Salish-Pend d'Oreille and Kootenai Culture Committees, CSKT Tribal Council, or SKC on what training would be most appropriate

Rationale

It is important to maintain an efficient, and productive staffing organization, but also provide the opportunity of awareness and understanding of the CSKT, and of TEK. NBR sits completely within the Flathead Reservation, therefore staff, volunteers, and partners should have a general understanding of local indigenous culture, history, and TEK.

Objectives for Funding and Staff—Alternative B

Funding and Staff 1B

To enhance experiences for the public, within 3 years, seek funding for an additional permanent FTE to accomplish all the objectives of this alternative. Continue funding to provide for 7.5 permanent full-time employees. Continue to seek money for seasonal (1-4), temporary, and youth positions.

Strategies

- Same as 1A, plus
- Prioritize hiring a visitor services specialist

Rationale

Same as A, plus this alternative emphasizes managing habitat and wildlife populations to provide high-quality, wildlife-dependent opportunities for the public. In order to accomplish the goals and objectives described in this alternative, it is essential that a visitor services specialist is stationed at the NBR. This employee would be responsible for developing and delivering environmental education, interpretation, and outreach programs for the NBR. In addition, these programs would be expanded and enhanced in accordance with regional visitor services program guidance (USFWS 2018b). This position would partner with multiple state, Tribal and non-profit organizations to improve and enhance the public use program. This position would also create guidelines, develop curriculum and produce materials for educators to utilize on and off the NBR. A visitor services specialist must be stationed on the NBR in order to recruit, train, direct and supervise a robust volunteer program and those interns assigned to the public use program. It is necessary that this position be stationed at the NRB in order to oversee the collection and deposit of money generated from the entrance fee program and donations. The entrance fee program requires the counting and securing of funds that are collected daily.

A wildlife refuge manager would assist the Complex project leader and biologist position with accomplishing the additional goals and objectives listed in Alternative B.

Funding and Staff 2B

Same as Funding and Staff 2A

Strategies and Rationale

Same as Funding and Staff 2A

Objectives for Funding and Staff—Alternative C

Funding and Staff 1C

Within 3 years, seek funding for an additional 2 FTEs to assist with implementation of the objectives of this alternative. Continue funding to provide for 7.5 permanent full-time employees. Continue to seek money for, seasonal (1-4), temporary, and youth positions.

Strategies

- Same as 1B, plus
- Hire a full-time biological technician
- Actively solicit partners to collaborate and share resources and positions

Rationale

Same as 1A, plus this alternative emphasizes maintaining and/or enhancing ecological communities by building ecological community resiliency, promoting species and genetic diversity, and building sustainable management capacity and operations. The biologist has primary responsibility for the planning, implementation, reporting and oversight of the biological program on the NBR. The biologist position at the NBR fills a unique niche within the FWS. The habitat and wildlife management issues on the NBR are unique, complex, and technical. A biologist technician is necessary to assist with the completion of wildlife and habitat surveys, summarizing, inputting, and filing data, and reporting that information to the lead biologist.

The visitor services specialist would be responsible for delivering or facilitating environmental education, interpretation, and outreach programs for the NBR in accordance with regional visitor services program guidance (USFWS 2018b). This position would partner with multiple State, Tribal and non-profit organizations to assist the public use program at the NBR. This position would also assist in the dissemination of materials for educators to utilize on and off the NBR. The visitor services specialist is necessary to recruit, train, direct and lead the volunteer program and those interns assigned to the public use program. This position would assist in collection and deposition of money generated from the entrance fee program and donations.

A wildlife refuge manager would assist the Complex project leader and biologist position with accomplishing the additional goals and objectives listed in Alternative C.

Funding and Staff 2C

Same as Funding and Staff 2A

Strategies and Rationale

Same as Funding and Staff 2A

Objectives for Volunteers– Alternative A

Volunteer 1A

Over the life of the plan, use volunteers to support refuge activities related to administrative, public use, maintenance, and biological activities.

Strategies

- Provide staff to recruit, supervise, coordinate and train volunteers
- Recruit volunteers for administrative, biological, maintenance and administrative positions on an as-needed basis

Rationale

Volunteers are necessary to meet the operational needs of the refuge in various programs including visitor services, biology, maintenance, and administration.

Objectives for Volunteers– Alternative B

Volunteer 1B

Over the life of the plan, to foster an understanding and appreciation of the National Bison Range and support resource management, provide for at least 25 volunteers for various public use programs in which they have interests and skills.

Strategies

- Same as 1A, plus
- To enhance wildlife dependent recreational opportunities, prioritize and actively recruit volunteers for the visitor services program
- Work with partners to increase volunteer recruitment and to co-host volunteer projects at the refuge

Rationale

Volunteers are necessary to meet the operational needs of the refuge in various programs including visitor services, biology, maintenance, and administration. Building up the current volunteer program to fully meet the needs of the refuge over the life of the CCP will require the dedication of a visitor services specialist. The refuge proposes having a visitor services staff member promote and manage the volunteer program.

Objectives for Volunteers– Alternative C

Volunteer 1C

Over the life of the plan, support the biological program at the National Bison Range, provide for at least 20 volunteers for various programs in which they have interest and skills.

Strategies

- Same as 1A, plus
- Prioritize actively recruiting volunteers as needed to assist with habitat and wildlife use objectives

Rationale

Volunteers are helpful in meeting the operational needs of the refuge in various programs including visitor services, biology, maintenance, and administration. Building up the current volunteer program to fully meet the needs of the refuge over the life of the CCP will require the dedication of a visitor services specialist.

The refuge proposes to maintain a visitor services staff member that will work in part with biological staff to promote and recruit volunteers to assist in the biological program. Volunteers would perform surveys as needed, or assist with invasive plant treatment as examples. Volunteers would also provide assistance in other refuge programs as needed, however, the main focus for volunteer assistance would be for biological needs as part of this alternative.

Objectives for Facilities—Alternative A

Facilities 1A

Over the life of the plan, maintain adequate facilities and real property in operational condition and meet Service standards and refuge goals.

Strategies

- Maintain access to the refuge from dawn to dusk.
- Maintain 19 miles of auto tour routes
- Maintain 3 miles of hiking trails
- Maintain 9 miles of winter closure of Red Sleep Mountain Drive
- Maintain the day use area and the Visitor Center
- Maintain the roads, parking lots, and bridges required to support administrative functions and public use opportunities consistent with our goals and objectives
- Conduct dust abatement on auto tour route each year
- Maintain the fencing, wells, and other infrastructure necessary to facilitate the bison management program that helps us achieve our purpose, goals, and objectives for the refuge.
- Maintain existing buildings, including an office/ visitor center, maintenance shop, storage buildings, barns, residences, and vault toilets
- Maintain displays, and exhibits about area flora, fauna, ecology, cultural uses, and history at the Visitor Center and update as resources allow
- Maintain existing trails and accompanying facilities including interpretive signs, directional and regulatory signs and kiosks to provide quality visitor use experiences
- Replace the existing refuge Visitor Center with funding potentially available starting 2020; The location of the new Visitor Center has not been

determined, but could likely be located in the same general area as the existing facility
- In conjunction with the new Visitor Center, design and fabricate new exhibits
- Maintain self-pay fee station (Iron Ranger) outside of refuge Visitor Center for convenience to the public
- Reduce the number of vault toilets in public use area

Rationale

Visitor services infrastructure including kiosks, entrance, directional and boundary signing, trails, roads, fences, dikes and buildings need routine annual and long-term maintenance to support resources in good condition (at a minimum). The NBR Visitor Center is currently on the Service's Deferred Maintenance list and is expected to be replaced starting in 2020.

Essential facilities include the Visitor Center, office, maintenance shops and the bison corral. Due to the extensive backlog in the Service and the lack of maintenance staff on the refuge (currently 2 full-time, and 1 career seasonal), infrastructure throughout the refuge varies from poor to excellent condition. Roads require additional gravel, grading, and dust abatement (with magnesium chloride) annually. Fences and signage require frequent repair and replacement to keep the bison herd in designated areas, and the public informed and safe. Public use and accessible facilities (e.g. restrooms, parking, entrance ramps, trails) exist in several locations around the Visitor Center and day use area, and require annual minor repairs to maintain accessibility. Due to limited staff, reduction in the number of vault toilets in the day use area will allow current staff to more adequately clean and maintain the remaining toilets.

Objectives for Facilities—Alternative B

Facilities 1B

Over the life of the plan, make improvements to new visitor facilities and infrastructure to provide a variety of experiences to provide quality public use opportunities for visitors to foster meaningful connections to wildlife, natural resources, and the cultural heritage of the refuge.

Strategies

- Same as 1A, plus
- By 2025, begin planning efforts to fund and construct outdoor restroom facilities (available during closed hours) located adjacent to the new office/visitor center
- Develop a facilities committee to review all available housing space on the refuge, along with priority needs (seasonal employees, volunteers, visiting USFWS teams). Plan to rebuild or repurpose housing for bunkhouse needs
- Within 3 years, and every 2 years afterwards, upgrade or fix one of the trails (of 4 maintained), with particular note to providing accessibility

Rationale

Same as 1A, plus the refuge proposes to prioritize planning for, and develop projects that support the visitor services program. Potential funding would become available over the next 5 years to plan and develop a new Visitor Center, road improvements, and repair of trails.

Maintenance of the day use area is a priority under this alternative, and its importance to environmental education and the overall visitor experience is recognized. Volunteers will be utilized to clean the bathrooms, mow and water the grass, and maintain a generally healthy and clean environment in the day use area.

Objectives for Facilities—Alternative C

Facilities 1C

Over the life of the plan, maintain adequate facilities and real property in operational condition to meet Service standards and refuge goals. Prioritize improvements and maintenance on roads, trails, facilities, and infrastructure that are critical in managing the refuge for priority species and sustainability of natural habitats.

Strategies

- Same as 1A, plus
- Develop a facilities committee to review all available housing space on the refuge, along with priority needs (seasonal employees, volunteers, visiting USFWS teams). Plan to rebuild or repurpose housing for bunkhouse needs
- Consider for removal interior fences that have not been maintained since the 1992 change in grazing systems and are currently considered obstacles wildlife movement
- By 2023, remove all electric fencing that no longer serves a purpose for bison management
- By 2022, develop a station Habitat Management Plan (HMP) to help define actions or facility projects that would help the station reach an improved level of sustainability
- By 2020, replace staff time involved in maintenance of the day use area with refuge volunteers.

Rationale

Same as 1A, plus current refuge housing is routinely unoccupied while the bunkhouse, a multi-residence facility, is routinely filled to capacity during the summer field season. A review of the current housing on NBR would define what housing is necessary to accommodate full-time and seasonal employees, visiting Service employees, interns, contractors and volunteers.

Rotational grazing is no longer implemented and the fencing of multiple pastures is no longer necessary.

Fencing of pastures that are no longer utilized will not be maintained and will need to be removed to reduce the potential for entanglement and to further the free movement of wildlife.

Electric fences were used to discourage bison from leaving the pasture they were occupying. The electric fences would routinely be broken by elk and it took a substantial amount of staff time to try and maintain these fences. Electric wire that has broken off and has entangled wildlife and horses, resulting in additional staff time to free entangled animals. We are no longer utilizing rotational grazing and no longer need to maintain electric fencing to try and keep bison in a specific pasture.

Maintenance of the day use area is not a priority under this alternative, but its importance to environmental education and the overall visitor experience is recognized. Volunteers will be utilized to clean the bathrooms, mow and water the grass, and maintain a generally healthy and clean environment in the day use area.

Appendix G—List of Plant and Animal Species

List of species either documented as present, or probably present, on the National Bison Range. Designations include species listed as Federally endangered or threatened, species of concern or potential species of concern in the state of Montana (http://mtnhp.org/SpeciesOfConcern/), and species considered non-native to Montana. This list is not exhaustive and will be added to as inventory, monitoring, and management activities occur on the refuge.

Common Names	Scientific Name	Designation
MAMMALS		
American mink	*Neovison vison*	
Badger	*Taxidea taxus*	
Beaver	*Castor canadensis*	
Bighorn sheep	*Ovis canadensis*	
Bison	*Bison bison*	species of concern
Black bear	*Ursus americanus*	
Black-tailed prairie dog	*Cynomys ludovicianus*	species of concern
Bobcat	*Lynx rufus*	
Columbian ground squirrel	*Urocitellus columbianus*	
Coronation island vole	*Microtus longicaudus*	
Coyote	*Canis latrans*	
Deer mouse	*Peromyscus maniculatus*	
Dusky or montane shrew	*Sorex monticolus*	
Elk	*Cervus elaphus*	
Fringed myotis	*Myotis thysanodes*	species of concern
Golden-mantled ground squirrel	*Callospermophilus lateralis*	
Grizzly bear	*Ursus arctos*	Threatened
Hoary bat	*Lasiurus cinereus*	species of concern
House mouse	*Mus musculus*	
Long-eared myotis	*Myotis evotis*	
Long-tailed vole	*Microtus longicaudus*	
Long-tailed weasel	*Mustela frenata*	
Masked shrew	*Sorex cinereus*	
Meadow vole	*Microtus pennsylvanicus*	
Montane vole	*Microtus montanus*	
Mountain cottontail	*Sylvilagus nuttallii*	
Mountain lion	*Puma concolor*	
Mule deer	*Odocoileus hemionus*	
Muskrat	*Ondatra zibethicus*	
Northern pocket gopher	*Thomomys talpoides*	
Northern river otter	*Lontra canadensis*	
Porcupine	*Erethizon dorsatum*	potential species of concern
Pronghorn	*Antilocapra americana*	
Raccoon	*Procyon lotor*	

Common Names	Scientific Name	Designation
Red fox	*Vulpes vulpes*	
Red squirrel	*Sciurus vulgaris*	
Short-tailed weasel	*Mustela erminea*	
Snowshoe hare	*Lepus americanus*	
Southern grasshopper mouse	*Onychomys torridus*	
Striped skunk	*Mephitis mephitis*	
Townsend's big-eared bat	*Corynorhinus townsendii*	species of concern
Wandering shrew	*Sorex vagrans*	
Western jumping mouse	*Zapus princeps*	
White-tailed deer	*Odocoileus virginianus*	
White-tailed jack rabbit	*Lepus townsendii*	
Wolf	*Canis lupus*	
Yellow pine chipmunk	*Tamias amoenus*	
Yellow-bellied marmot	*Marmota flaviventris*	
BIRDS		
American avocet	*Recurvirostra americana*	
American bittern	*Botaurus lentiginosus*	species of concern
American coot	*Fulica americana*	
American crow	*Corvus brachyrhynchos*	
American dipper	*Cinclus mexicanus*	
American goldfinch	*Spinus tristis*	
American kestrel	*Falco sparverius*	
American pipit	*Anthus rubescens*	
American redstart	*Setophaga ruticilla*	
American robin	*Turdus migratorius*	
American three-toed woodpecker	*Picoides dorsalis*	
American tree sparrow	*Spizelloides arborea*	
American white pelican	*Pelecanus erythrorhynchos*	species of concern
American wigeon	*Anas americana*	
Baird's sandpiper	*Calidris bairdii*	
Bald eagle	*Haliaeetus leucocephalus*	species of concern
Bank swallow	*Riparia riparia*	
Barn swallow	*Hirundo rustica*	
Barred owl	*Strix varia*	
Barrow's goldeneye	*Bucephala islandica*	potential species of concern
Belted kingfisher	*Megaceryle alcyon*	
Black swift	*Cypseloides niger*	species of concern
Black tern	*Chlidonias niger*	species of concern
Black-backed woodpecker	*Picoides arcticus*	species of concern
Black-bellied plover	*Pluvialis squatarola*	
Black-billed cuckoo	*Coccyzus erythropthalmus*	potential species of concern
Black-billed magpie	*Pica hudsonia*	
Black-capped chickadee	*Poecile atricapillus*	
Black-chinned hummingbird	*Archilochus alexandri*	
Black-headed grosbeak	*Pheucticus melanocephalus*	

Common Names	Scientific Name	Designation
Black-necked stilt	*Himantopus mexicanus*	species of concern
Blue jay	*Cyanocitta cristata*	
Blue-winged teal	*Anas discors*	
Bobolink	*Dolichonyx oryzivorus*	species of concern
Bohemian waxwing	*Bombycilla garrulus*	
Brewer's blackbird	*Euphagus cyanocephalus*	
Brewer's sparrow	*Spizella breweri*	species of concern
Broad-tailed hummingbird	*Selasphorus platycercus*	potential species of concern
Brown creeper	*Certhia americana*	species of concern
Brown-headed cowbird	*Molothrus ater*	
Bufflehead	*Bucephala albeola*	
Bullock's oriole	*Icterus bullockii*	
Burrowing owl	*Athene cunicularia*	species of concern
California gull	*Larus californicus*	
Calliope hummingbird	*Stellula calliope*	
Calliope hummingbird	*Selasphorus calliope*	
Canada goose	*Branta canadensis*	
Canvasback	*Aythya valisineria*	
Canyon wren	*Catherpes mexicanus*	
Caspian tern	*Hydroprogne caspia*	species of concern
Cassin's finch	*Haemorhous cassinii*	species of concern
Cassin's vireo	*Vireo cassinii*	
Cedar waxwing	*Bombycilla cedrorum*	
Chipping sparrow	*Spizella passerina*	
Cinnamon teal	*Anas cyanoptera*	
Clark's nutcracker	*Nucifraga columbiana*	species of concern
Clay-colored sparrow	*Spizella pallida*	
Cliff swallow	*Petrochelidon pyrrhonota*	
Common goldeneye	*Bucephala clangula*	
Common grackle	*Quiscalus quiscula*	
Common loon	*Gavia immer*	species of concern
Common merganser	*Mergus merganser*	
Common nighthawk	*Chordeiles minor*	
Common raven	*Corvus corax*	
Common redpoll	*Acanthis flammea*	
Common snipe	*Gallinago gallinago*	
Common tern	*Sterna hirundo*	species of concern
Common yellowthroat	*Geothlypis trichas*	
Cooper's hawk	*Accipiter cooperii*	
Cordilleran glycatcher	*Empidonax occidentalis*	
Double-crested cormorant	*Phalacrocorax auritus*	
Downy woodpecker	*Picoides pubescens*	
Dusky flycatcher	*Empidonax oberholseri*	
Dusky grouse	*Dendragapus obscurus*	
Eared grebe	*Podiceps nigricollis*	

Common Names	Scientific Name	Designation
Eastern kingbird	*Tyrannus tyrannus*	
Eurasian collared dove	*Streptopelia decaocto*	non-native
European starling	*Sturnus vulgaris*	non-native
Evening grosbeak	*Hesperiphona vespertina*	
Ferruginous hawk	*Buteo regalis*	species of concern
Fox sparrow	*Passerella iliaca*	
Gadwall	*Anas strepera*	
Golden eagle	*Aquila chrysaetos*	species of concern
Golden-crowned kinglet	*Regulus satrapa*	
Grasshopper sparrow	*Ammodramus savannarum*	species of concern
Gray catbird	*Dumetella carolinensis*	
Gray jay	*Perisoreus canadensis*	
Gray partridge	*Perdix perdix*	non-native
Gray-crowned rosy finch	*Leucosticte tephrocotis*	species of concern
Great blue heron	*Ardea herodias*	species of concern
Great gray owl	*Strix nebulosa*	species of concern
Great horned owl	*Bubo virginianus*	
Greater yellowlegs	*Tringa melanoleuca*	
Green-winged teal	*Anas crecca*	
Gyrfalcon	*Falco rusticolus*	
Hairy woodpecker	*Picoides villosus*	
Hammond's flycatcher	*Empidonax hammondii*	
Harris' sparrow	*Zonotrichia querula*	
Hermit thrush	*Catharus guttatus*	
Hoary redpoll	*Acanthis hornemanni*	
Hooded merganser	*Lophodytes cucullatus*	potential species of concern
Horned lark	*Eremophila alpestris*	
House finch	*Haemorhous mexicanus*	
House sparrow	*Passer domesticus*	
House wren	*Troglodytes aedon*	
Killdeer	*Charadrius vociferus*	
Lapland longspur	*Calcarius lapponicus*	
Lark bunting	*Calamospiza melanocorys*	
Lark sparrow	*Chondestes grammacus*	
Lazuli bunting	*Passerina amoena*	
Least flycatcher	*Empidonax minimus*	
Least sandpiper	*Calidris minutilla*	
Lesser scaup	*Aythya affinis*	
Lesser yellowlegs	*Tringa flavipes*	
Lewis's woodpecker	*Melanerpes lewis*	species of concern
Lincoln's sparrow	*Melospiza lincolnii*	
Loggerhead shrike	*Lanius ludovicianus*	species of concern
Long-billed curlew	*Numenius americanus*	species of concern
Long-billed dowitcher	*Limnodromus scolopaceus*	
Long-eared owl	*Asio otus*	

Common Names	Scientific Name	Designation
MacGillivray's warbler	*Geothlypis tolmiei*	
Mallard	*Anas platyrhynchos*	
Marbled godwit	*Limosa fedoa*	
Marsh wren	*Cistothorus palustris*	
Merlin	*Falco columbarius*	
Mountain bluebird	*Sialia currucoides*	
Mountain chickadee	*Poecile sclateri*	
Mountain chickadee	*Poecile gambeli*	
Mourning dove	*Zenaida macroura*	
Nashville warbler	*Leiothlypis ruficapilla*	
Northern flicker	*Colaptes auratus*	
Northern goshawk	*Accipiter gentilis*	species of concern
Northern harrier	*Circus cyaneus*	
Northern mockingbird	*Mimus polyglottos*	
Northern oriole	*Icterus galbula*	
Northern pintail	*Anas acuta*	
Northern pygmy owl	*Glaucidium gnoma*	
Northern rough-winged swallow	*Stelgidopteryx serripennis*	
Northern saw-whet owl	*Aegolius acadicus*	
Northern shoveler	*Anas clypeata*	
Northern shrike	*Lanius excubitor*	
Northern waterthrush	*Parkesia noveboracensis*	
Olive-sided flycatcher	*Contopus cooperi*	
Orange-crowned warbler	*Leiothlypis celata*	
Oregon dark-eyed junco	*Junco hyemalis*	
Osprey	*Pandion haliaetus*	
Pacific wren	*Troglodytes pacificus*	species of concern
Peregrine falcon	*Falco peregrinus*	species of concern
Pied-billed grebe	*Podilymbus podiceps*	
Pileated woodpecker	*Dryocopus pileatus*	species of concern
Pine grosbeak	*Pinicola enucleator*	
Pine siskin	*Spinus pinus*	
Prairie falcon	*Falco mexicanus*	
Pygmy nuthatch	*Haemorhous purpureus*	
Red crossbill	*Sitta pygmaea*	
Red-breasted nuthatch	*Loxia curvirostra*	
Red-eyed vireo	*Mergus serrator*	
Redhead	*Sitta canadensis*	
Red-naped sapsucker	*Sphyrapicus nuchalis*	
Red-necked grebe	*Aythya americana*	
Red-necked phalarope	*Phalaropus lobatus*	
Red-tailed hawk	*Buteo jamaicensis*	
Red-winged blackbird	*Buteo jamaicensis*	
Ring-billed gull	*Agelaius phoeniceus*	
Ring-billed gull	*Larus delawarensis*	

Common Names	Scientific Name	Designation
Ring-necked duck	*Aythya collaris*	
Ring-necked pheasant	*Phasianus colchicus*	non-native
Rock dove	*Columba livia*	non-native
Rock wren	*Salpinctes obsoletus*	
Rough-legged hawk	*Buteo lagopus*	
Ruby-crowned kinglet	*Regulus calendula*	
Ruddy duck	*Oxyura jamaicensis*	
Ruffed grouse	*Bonasa umbellus*	
Rufous hummingbird	*Selasphorus rufus*	potential species of concern
Rufous-sided towhee	*Pipilo erythrophthalmus*	
Sage thrasher	*Oreoscoptes montanus*	species of concern
Sandhill crane	*Grus canadensis*	
Savannah sparrow	*Passerculus sandwichensis*	
Say's phoebe	*Sayornis saya*	
Semipalmated plover	*Charadrius semipalmatus*	
Semipalmated sandpiper	*Calidris pusilla*	
Sharp-shinned hawk	*Accipiter striatus*	
Short-eared owl	*Asio flammeus*	potential species of concern
Snow bunting	*Plectrophenax nivalis*	
Snow goose	*Chen caerulescens*	
Snowy owl	*Bubo scandiacus*	
Solitary sandpiper	*Tringa solitaria*	
Solitary vireo	*Vireo solitarius*	
Song sparrow	*Melospiza melodia*	
Sora	*Porzana carolina*	
Spotted sandpiper	*Actitis macularius*	
Spruce grouse	*Falcipennis canadensis*	
Steller's jay	*Cyanocitta stelleri*	
Swainson's hawk	*Buteo swainsoni*	
Swainson's thrush	*Catharus ustulatus*	
Townsend's solitaire	*Myadestes townsendi*	
Townsend's warbler	*Setophaga townsendi*	
Tree swallow	*Tachycineta bicolor*	
Trumpeter swan	*Cygnus buccinator*	species of concern
Tundra swan	*Cygnus columbianus*	
Turkey vulture	*Cathartes aura*	
Varied thrush	*Ixoreus naevius*	species of concern
Vaux's swift	*Chaetura vauxi*	
Veery	*Catharus fuscescens*	species of concern
Vesper sparrow	*Pooecetes gramineus*	
Violet-green swallow	*Tachycineta thalassina*	
Virginia rail	*Rallus limicola*	
Warbling vireo	*Vireo gilvus*	
Western bluebird	*Sialia mexicana*	
Western flycatcher	*Empidonax difficilis*	

Common Names	Scientific Name	Designation
Western grebe	*Aechmophorus occidentalis*	
Western kingbird	*Tyrannus verticalis*	
Western meadowlark	*Sturnella neglecta*	
Western screech owl	*Megascops kennicottii*	potential species of concern
Western tanager	*Piranga ludoviciana*	
Western wood-pewee	*Contopus virens*	
White-breasted nuthatch	*Sitta carolinensis*	
White-crowned sparrow	*Zonotrichia leucophrys*	
White-winged crossbill	*Loxia leucoptera*	
Wild turkey	*Meleagris gallopavo*	non-native
Willet	*Tringa semipalmata*	
Willow flycatcher	*Empidonax traillii*	
Wilson's phalarope	*Phalaropus tricolor*	
Wilson's snipe	*Gallinago delicata*	
Wilson's warbler	*Cardellina pusilla*	
Wood duck	*Aix sponsa*	
Yellow warbler	*Setophaga petechia*	
Yellow-breasted chat	*Icteria virens*	
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	
Yellow-rumped warbler	*Setophaga coronata*	
REPTILES		
Bullsnake, gopher snake	*Pituophis catenifer*	
Common gartersnake	*Thamnophis sirtalis*	
Painted turtle	*Chrysemys picta*	
Prairie rattlesnake	*Crotalus viridis*	
Racer	*Coluber constrictor*	
Rubber boa	*Charina bottae*	
Western terrestrial garter snake	*Thamnophis elegans*	
AMPHIBIANS		
Columbia spotted frog	*Rana luteiventris*	
Long-toed salamander	*Ambystoma macrodactylum*	
Pacific treefrog	*Pseudacris regilla*	
Western toad	*Anaxyrus boreas*	species of concern
FISH		
Brook trout	*Salvelinus fontinalis*	non-native
Brown trout	*Salmo trutta*	non-native
Bull trout	*Salvelinus confluentus*	Threatened
Largescale sucker	*Catostomus macrocheilus*	
Longnose dace	*Rhinichthys cataractae*	
Longnose sucker	*Catostomus catostomus*	
Mountain whitefish	*Prosopium williamsoni*	
Northern pikeminnow	*Ptychocheilus oregonensis*	
Rainbow trout	*Oncorhynchus mykiss*	non-native
Redside shiner	*Richardsonium balteatus*	
Slimy sculpin	*Cottus cognatus*	

Common Names	Scientific Name	Designation
Westslope cutthroat trout	*Oncorhynchus clarki lewisi*	species of concern
INVERTEBRATES		
Banded garden spider	*Argiope trifasciata*	
Barn funnel weaver	*Tegeneria somestica*	
Becker's white	*Pontia beckerii*	
Bigheaded grasshopper	*Aulocara elliotti*	
Black and yellow garden spider	*Argiope aurantia*	
Black widow	*Lactodectus herperus*	
Candy striped spider	*Enoplognatha ovata*	
Capsid bug	*Lygus shulli*	
Clouded sulphur	*Colias philodice*	
Common wood-nymph	*Cercyonis pegala*	
Cotton square borer	*Strymon melinus*	
Grasshopper	*Ageneotettix deorum*	
Grasshopper	*Amphitornus coloradus*	
Grasshopper	*Arphia conspersa*	
Grasshopper	*Arphia pseudonietana*	
Grasshopper	*Camnula pellucida*	
Grasshopper	*Chloealtis conspersa*	
Grasshopper	*Chortaphaga viridifasciata*	
Grasshopper	*Chorthippus curtipennis*	
Grasshopper	*Circotettix undulatus*	
Grasshopper	*Dissosteira carolina*	
Grasshopper	*Melanoplus confusus*	
Grasshopper	*Melanoplus dawsoni*	
Grasshopper	*Melanoplus femur-rubrum*	
Grasshopper	*Melanoplus oregonensis*	
Grasshopper	*Melanoplus packardii*	
Grasshopper	*Melanoplus sanguinipes*	
Grasshopper	*Phoetaliotes nebrascensis*	
Grasshopper	*Pseudopomala brachyptera*	
Green bush crickets	*Meconematinae or Phaneropterinae*	
Hobo spider	*Eratigena egrestis*	
Kiowa grasshopper	*Trachyrachys kiowa*	
Longhorned katydids	*Longhorned katydids misc*	
Lorquin's admiral	*Limenitis lorquini*	
Melissa blue	*Plebejus melissa melissa*	
Migratory grasshopper	*Melanoplus sanguinipes*	
Mylitta crescent	*Phyciodes mylitta*	
Odorous house ant	*Tapinoma sessile*	
Pearl crescent	*Phyciodes tharos*	
Purplish copper	*Epidemia helloides*	
Pygmy grasshopper	*Tetrigidae*	
Shield backed katydids	*Steiroxys spp.*	
Small wood-nymph	*Cercyonis oetus*	

Common Names	Scientific Name	Designation
Spider	*Araneus spp.*	
Stink bug	*Chlorochroa uhleri*	
Stink bug	*Neottiglossa undata*	
Stink bug	*Thyanta pallidovirens*	
Striped slant-face grasshopper	*Amphitornus coloradus*	
Two-striped grasshopper	*Melanoplus bivittatus*	
Two-tailed swallowtail	*Papilio multicaudata*	
Western tiger swallowtail	*Papilio rutulus*	
Wolf spider	*Pardosa wasatchensis*	
Woodland skipper	*Ochlodes sylvanoides*	
PLANTS		
Alberta penstemon	*Penstemon albertinus*	
Alfalfa	*Medicago sativa*	non-native
Alkali bluegrass	*Poa secunda ssp. juncifolia*	
Alpine aster	*Symphyotrichum foliaceum var. foliaceum*	
Alsike clover	*Trifolium hybridum*	non-native
Alta fescue	*Schedonorus arundinaceus*	
Alum root	*Heuchera parvifolia*	
American mannagrass	*Glyceria grandis*	
American milfoil	*Myriophyllum sibiricum*	
American speedwell	*Veronica americana*	
American wintercress	*Barbarea orthoceras*	
Annual agoseris	*Agoseris heterophylla*	
Annual bluegrass	*Poa annua*	non-native
Annual Jacob's-ladder	*Polemonium micranthum*	
Aquatic buttercup	*Ranunculus aquatilis*	
Arnica	*Arnica sororia*	
Arnica	*Arnica cordifolia*	
Arrowleaf balsamroot	*Balsamorhiza sagittata*	
Awned sedge	*Carex atherodes*	
Baby pondweed	*Potamogeton pusillus*	
Baltic rush	*Juncus balticus*	
Barnyard grass	*Echinochloa crus-galli var. crus-galli*	non-native
Basin nemophila	*Nemophila breviflora*	
Bastard toadflax	*Comandra umbellata*	
Bebb willow	*Salix bebbiana*	
Bed straw	*Galium circaezans var. circaezans*	
Bed straw	*Galium trifidum*	
Bed straw	*Galium aparine*	
Bee balm	*Monarda fistulosa*	
Big bluegrass	*Poa secunda*	
Birdsfoot trefoil	*Lotus corniculatus*	non-native
Bitleaf American vetch	*Vicia americana*	
Bitter fleabane	*Erigeron acris*	

Common Names	Scientific Name	Designation
Bitter nightshade	*Solanum dulcamara*	non-native
Bitterroot	*Lewisia rediviva*	
Black cottonwood	*Populus trichocarpa*	
Black hawthorn	*Crataegus douglasii*	
Black medic	*Medicago lupulina*	non-native
Blanket flower	*Gaillardia aristata*	
Blue elderberry	*Sambucus nigra ssp. cerulea*	
Blue lettuce	*Mulgedium oblongifolium*	
Blue mustard	*Chorispora tenella*	non-native
Blue verbena	*Verbena hastata*	
Blue wildrye	*Elymus glaucus*	
Bluebunch wheatgrass	*Pseudoroegneria spicata*	
Blue-eyed mary	*Collinsia parviflora*	
Bluntleaf sandwort	*Moehringia lateriflora*	
Bog birch	*Betula glandulosa*	
Bog marshcress	*Rorippa palustris*	
Bottlebrush sedge	*Carex hystericina*	
Bracted verbena	*Verbena bracteata*	
Brittle prickly pear	*Opuntia fragilis*	
Broadleaf plantain	*Plantago major*	non-native
Broadleaf pondweed	*Stuckenia pectinata*	
Brome fescue	*Vulpia bromoides*	non-native
Bromegrass	*Bromus racemosus*	non-native
Brown knapweed	*Centaurea jacea*	non-native
Buckhorn plantain	*Plantago lanceolata*	non-native
Buffalo grass	*Bouteloua dactyloides*	
Bulbous blue grass	*Poa bulbosa*	non-native
Bulbous woodland star	*Lithophragma glabrum*	
Bull thistle	*Cirsium vulgare*	non-native
Bushy knotweed	*Polygonum ramosissimum*	
Butterweed groundsel	*Senecio serra*	
Canada bluegrass	*Poa compressa*	non-native
Canada goldenrod	*Solidago canadensis*	
Canada milkvetch	*Astragalus canadensis*	
Canada thistle	*Cirsium arvense*	non-native
Canadian gooseberry	*Ribes oxyacanthoides*	
Canadian horseweed	*Conyza canadensis*	
Cat tail	*Typha latifolia*	
Catchfly	*Silene antirrhina*	
Catnip	*Nepeta cataria*	non-native
Cheatgrass	*Bromus tectorum*	non-native
Chokecherry	*Prunus virginiana*	
Clasping pepperweed	*Lepidium perfoliatum*	non-native
Clustered field sedge	*Carex praegracilis*	
Columbia needlegrass	*Achnatherum nelsonii*	

Common Names	Scientific Name	Designation
Columbian saxifraga	*Micranthes nidifica*	
Columbis needle grass	*Achnatherum lemmonii*	
Common cowparsnip	*Heracleum sphondylium ssp. montanum*	
Common dandelion	*Taraxacum officinale*	non-native
Common hound's tongue	*Cynoglossum officinale*	non-native
Common salsify	*Tragopogon dubius*	non-native
Common selfheal	*Prunella vulgaris*	
Common snowberry	*Symphoricarpos albus*	
Common spikerush	*Eleocharis macrostachya*	
Corn gromwell	*Buglossoides arvensis*	non-native
Creeping bentgrass	*Agrostis stolonifera*	non-native
Creeping spikerush	*Eleocharis palustris*	
Crested wheatgrass	*Agropyron cristatum*	non-native
Cudweed sage	*Artemisia ludoviciana*	
Curly dock	*Rumex crispus*	non-native
Curlycup gumweed	*Grindelia squarrosa*	
Curlytop knotweed	*Persicaria lapathifolia*	
Cusick's shooting star	*Primula pauciflora var. cusickii*	
Dalmatian toadflax	*Linaria dalmatica*	non-native
Dandelion	*Taraxacum ceratophorum*	
Death camas	*Zygadenus venenosus*	
Desert goosefoot	*Chenopodium pratericola*	
Desert saltgrass	*Distichlis spicata ssp. stricta*	
Desert saltgrass	*Distichlis spicata*	
Desert wheatgrass	*Agropyron desertorum*	non-native
Desert willow	*Salix exigua*	
Diamond willow	*Salix eriocephela*	
Dog tooth lily	*Erythronium grandiflorum*	
Douglas fir	*Pseudotsuga menziesii*	
Dropseed rockcress	*Boechera pendulocarpa*	
Drummond's willow	*Salix drummondiana*	
Duck potato arrow head	*Sagittaria cuneata*	
Dudley's rush	*Juncus dudleyi*	
Dwarf cinquefoil	*Potentilla pumila*	
Dwarf mistletoe	*Arceuthobium douglasii*	
Elodea	*Elodea canadensis*	
Engelmann's spruce	*Picea engelmannii*	
European stickseed	*Lappula squarrosa*	non-native
Evening campion	*Silene latifolia*	non-native
Evening primrose	*Oenothera biennis*	
Fairy fan	*Clarkia pulchella*	
False caraway	*Perideridia gairdneri*	
False Solomon's seal	*Maianthemum stellatum*	
Fanleaf cinquefoil	*Potentilla gracilis var. flabelliformis*	

Common Names	Scientific Name	Designation
Feathery false lily of the valley	*Maianthemum racemosum*	
Fendler three awn	*Aristida purpurea var. fendleriana*	
Fern leaf flea bane	*Erigeron compositus*	
Field bindweed	*Convolvulus arvensis*	non-native
Field chickweed	*Cerastium arvense*	
Field fluffweed	*Logfia arvensis*	non-native
Field mint	*Mentha arvensis*	
Fireberry hawthorn	*Crataegus chrysocarpa*	
Fireweed	*Chamerion angustifolium ssp. angustifolium*	
Fix weed tansy mustard	*Descurainia sophia*	non-native
Flannel leaf mullein	*Verbascum thapsus*	non-native
Foothill arnica	*Arnica fulgens*	
Fowl mannagrass	*Sporobolus compositus*	species of concern
Foxtail barley	*Hordeum jubatum*	
Fremont's goosefoot	*Chenopodium fremontii*	
Fringed sage	*Artemisia frigida*	
Geranium	*Geranium carolinianum var. sphaerospermum*	
Giant wild rye	*Leymus cinereus*	
Gland cinquefoil	*Drymocallis glandulosa var. glandulosa*	
Golden aster	*Heterotheca villosa var. villosa*	
Goldenrod	*Solidago gigantea*	
Graceful cinquefoil	*Potentilla gracilis*	
Green needle grass	*Nassella viridula*	
Green rabbit brush	*Chrysothamnus viscidiflorus*	
Groundsel	*Senecio integerrimus*	
Groundsel	*Senecio sphaerocephalus*	
Hairy evening primrose	*Oenothera villosa*	
Hairy false goldenaster	*Heterotheca villosa var. minor*	
Hairy whitetop	*Lepidium appelianum*	
Halberdleaf orach	*Atriplex dioica*	
Hardstem bulrush	*Schoenoplectus acutus*	
Harebell	*Campanula rotundifolia*	
Hawksbeard	*Crepis atribarba*	
Hawkweed	*Hieracium caespitosum*	non-native
Hemp dogbane	*Apocynum cannabinum*	
Holboell rock cress	*Boechera holboellii*	
Hooded ladies' tresses	*Spiranthes romanzoffiana*	
Hook violet	*Viola adunca*	
Horsetail rush	*Equisetum arvense*	
Howell's pussytoes	*Antennaria howellii*	
Hybrid balsam poplar	*Populus X brayshawii*	
Idaho fescue	*Festuca idahoensis*	

Common Names	Scientific Name	Designation
Inland black currant	*Ribes oxyacanthoides var. irriguum*	
Intermediate wheatgrass	*Thinopyrum intermedium*	
Interrupted apera	*Apera interrupta*	non-native
Jagged chickweed	*Holosteum umbellatum*	non-native
Japanese brome	*Bromus japonicus*	non-native
Jointed rush	*Juncus articulatus*	
June grass	*Koeleria macrantha*	
Kentucky bluegrass	*Poa pratensis*	non-native
Lamb's quarter	*Chenopodium album*	non-native
Lanceleaf figwort	*Scrophularia lanceolata*	
Large duck weed	*Spirodela polyrrhiza*	
Large false Solomon's seal	*Maianthemum racemosum ssp. racemosum*	
Largeflower hawksbeard	*Crepis occidentalis*	
Largeleaf avens	*Geum macrophyllum*	
Leafy spurge	*Euphorbia esula*	non-native
Licorice	*Glycyrrhiza lepidota*	
Limestone hawksbeard	*Crepis intermedia*	
Little barley	*Hordeum pusillum*	
Littleleaf penstemon	*Penstemon procerus*	
Little-pod false flax	*Camelina microcarpa*	non-native
Loosestrife	*Lysimachia ciliata*	
Low flea bane	*Erigeron pumilus*	
Low gumweed	*Grindelia hirsutula*	
Low land cudweed	*Gnaphalium palustre*	
Low larkspur	*Delphinium bicolor*	
Low pussytoes	*Antennaria dimorpha*	
Lyall rock cress	*Boechera lyallii*	
Mallow ninebark	*Physocarpus malvaceus*	
Many flowered stickseed	*Hackelia floribunda*	
March scullcap	*Scutellaria galericulata*	
Marsh hedgenettle	*Stachys palustris*	
Marsh horsetail	*Equisetum palustre*	species of concern
Marsh yellowcress	*Rorippa islandica*	
Marshpepper knotweed	*Persicaria hydropiper*	
Meadow death camas	*Toxicoscordion venenosum var. venenosum*	
Menzies' fiddleneck	*Amsinckia menziesii*	
Microsteris	*Microsteris gracilis*	
Milkvetch	*Astragalus inflexus*	
Miner's pepperwort	*Lepidium densiflorum*	
Minerslettuce	*Claytonia perfoliata*	
Missouri goldenrod	*Solidago missouriensis*	
Mock orange	*Philadelphus lewisii*	
Monkey flower	*Mimulus guttatus*	

Common Names	Scientific Name	Designation
Montia	*Claytonia perfoliata ssp. perfoliata*	
Montia, springbeauty	*Montia linearis*	
Moth mullein	*Verbascum blattaria*	non-native
Mountain alder	*Alnus viridis ssp. sinuata*	
Mountain blue-eyed grass	*Sisyrinchium montanum*	
Mountain bromegrass	*Bromus marginatus*	
Mountain spray	*Holodiscus discolor*	
Mountian lomatium	*Lomatium cous*	
Narrow leaf cottonwood	*Populus angustifolia*	
Narrow leaved collomia	*Collomia linearis*	
Narrowleaf burr reed	*Sparganium angustifolium*	
Needle and thread grass	*Hesperostipa comata*	
Nettle leaf hyssop	*Agastache urticifolia*	
Nineleaf lomatium	*Lomatium triternatum*	
Nodding beggar tick	*Bidens cernua*	
Nodding microseris	*Microseris nutans*	
Nodding plumeless thistle	*Carduus nutans*	non-native
North african wiregrass	*Ventenata dubia*	non-native
Northern bedstraw	*Galium boreale*	
Northern water-starwort	*Callitriche hermaphroditica*	
Northern willow-herb	*Epilobium ciliatum ssp. ciliatum*	
Nuttall alkaligrass	*Puccinellia nuttalliana*	
Nuttall monolepis	*Monolepis nuttalliana*	
Nuttall sunflower	*Helianthus nuttallii*	
Nuttall waterweed	*Elodea nuttallii*	
Oakleaf goosefoot	*Chenopodium glaucum*	non-native
Orange honeysuckle	*Lonicera ciliosa*	
Orchard grass	*Dactylis glomerata*	non-native
Oregon flea bane	*Erigeron speciosus*	
Oregon grape	*Berberis repens*	
Owl clover	*Orthocarpus tenuifolius*	
Owlfruit sedge	*Carex stipata*	
Ox eye daisy	*Leucanthemum vulgare*	*non-native*
Pale agoseris	*Agoseris glauca*	
Pale false mannagrass	*Torreyochloa pallida*	
Paleyellow touch-me-not	*Impatiens aurella*	
Pasque flower	*Anemone patens*	
Pearly everlasting	*Anaphalis margaritacea*	
Pearly pussytoes	*Antennaria anaphaloides*	
Penny cress	*Thlaspi arvense*	non-native
Phacelia	*Phacelia heterophylla*	
Piedmont bedstraw	*Cruciata pedemontana*	non-native
Pin cherry	*Prunus pensylvanica*	
Pineapple weed	*Matricaria discoidea*	non-native
Pink	*Dianthus armeria*	non-native

Common Names	Scientific Name	Designation
Plains cottonwood	*Populus deltoides*	
Plains wall flower	*Erysimum asperum*	
Pointed rush	*Juncus oxymeris*	
Poison hemlock	*Conium maculatum*	non-native
Poison ivy	*Toxicodendron rydbergii*	
Pond lovegrass	*Eragrostis japonica*	
Ponderosa pine	*Pinus ponderosa*	
Popcorn flower	*Plagiobothrys scouleri*	
Porter brome	*Bromus porteri*	
Poverty rush	*Juncus tenuis*	
Prairie coneflower	*Ratibida columnifera*	
Prairie fleabane	*Erigeron strigosus*	
Prairie junegrass	*Koeleria macrantha*	
Prairie smoke	*Geum triflorum*	
Prickly lettuce, prickly letuce	*Lactuca serriola*	non-native
Prickly sow thistle	*Sonchus asper*	non-native
Prostrate knotweed	*Polygonum aviculare*	non-native
Purple 3-awn	*Aristida purpurea*	
Purple milkvetch	*Astragalus agrestis*	
Pursh locoweed	*Astragalus purshii*	
Pussy toes	*Antennaria rosea ssp. pulvinata*	
Quaking aspen	*Populus tremuloides*	
Rabbit foot grass	*Polypogon monspeliensis*	non-native
Raceme pussy toes	*Antennaria racemosa*	
Rattlesnake chess	*Bromus briziformis*	non-native
Red clover	*Trifolium pratense*	non-native
Red kitten-tails	*Synthyris rubra*	
Red raspberry	*Rubus idaeus*	
Red three awn	*Aristida purpurea var. longiseta*	
Red-osier dogwood	*Cornus sericea ssp. sericea*	
Redroot pigweed	*Amaranthus retroflexus*	
Redtop bentgrass	*Poa nemoralis*	
Reed canary grass	*Phalaris arundinacea*	non-native
Richardson needlegrass	*Achnatherum richardsonii*	
Rock cress	*Arabis nuttallii*	
Rocky mountain juniper	*Juniperus scopulorum*	
Rocky mountain maple	*Acer glabrum*	
Rose pussy toes	*Antennaria rosea*	
Rough bentgrass	*Agrostis scabra*	
Rough fescue	*Festuca campestris*	
Roundleaved alumroot	*Heuchera cylindrica*	
Rubber rabbitbrush	*Ericameria nauseosa*	
Rubber rabbitbrush	*Ericameria nauseosa var. nauseosa*	
Russian olive	*Elaeagnus angustifolia*	non-native
Russian thistle	*Salsola kali*	non-native

Common Names	Scientific Name	Designation
Rydberg's primrose	*Oenothera villosa ssp. strigosa*	
Sagebrush buttercup	*Ranunculus glaberrimus*	
Sagebrush violet	*Viola vallicola*	
Saint John's-wort	*Hypericum perforatum*	non-native
Sandberg bluegrass	*Poa secunda*	
Scarlet gaura	*Oenothera suffrutescens*	
Scarlet paintbrush	*Castilleja miniata*	
Scorpion weed	*Phacelia hastata var. hastata*	
Sedge	*Carex flava*	
Serviceberry	*Amelanchier alnifolia*	
Sessile water-speedwell	*Veronica catenata*	
Sheep fescue	*Festuca ovina*	non-native
Sheep sorrel	*Rumex acetosella*	non-native
Shepherd's purse	*Capsella bursa-pastoris*	non-native
Shiny chickweed	*Stellaria nitens*	
Shooting star	*Primula conjugens var. conjugens*	
Shore arrow grass	*Triglochin maritima*	
Shore buttercup	*Ranunculus cymbalaria*	
Short awn foxtail	*Alopecurus aequalis*	
Shortbeak sedge	*Carex brevior*	
Showy milkweed	*Asclepias speciosa*	
Showy polemonium	*Polemonium pulcherrimum*	
Silky lupine	*Lupinus sericeus*	
Silver willow	*Salix*	
Silverleaf phacelia	*Phacelia hastata*	
Simple stemmed bur reed	*Sparganium emersum*	
Six weeks fescue	*Vulpia octoflora*	
Slender forget-me-not	*Myosotis stricta*	non-native
Slender hair grass	*Deschampsia elongata*	
Slender plantain	*Plantago elongata*	
Slender russian-thistle	*Salsola collina*	non-native
Slender wheatgrass	*Elymus trachycaulus*	
Slender woodland-star	*Lithophragma tenellum*	
Small duckweed	*Lemna minor*	
Small fruited bulrush	*Scirpus microcarpus*	
Small geranium	*Geranium pusillum*	non-native
Smaller burdock	*Arctium minus*	non-native
Smallflower woodland-star	*Lithophragma parviflorum*	
Small-leaf pussytoes	*Antennaria parvifolia*	
Smooth aster	*Symphyotrichum laeve*	
Smooth scouringrush	*Equisetum laevigatum*	
Smooth sumac	*Rhus glabra*	
Smooth wild oats	*Avena fatua*	non-native
Snowberry	*Symphoricarpos occidentalis*	
Soft chess	*Bromus hordeaceus*	non-native

Common Names	Scientific Name	Designation
Softstem bulrush	*Schoenoplectus tabernaemontani*	
Southern shooting star	*Primula pauciflora var. pauciflora*	
Sow thistle	*Sonchus arvensis*	non-native
Sow thistle	*Sonchus arvensis ssp. uliginosus*	non-native
Spear saltbush	*Atriplex patula*	
Speedwell	*Veronica anagallis-aquatica*	non-native
Spotted knapweed	*Centaurea stoebe ssp. micranthos*	non-native
Spreading alkali grass	*Puccinellia distans*	non-native
Spreading flea bane	*Erigeron divergens*	
Spring draba	*Draba verna*	
Spring forget-me-not	*Myosotis verna*	
Spring waterbirch	*Betomus occidentalis*	
Spurless touch-me-not	*Impatiens ecalcarata*	potential species of concern
Squaw currant	*Ribes cereum*	
Sticky geranium	*Geranium viscosissimum*	
Stinging nettle	*Urtica dioica*	
Stoloniferous pussytoes	*Antennaria dioica*	
Stone cup	*Sedum stenopetalum var. stenopetalum*	
Stork bill	*Erodium cicutarium*	non-native
Strawberry clover	*Trifolium fragiferum*	non-native
Streambank springbeauty	*Claytonia parviflora*	
Streambank wheatgrass	*Elymus lanceolatus ssp. riparius*	
Sulpher cinquefoil	*Potentilla recta*	
Sulpher eriogonum	*Eriogonum umbellatum*	
Sunflower	*Helianthus annuus*	
Tall cinquefoil	*Drymocallis arguta*	
Tall groundsel	*Senecio hydrophiloides*	
Tall wheatgrass	*Thinopyrum elongatum*	
Tall willow-herb	*Epilobium brachycarpum*	
Tarragon sage	*Artemisia dracunculus*	
Tenpetal blazingstar	*Mentzelia decapetala*	
Thinleaf alder	*Alnus incana*	
Threadleaf phacelia	*Phacelia linearis*	
Three-stamen rush	*Juncus ensifolius*	
Thyme-leaved spurge	*Euphorbia serpyllifolia*	
Timothy	*Phleum pratense*	non-native
Tiny mousetail	*Myosurus minimus*	
Torrey rush	*Juncus torreyi*	
Tumble mustard	*Sisymbrium altissimum*	non-native
Tumbleweed pigweed	*Amaranthus albus*	non-native
Turion duckweed	*Lemna turionifera*	
Twoscale saltbush	*Atriplex micrantha*	non-native
Upland bentgrass	*Agrostis perennans*	
Valley yellow violet	*Viola nuttallii*	

Common Names	Scientific Name	Designation
Veiny meadowrue	*Thalictrum venulosum*	
Velvet lupine	*Lupinus leucophyllus*	
Vernal water-starwort	*Callitriche palustris*	
Virginia pepperweed	*Lepidium virginicum*	
Wallflower mustard	*Erysimum cheiranthoides*	
Water birch	*Betula occidentalis*	
Water milfoil	*Myriophyllum spicatum*	
Watercress	*Nasturtium officinale*	
Wavyleaf thistle	*Cirsium undulatum*	
Weak manna grass	*Torreyochloa pallida var. pauciflora*	
Western bee plant	*Peritoma serrulata*	
Western coneflower	*Rudbeckia occidentalis*	
Western wallflower	*Erysimum capitatum*	
Western wheatgrass	*Pascopyrum smithii*	
Wheat	*Triticum aestivum*	non-native
White clematis	*Clematis ligusticifolia*	
White clover	*Trifolium repens*	non-native
White cornsalad	*Plectritis macrocera*	
White spiraea	*Spiraea betulifolia*	
White sweet clover	*Melilotus albus*	
Whitetop	*Lepidium draba*	non-native
Wild buckwheat	*Fallopia convolvulus*	
Wild hyacinth	*Triteleia grandiflora*	
Wild strawberry	*Fragaria virginiana*	
Wild teasel	*Dipsacus fullonum*	non-native
Willow	*Salix*	
Willow-herb	*Epilobium ciliatum ssp. watsonii*	
Winter speedwell	*Veronica persica*	non-native
Woods draba	*Draba nemorosa*	
Woods' rose	*Rosa woodsii*	
Woolly groundsel	*Senecio canus*	
Woollyfruit sedge	*Carex lasiocarpa*	
Wooly gromwell	*Lithospermum ruderale*	
Wooly groundsel	*Packera cana*	
Wooly plantain	*Plantago patagonica*	
Wyeth eriogonum	*Eriogonum heracleoides*	
Yarrow	*Achillea millefolium*	
Yellow bell	*Fritillaria pudica*	
Yellow-flag iris	*Iris pseudacorus*	non-native
Yellow paintbrush	*Castilleja lutescens*	
Yellow penstemon	*Penstemon confertus*	
Yellow rocket	*Barbarea vulgaris*	non-native
Yellow ctone cup	*Sedum stenopetalum*	
Yellow sweet clover	*Melilotus officinalis*	non-native
Yellow toadflax	*Linaria vulgaris*	non-native

Appendix H—Responses to Comments on the Draft CCP and EIS

Introduction

Appendix H includes the following components:

- Copies of written comments from Federal, State, local, and tribal government agencies and organizations, with U.S. Fish and Wildlife Service (Service) responses to those comments
- Summary of comments from individuals and Service responses to individual comments

The *Draft Comprehensive Conservation Plan and Environmental Impact Statement National Bison Range* was released to the public for review and comment on April 5, 2019. A 45-day comment period for the document closed on May 20, 2019. In addition, the Service held three public meetings: on April 30, 2019 in Missoula, Montana; on May 1, 2019 in Polson, Montana; and on May 2, 2019 at the National Bison Range in Charlo, Montana. During the 45-day comment period, the Service received more than 275 comments from 55 individual submittals (submitted via email, postal mail, and telephone; or recorded at one of the public comment meetings). In addition, the Service received 10 letters from Federal, State, local, and tribal government agencies and organizations. No form letters were received.

The primary purpose of this appendix is to address the substantive comments received on the Draft CCP and EIS. Under the Service and National Wildlife Refuge System compliance guidelines for National Environmental Policy Act (NEPA), comments are considered substantive if they:

- question, with reasonable basis, the accuracy of the information in this document;
- question, with reasonable basis, the adequacy of the environmental analysis;
- present new information relevant to the analysis;
- present reasonable alternatives other than those presented in the EIS; or
- cause changes or revisions in the proposal.

Within this appendix, the comments and responses are organized into two sections. The first includes copies of the comments received by Federal, State, local, and tribal government agencies, as well as tax-exempt, non-profit organizations. The second section includes a summary of the comments received from the general public or other entities, including written comments, comments made at one of the public meetings, and comments received by telephone.

Because many of the comments are similar and could be answered collectively, we have summarized the comments received and tracked the number of individuals who made each general comment. This approach is also consistent with the Paperwork Reduction Act of 1995.

The Service responded to each of the substantive individual comments. Where appropriate, the text of the final CCP and EIS has been revised to address comments. Some of the comments received do not meet the definition of "substantive" as defined previously, and are not addressed within this appendix. In some instances where the public displayed a strong interest, we have chosen to respond to specific non-substantive comments.

Responses to Agency, Tribal, and Organization Comments

Formal comments were received from the following Federal, State, local, and tribal government agencies and organizations:

1. Confederated Salish and Kootenai Tribes
    a. Confederated Salish and Kootenai Tribes Tribal Historic Preservation Office
2. U.S. Environmental Protection Agency
3. Blue Goose Alliance
4. Defenders of Wildlife
5. Flathead Audubon Society
6. Flathead Wildlife, Inc.
7. Public Employees for Environmental Responsibility
8. Sunrisers Lions Club of Kalispell
9. Walleyes Unlimited of Montana, Flathead Chapter

Letters from these agencies and organizations are shown on the following pages. Next to each reproduced letter is the Service's response, numbered to correspond to specific comments in the letter.

Comments of the Confederated Salish and Kootenai Tribes on the Draft Comprehensive Conservation Plan and Environmental Impact Statement for the National Bison Range

May 17, 2019

In response to the U.S. Fish & Wildlife Service's (FWS, or Service), April 5, 2019 notice of availability of, and opportunity to comment on, the National Bison Range Draft Comprehensive Conservation Plan (CCP), Environmental Impact Statement (EIS), and Compatibility Determinations, the Confederated Salish and Kootenai Tribes (CSKT, or Tribes) submit these comments. This comment follows the Tribes' August 15, 2017 scoping comment, as well as our February 16, 2017 scoping comment, submitted in response to the Service's original notice of intent to prepare a CCP/EIS for the National Bison Range (NBR), dated January 18, 2017.

Section and/or page numbers below refer to the "Draft Comprehensive Conservation Plan and Environmental Impact Statement – National Bison Range".

§ 1.4 ("History of Refuge Establishment, Acquisition and Management")

1-1 This section, on p. 7, recounts Congressional and Presidential action to obtain Tribal land on the Flathead Indian Reservation for the creation of the National Bison Range. It correctly states that the property included allotted and unallotted trust lands. Some readers may not understand that those references to trust lands are for Indians. For clarity, the Tribes recommend that the Service revise the reference so that it refers to "allotted and unallotted Indian trust lands".

1-1: The refuge history in Chapter 1 has been revised to include this suggestion.

1-2 As we have previously noted, the draft text omits the material facts that the federal government: 1) took the land without the consent of the Tribes; and 2) failed to pay the Tribes fair market value. On the basis of these facts, the United States Court of Claims held that Tribal lands "reserved by [the United States] for the National Bison Range . . . were taken by [the United States], within the meaning of the Fifth Amendment." In response to this unconstitutional taking, the court awarded compensation to CSKT for the Bison Range lands in an amount equal to the fair market value of the lands as of January 1, 1912, less compensation previously received, along with interest thereon "not as interest but as a part of just compensation". See *Confederated Salish and Kootenai Tribes of the Flathead Reservation, Montana v. United States*, 437 F.2d 458, 465, 485; 193 Ct.Cl. 801 (1971).

1-2: The refuge history in Chapter 1 has been revised, although the specific wording is not exactly as proposed here.

Due to the above historical (and legal) facts, the Tribes recommend that the draft text include, after the existing sentence that reads "[t]he land that was acquired for the National Bison Range on the Flathead Indian Reservation included allotted and unallotted trust lands", the sentences below:

> The Tribes did not consent to the land being taken by the federal government, nor were they paid fair market value for the land. These facts led a federal Court of Claims to later require the United States to compensate the Tribes for the amount they should have originally been paid (see *Confederated Salish and Kootenai Tribes of the Flathead Reservation, Montana v. United States*, 437 F.2d 458; 193 Ct.Cl. 801 (1971)).

§ 1.11 ("Issues Not Addressed")

1-3 The second paragraph of this section notes that the Draft CCP/EIS does not evaluate an alternative of restoring the National Bison Range to federal trust ownership for the Tribes, a proposal previously identified by the Service in its original notice of intent to prepare a CCP. At present, the draft text attributes the change in the Service's position as being "due to the variety of information and perspectives the Service received from the public and a change in policy direction." The Tribes appreciate that this description is more accurate than prior references to the public comments that the Service had received, which coincided with the change in policy direction.

1-4 As we discussed in our earlier August 15, 2017 scoping comment, the Tribes continue to believe that the Service should acknowledge in this document that a number of the comments received by the Service had included blanket expression of racism and bigotry regarding Indians as a people. These included the following public comments:

> "I would suggest a better effort would be directed toward extinguishing the boundaries of The [*sic*] Flathead Indian Reservation and terminate the conflicting (and illogical) status of 'sovereign' tribes. . . ."
>
> [*from comment submitted to FWS dated February 16, 2017*]

> "All federal and state funding and subsidization of some 20 billion of the 567 tribes and the 400 some in waiting need to be stopped. This sort of tribal welfare is creating a national embarrassment. . . . The objective of the reservations have long run its course [*sic*]"
>
> [*from comment submitted to FWS dated February 18, 2017*]

> "[T]he indians [*sic*] ask for more money, free college, rights to lands water, now bison . . . If they want to be autonomous then why do they keep asking for things from the rest of the tax paying public?"
>
> [*from comment submitted to FWS dated February 20, 2017*]

> "We've given them enough free things for way to [*sic*] many years."
>
> [*from comment submitted to FWS dated February 28, 2017*]

> "Meanwhile, native populations need to better prepare themselves to take on such responsibilities and philosophies in our current world, or even to become self-sufficient citizens. Generations of federal welfare and total provision has been [*sic*] demeaning and a detriment rather than a help for them as a society."
>
> [*from comment submitted to FWS dated February 21, 2017*]

1-3: Thank you for your comment.

1-4: The US Fish and Wildlife Service/ Department of Interior is committed to creating an inclusive and respectful environment. Just as we strive to accomplish our mission, we must also strive to maintain the trust and confidence of our employees, conservation partners, and the public. The Service prohibits harassment on the basis of race, color, national origin, religion, sex (whether or not of a sexual nature including pregnancy and gender identity), disability, age (40 years or older), reprisal, protected genetic information, or sexual orientation. Harassment adversely affects morale, teamwork, and productivity and is strictly prohibited. The Service is made up of individuals who understand that discrimination, harassment, and retaliation are completely out of line with our values and rejects any comments not in line with those values as inappropriate and dismiss them from the basis of federal policy making.

While the Tribes do not expect the Service to repeat those comments in the document, it is important for the public to know that such sentiments represented a significant percentage of comments that the Service received in opposition to the proposed action at the time. To ignore or gloss over this reality, and to leave open for interpretation the Service's stance on such bigotry, does everyone a disservice. Acknowledgment in the CCP/EIS could be as simple as inserting statements to the effect of:

> A number of the public comments that the Service had received expressed racist sentiments concerning Indian people as a whole. The Service rejects such sentiments as being appropriate as the basis for federal policy-making.

1-5

§ 2.6 ("Summary of Alternative C – Proposed Action")

On p. 23, in the subsection titled "Wildlife Management", and again on p. F10 of the Appendix, FWS discusses exploring opportunities to cooperate with CSKT on bison management, including an idea for CSKT to "start a new CSKT Tribally-managed population that would be considered a full partner in the Refuge System bison management program." The Tribes appreciate and support the Service's objective of generally exploring opportunities to cooperate with CSKT on bison management. However, the text, as currently worded with reference to starting a new Tribally-managed bison population, bears unfortunate resemblance to past public comments, made by opponents to Tribal participation at the Bison Range, espousing a sort of separate-but-equal "solution" for the Tribes and the Service. The Tribes recommend revising the current draft language so that it would keep the existing aspiration of exploring opportunities to cooperate with CSKT on bison management, but would simply note that any specific proposals or ideas for such cooperation would first be raised with the CSKT Tribal Council or staff.

1-5: Thank you for your comment. We have revised the description of Alternative C (section 2.6) and Bison Objective C-1 in Appendix F.

1-6

On p. 24, FWS states, under the subsection titled "Administration and Operations", that "Staff capacity and training in understanding and interpreting local indigenous culture, history and TEK would be expanded." The Tribes appreciate the Service's intentions of providing education and training to its staff for increasing cross-cultural awareness and knowledge of local indigenous history and culture – including traditional ecological knowledge. Similarly, the Tribes appreciate the Service's inclusion of TEK objectives throughout the Draft CCP/EIS.

1-6: Comment noted.

1-7

§ 3.6 ("Socioeconomics")

In the "Fishing" subsection, FWS states that fishing is allowed in designated areas of the Bison Range "in accordance with State law and per joint State and CSKT regulations." To better reflect the state of the law, the Tribes recommend deleting the words "State law and per", so that the statement would read "Fishing is allowed on designated areas of the NBR in accordance with joint State and CSKT regulations." This revision would be consistent with the current reference on p. D2, in §D.3 of Appendix "D", where the Service refers to "Joint State/Tribal regulations".

1-7: Thank you for your comment, we have revised section 3.6 as suggested.

1-8

§ 4.6 ("Cultural Resources")

In the first paragraph of the subsection titled "Effects Common to All Alternatives", the Tribes recommend inserting the word "necessarily" in the second sentence, before the word "prevent", so that it would read as follows:

> The presence of cultural resources would not necessarily prevent a Federal undertaking or project . . . .

1-8: The Service appreciates the editorial suggestions and errors identified in the comments received. Each of these suggested changes was reviewed, and where appropriate, has been incorporated.

1-9

The Tribes appreciate the Service's inclusion of CSKT native languages into the text of Alternative "B", as well as in the photo on p. 81. The Tribes recommend that references to inclusion of CSKT languages be included in the "anticipated effects" sections of Cultural Resources for both Alternative "A" and Alternative "C", as language should be a component of each alternative.

1-9: The Service agrees. We have revised the environmental consequences analysis for Alternatives A and C under Cultural Resources (Section 4.6).

1-10

§ 4.7.2 ("Visitor Services")

The Tribes recommend that the same TEK text that is included in Alternatives "A" and "B" (see pp. 84 and 86, respectively) should also be included in Alternative "C". Currently Alternative "C" is silent as to TEK.

1-10: We agree and have revised Section 4.7.2 ("Visitor Services"), Alternative C, Direct Impacts, to reflect this.

1-11

§ 4.8.1 ("Reasonably Foreseeable Actions")

The Tribes appreciate the Service's acknowledgment that the Tribes believe that the Draft CCP/EIS should identify a Tribal Self-Governance agreement at the National Bison Range as a reasonably foreseeable action. The Tribes concur that the lack of a current negotiated agreement at this time results in an absence of specific scope or terms that the Service could evaluate in the Draft CCP/EIS.

1-11: Thank you for your comment.

1-12

Glossary

The Tribes recommend that the Glossary include a definition for "TEK". This would greatly assist any readers who may run across the term throughout the document, but who may not be familiar with the definition. The Glossary could also refer readers to the FWS TEK Fact Sheet.

1-12: Thank you for your comment. We have added TEK to the glossary.

1-13

Appendix A-2 ("Other Contributors and Reviewers")

The Tribes suggest adding, to Table A-2 ("Other Contributors and Reviewers"), the name of Tom McDonald, Manager, Division of Fish, Wildlife, Recreation & Conservation, CSKT Natural Resources Department.

1-13: We apologize for the omission. Mr. McDonald has been added to Appendix A.

♦ ♦ ♦

This concludes the Tribes' comment on the Draft CCP/EIS for the National Bison Range. Thank you for the opportunity to provide comments.

Comment Number	LETTER 1a – Confederated Salish and Kootenai Tribes, Tribal Historic Preservation page 1 of 1	RESPONSE
1a-1	From: **Kyle Felsman** <Kyle.Felsman@cskt.org> Date: Mon, Jun 3, 2019 at 11:09 AM Subject: [EXTERNAL] RE: National Bison Range CCP To: Fields, Vanessa <vanessa_fields@fws.gov> Cc: Amy Coffman <amy_coffman@fws.gov>, Allison Parrish <allison_parrish@fws.gov> Hello all, Thank you again for talking with me a couple weeks back, and I'm looking forward to continuing our work together. As for the comments and/or wording to be incorporated into the CCP, I will provide some general language below that portrays how the possible wording should look. I will also supply the link to the Cultural Clearance request form. Below is the proposed wording: *"For any project that requires NHPA section 106 consultation ,the NBR will also comply with CSKT Ordinance 95 as requested by the CSKT THPO. This can be executed by submitting a Cultural Clearance Request Form through the CSKT website. The portal can be found within the, history and culture, tab. A link to the online submission portal will be supplied."* *http://www.csktribes.org/history-and-culture/ccrequestform* I hope this helps out. If the wording is to general please let me know and we can work out the details. Thank you all! Kyle F.	1a-1: Thank you for your comments. We have added additional detail on coordinating with the THPO in Section 2.2, Elements Common to All Alternatives

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region08

MAY 16 2019 RECEIVED MAY 20 2019

Ref: ORA-N

Mr. Will Meeks, Assistant Regional Director
National Wildlife Refuge System
c/o Bernardo Garza, Planning Team Leader
U.S. Fish and Wildlife Service
Region 6, Mountain-Prairie Region
Branch of Policy and Planning
P.O. Box 25486
Denver, Colorado 80225-0486

Dear Mr. Meeks:

U.S. Environmental Protection Agency Region 8 has reviewed the Department of the Interior Fish and Wildlife Service's April 2019 draft Environmental Impact Statement (EIS), CEQ No. 20190045, that analyzes the National Bison Range Comprehensive Conservation Plan (Plan), pursuant to Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA). The draft Plan establishes goals for managing habitats and wildlife, research, monitoring, cultural resources, public uses, partnerships, and refuge operations for 15 years. Our review focused on assessing the project's potential to impact water resources.

2-1

We found the draft EIS to be well written and organized. The document includes many details on the planning process and outlines objectives, strategies and rationales for the alternatives. Alternative A (No Action) focuses on maintaining current management programs and practices. There are two Action Alternatives, B and C. Alternative B emphasizes enriching the public experience while Alternative C (Proposed Action) emphasizes maintaining and enhancing ecological communities.

Based on our review of the draft EIS, the EPA has not identified any potential environmental impacts requiring substantive changes to the proposals. Alternative C (Proposed Action) appears to be the environmentally preferable alternative based on the ecological benefits. Under Alternative C, the Service will collaboratively develop and use a prioritization framework to identify and define future conditions. These identified thresholds will drive management actions to build ecological community resiliency, promote species and genetic diversity, and build sustainability into management capacity and operations.

2-2

Alternative B focuses on managing the project area to increase the quality of the visitor's experience, which includes improved access through new trails and road improvements. If Alternative B is selected as the Preferred Alternative in the Final EIS, there may be opportunities to reduce potential project impacts to water resources. The enclosure provides recommendations for your consideration.

2-1: Thank you for your comment.

2-2: Thank you for your comment. Alternative B was not selected as the preferred alternative in the final EIS/ CCP.

We appreciate the opportunity to participate in the review of the draft EIS. If further explanation of our comments would be helpful as you prepare the final EIS, please contact me at (303) 312-6704, or your staff may contact Melanie Wasco at (303) 312-6540 or wasco.melanie@epa.gov.

Sincerely,

Philip S. Strobel
Chief, NEPA Branch
Office of the Regional Administrator

Enclosure

2-3

ENCLOSURE

Water Resources: The Draft EIS describes a slight increase in impacts under Alternative B associated with siltation of streams and wetlands due to potentially greater use and maintenance of public roads and trails. Some of the proposed activities under Alternative B include establishing new trails and pull-off areas as well as construction of housing and restroom facilities. The Draft EIS states that during these construction activities, soils would be exposed, creating a temporary, increased potential for erosion and/or transport of sediments and surface pollutants via runoff (p. 59).

We understand that the Service will be preparing appropriate site-specific erosion and sediment control strategies and will employ best management practices during construction to protect receiving waterbodies from sedimentation and erosion. Possible measures to consider when developing protective strategies and practices include the following:

- Locate routes away from streams and riparian areas, steep slopes, landslide prone areas, and erosive soils;
- Minimize the number of road and trail stream crossings;
- Consider road and trail effects on stream structure and seasonal spawning habitats when determining alignment. Construct unavoidable road stream crossings during periods of low flow to avoid fish spawning and incubation periods, or dewater relevant stream segments prior to construction;
- Provide adequate road and trail drainage and control surface erosion with adequate waterbars, crowns, and ditch relief culverts if appropriate to promote drainage off roads or along roads and trails and avoid routing sediment to streams;
- Use bottomless or textured bottom culverts if possible for a more congruous stream path;
- Design routes to allow for natural drainage patterns;
- Consider road decommissioning or rehabilitation at an equal or greater rate than new road construction to prevent increases in overall watershed impacts; and
- Require special protections, such as buffer zones or exclusion of motorized use, for areas with high quality riparian and wetland resources and other sensitive water resources including high resource value waterbodies.

2-3: Thank you for your comment. Alternative B was not selected as the preferred alternative in the final EIS/CCP.

BLUE GOOSE ALLIANCE
1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

Bernardo Garza, Planning Team Leader, NBR
U.S. Fish and Wildlife Service, Mountain-Prairie Region
Post Office Box 25486
Denver Federal Center
Denver, CO 80225-0486

May 14, 2019

Mr. Garza:

RE: Draft Comprehensive Conservation Plan (CCP) for the National Bison Range.

These comments are submitted on behalf of the Blue Goose Alliance, a private, non-profit conservation organization. The BGA's focus is primarily the National Wildlife Refuge System: its Integrity, Stature, and Autonomy. We have closely followed and often commented upon issues associated with the National Bison Range (NBR) and Complex (NBRC) since our founding in 2000. Our members and supporters often visit the refuges in the complex. Most of our BGA Associates are retired refuge managers and employees, refuge and Fish and Wildlife Service (FWS) administrators, avid past and present volunteers and others deeply interested in conservation of wildlife (including plants) and their respective habitats across North America.

3-1 Although we appreciate this opportunity to comment, past such experiences with the Denver Region of the FWS have consistently demonstrated an agency practice of failure to analyze, utilize or respond to even the most thoughtful and positive submissions of detailed and authoritative comments from knowledgeable, obviously interested people. We hope this effort will be received and treated in a manner consistent with the reasoned, constructive and beneficial intentions of the authors.

3-1: Comment noted.

3-2

History of the National Bison Range

Establishment

3-2: Comment noted.

The establishment of the National Bison Range was unique in several important aspects deserving of recognition in this CCP. Unfortunately, the history presentation in the Draft CCP document fails to recognize and present several facets that are important to a discussion concerning NBRs' primary purposes, relative significance and capabilities.

Important facts: The NBR was the first refuge unit established by an Act of Congress in the new and rapidly growing system of federal lands reserved for protection of wildlife[1]. The NBR was established by explicit direction of the U.S. Congress (*"The President is hereby directed to reserve and except [emphasis added] … for a permanent national*

[1] To be administered by the Bureau of Biological Survey in the Department of Agriculture.

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1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

bison range for the herd of bison to be presented by the American Bison Society.")
That language invoked the Congressional power of eminent domain.

The establishing act was overt about many elements, even describing the basic location "*near the confluence of the Pend d'Orielle and Jocko rivers….*" It also required the appraised value of the selected lands "shall be fixed and determined under provisions of the Act of Congress approved 04/23/1904)" [*i.e.* Flathead Reservation Allotment Act].[2]

The NBR Act, once signed by Theodore Roosevelt, required action regardless of the previous Reservation status, or any existing statute. It was, without question, an exercise of authority inherently vested in the United States as an Independent Sovereign and set forth in the 5th Amendment to the Constitution. The Act appropriated money for the estimated value of the lands and for initial fencing of the reserve to assure that the bison would not wander onto and possibly damage Indian and private lands nearby or be subject to wanton poaching.

In contrast to those Congressional directives, the 1906 Act regarding the Wichita Game Preserve within the Wichita Forest Reserve (primarily for buffalo to be presented to the Government by the NY Zoological Society), merely "authorized" the President to designate lands within the Forest as a "Game Preserve," leaving final decisions to the President and retaining the lands' status as a National Forest. Congress appropriated $15,000 for fencing about 8,000 acres within the Forest– the "Wichita buffalo pasture."

Invoking the Federal power of Eminent Domain was not done lightly. In this instance, it intended to permit a relatively small area to be "reserved" from the Indian Reservation, and "exempted" from the legislative authorization to open unallotted Reservation lands to homesteading under the Public Land Laws of the U.S. The public purpose to be served was to save the American Plains Bison from looming extinction (1908 counts of North American bison, including Canada, totaled only 1,917 animals; the then three U.S. conservation herds totaled only 84 bison).[3] Use of that special authority was done, therefore, with a sense of urgency and to avoid potential conflicts with possible Indian Allotments and to avoid potential land selections by non-Indians intended more as land speculation rather than legitimate homesteading.

The 1908-1909 NBR Statutes originated a previously absent Congressional recognition of the rapidly developing system of reservations for birds and other wildlife. For the first time in U.S. history an entire federal conservation reserve was purchased with U.S. treasury funds – a hallmark and firm cornerstone for the story of wildlife conservation as it began to unfold in the early 20th Century. Also importantly, the 1909 legislation provided the first federal appropriations "*for the maintenance of the National Bison Range and other reservations for mammals and birds….*"[4] Thus, the Congressional

[2] Appropriations Act May 23, 1908, [35 Stat. L., 251, 262, 267]
[3] Dary, David A. 1974. *The Buffalo Book*. p. 287; Palmer, T.S. 1917. *Our National Herds of Buffalo*. 10th Ann. Report, American Bison Society, Jan. 6, 1917, p. 51.
[4] Appropriations Act March 4, 1909 [35 Stat. L., 1039, 1051, 1052].

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ALBUQUERQUE, NM 87123

directive to establish a permanent National Bison Range is clearly unique and notable in the history of the NWRS and wildlife conservation in the U.S. – well worthy of special status and consideration by the FWS and Congress. The History section in the Draft CCP irrefutably undervalues these significant foundations primarily by omission hence degrading the historical and contemporary conservation values of the "permanent" National Bison Range.

Factors supporting establishment

There was general knowledge that the Flathead Reservation had harbored many bison over a period spanning more than two decades. Due to legislation passed in 1904 accelerating the Native Allotment process to be followed by opening the remaining lands to settlement under the Public Land laws, particularly the Homestead Act, all previous bison on the Reservation (over 700) had been sold by the single Indian owner (Michel Pablo) to Canada and would soon be removed. The uncatchable bison – estimated to have been about 75-125 animals – were lost to poaching shortly after roundup attempts ended in 1912.

In December 1905 the American Bison Society had been established with the goal of saving the plains bison and William T. Hornaday had been named its President. The ABS believed the Flathead Reservation was a logical, proven environment to establish a conservation herd. In 1907 they selected one of their members, Dr. Morton J. Elrod at the Univ. of Montana, to examine areas within the Flathead Reservation for their suitability to… "perpetually maintain and propagate a herd of American Bison…."

Morton had long familiarity with the Flathead Reservation, "having travelled over the reservation every summer for the past ten years," knew the area very well and had four specific areas to study in mind. He established a set of criteria important to selecting the best candidate area: 1) Access – the area needed to be near the railroad, both to ship animals in and out, for needed equipment and materials, and to facilitate public visitation. 2) Suitable grazing areas and plentiful water. 3) Fencing – the range had to be fenced to prevent the animals from scattering and keep poachers from molesting them. 4) Care-Taking – the range must be provided attention and proper care. The area best meeting these criteria was ultimately chosen by the Chief of the Bureau of Biological Survey, the Chairman of the Commission appointed to allot the reservation lands, and an Engineer from the Forest Service (which built the fence).[5],[6]

Fencing the National Bison Range (and Wichita Mountains) was also noteworthy. A major problem encountered when caring for captured bison was the need to hold them on the lands devoted to their care. Bison are migratory by nature, and their size, mass, and inclinations often combine to take them through "normal" fences and onto other

[5] Elrod, Morton J., PhD 1908. *The Flathead Buffalo Range* – A Report to the American Bison Society…. First Annual Report, American Bison Society, NY; pp. 15-17.
[6] Ruth, Clara (1921). *History of the Montana National Bison Range, Sanders and Lake Counties, Montana*. Unpublished Report of the Bureau of Biological Survey, Washington, D.C.; 28 pp.

BLUE GOOSE ALLIANCE
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properties not intended for or desiring their presence. William Hornaday, as the Director of the NY Zoological Society well knew about such difficulties. But, in the late 1880s Hornaday, then Director of the National Zoological Park in Washington D.C., met the owner of the Page Wire Fence Company who had recently patented a new "woven-wire Page fence" with the capability to contain large mammals such as bison, elk, longhorn cattle, wild horses, etc. This new design of a steel fence opened possibilities for establishing several breeding bison herds that could eventually serve to repopulate traditional grasslands, where and when appropriate. Still, the fencing was costly compared to the previous cattle ranching standard of four strands of barbed wire which wasn't capable of restraining bison. All early federal bison reserves were limited by the need to obtain appropriations to suitably fence moderately large areas capable of supporting 50-100 bison. The NBR fence cost about $900 per mile or nearly $21,000,[7] but it properly contained the large mammals released into the area, chiefly the 40-founding bison, which rapidly increased during the next decade, thereby protecting neighboring properties while aiding needed protection.[8],[9]

The founding bison herd

Once the authorizing statute was signed, the ABS began a campaign to raise money necessary to purchase a herd of bison. Ultimately, they raised $10,560 donated by more than 800 individuals from 29 states and D.C. with donations from citizens of New York comprising 49% of the total.[10] Those donations were expected to be used to purchase bison to be presented to the U.S. Government and establish a National Bison Range to be purchased and maintained by the government for conservation of bison and as a public resource to benefit all Americans in perpetuity.

Hornaday was able to buy 34 bison from the estate of C.E. Conrad of Kalispell, MT. To that number were added 2 bison donated by the Conrad estate, 2 bison donated by Mr. and Mrs. Goodnight of Texas (unfortunately the male calf died prior to its delivery to the NBR), and 3 bison donated by the Blue Mountain Forest Assoc. (the Corbin Herd), all arranged through the ABS. The Conrad herd contained mainly bison that had originally been owned as part of a commercial cattle and bison ranching enterprise by Charles Allard and his partner Michel Pablo. They were part of the herd that ranged on the Flathead Reservation. Following Allard's death in 1896, his half of the herd – 150 bison – were all sold by his widow and four children during 1901 and 1902.[11]

The unique genetic composition of the NBR herd is derived from several origins of antecedent bison. Although mainly from Canadian stock, there were a diversity of areas from which originating members were captured including Wyoming, Kansas, Texas,

[7] Ruth, Clara op. cit. pp. 3-5; that amount would be equal to about $60,000 in 2019 buying power.
[8] Dary, David A. (1974). *The Buffalo Book – The Full Saga of the American Animal*. Sage Books, published by Swallow Press, Chicago; pp. 233-234
[9] Ruth, Clara *op. cit.* pp. 1-4.
[10] Hornaday, W.T. 1909. *Report of The President on the Founding of the Montana National Bison Herd.* 2nd Ann. Report, Am. Bison Society, pp. 9-42. The $10,560 would have equivalent buying power today of $296,681.
[11] Dary, David *op. cit.* pp. 224-225

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1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

Montana, Alberta, Saskatchewan, and Manitoba over a period of years.[12'13] With that diverse basis and the care taken by all previous federal managers at the NBR in selecting animals for culling the population over the 110 years of its existence, the NBR bison currently comprise the basic founding stock for three of the five other FWS refuges managing their bison as a single metapopulation. The NBR bison are particularly significant because only NBR has demonstrated a 110-year history of successfully husbanding that genetic structure. Newer refuges with bison have yet to demonstrate the capacity and capability for conserving bison as NBR has accomplished.[14]

Other large mammal introductions to the NBR

In June of 1910, before the final three bison from the Corbin herd (from New Hampshire) arrived as arranged by the American Bison Society, the city of Missoula donated 4 white-tailed deer to the National Bison Range. In December of 1910, 8 pronghorns were donated to the NBR by the Boone and Crockett Club by arrangements with Yellowstone National Park (*i.e.* the Club paid the costs of capture and transport). Problems arose with coyote predation on the pronghorns, and as in other fenced ranges, establishing pronghorns required major efforts by management to build viable herds. Some refuges were unable to maintain pronghorns in drifting snow conditions, and if the fenced enclosure was not reasonably large. Eventually, the NBR established a pronghorn herd and it has served as a basis for numerous studies over the years. [15]

In April 1911, 7 elk from Jackson Hole, WY were delivered to the NBR as a donation from the WY State Game Warden; another 5 elk were brought in March 1912. A third donation was made by WY in Feb. 1913, consisting of 9 elk, and a final 26 elk from WY were delivered in Feb. 1916.[16]

Mr. Conley, a private owner from Deer Lodge, MT, donated 17 white-tailed deer and 17 mule deer to the NBR. Twelve Bighorn Sheep were donated to the NBR by the Banff National Park, CN in 1922.[17]

Thus, the National Bison Range became stocked by donations supplying nearly a full complement of wildlife species native to the area. Several were grazing animals thereby adding competition to the primary herbivory situation. Although black bears, coyotes and eagles were present, the larger predators were absent during the early decades. Having that complement of large bodied, rapidly increasing, partly competitive game animals within a limited area of 29 square miles made the National Bison Range an

[12] Garretson, Martin 1938. *The American Bison – The Story of Its Extermination as a Wild Species and Its Restoration Under Federal Protection.* New York Zoological Society, pp. 215-217.
[13] Coder, George, D. 1975. *The National Movement to Preserve the American Buffalo in the United States and Canada Between 1880 and 1920.* Unpublished Ph.D. Thesis, Ohio State Univ. 348 pp. (available from Xerox University Microfilms, Ann Arbor, Michigan.) Thorough and heavily documented story of U.S. bison conservation.
[14] *Ibid.*
[15] Ruth, Clara *op. cit.* various pages throughout the 28-page report.
[16] *Ibid.*
[17] *Ibid.*

BLUE GOOSE ALLIANCE
1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

intricate experiment in protecting and propagating large mammal species. It was at the forefront of the evolving recognition that limiting methods and means of taking game and increasing predator control were insufficient to assure future healthy and abundant populations of those desired animals. It was a notable beginning of a yet undefined discipline of wildlife management – a discipline that awaited precise definitions and descriptions, formulas for analyses and foundational expressions of mechanisms and expected outcomes. Yet, its caretakers were soon forced to deal with the realities of having hundreds of large mammals whose needs and life-cycles were hardly known. And, it was their efforts, led by trial and error results, that developed solutions, mechanisms and information that combined with follow-on federal wildlife reserves to provide many foundational data sets and techniques described by Aldo Leopold in his seminal 1933 book: *Game Management* – a full quarter century after the NBR was established.

Payments for lands removed from the Reservation

As mentioned above, the National Bison Range Establishing Act of 1908 appropriated money for the purchase of lands within the Reservation. The first appropriation was $30,000 for land acquisition. However, because of necessary changes to facilitate proper fencing, a second appropriation was required and authorization to enlarge the Range to no more than 20,000 acres. The final acquired acreage totaled 18,523.85 acres and the calculated appraised value amounted to $28,955.48 [18] (equal to $813,485.73 in current dollars).

A lawsuit brought later by the Confederated Salish and Kootenai Tribes under the special jurisdictional Act of July 30, 1946, (60 Stat. 715) eventually made its way to the U.S. Court of Claims from which a full discussion of related issues, opinions, findings, and conclusions was set forth in Docket No. 50233 on Jan. 22, 1971 (as amended Apr. 23, 1971). Cited as: 437 F.2d 458-485 (1971).

The Court of Claims found that Congress, while accelerating allotment of Reservation lands to be followed by opening of the remaining unallotted lands to homesteading, had diverted the resulting proceeds paid for the lands to the benefit of non-Indians. That action was, in the Court's judgment, inconsistent with good-faith effort to give the Tribes and members full money value for their land. The action directed the money be used for surveying roads, rights-of-way, areas for schools, religious sites, town sites, and future irrigation structures. The Court concluded that it necessarily resulted in a taking pursuant to the 5th Amendment of the Constitution.

Ultimately the Court established a new land appraisal date of 01/01/1912 (the previous appraisal date developed prior to Allotments, *ca.* 1907-08), thus, resulting in a substantial increase in land values and required payments to achieve the Fifth Amendment just compensation requirement. The Court also directed, at the specific request of CSKT representatives and their attorneys, that interest on the unpaid money

[18] Ruth, Clara *op. cit.* pp. 2-5.

be calculated at specified rates: 5% per annum from 01/01/1912 to 01/01/1934 and at 4% per annum from 01/01/1934 thereafter until paid. That interest was not to be considered as interest, but as part of just compensation. CSKT and their Attorneys stipulated that result would satisfy the just compensation Constitutional requirement.

The final payment is believed to have been made in 1975, thereby amounting to over $24 million (equal to $110,000,000 in current dollars) for the 485,171.31 acres (which included the National Bison Range lands) removed from the Reservation in 1909-1912.

All Court findings, opinions, and conclusions were stipulated to by CSKT and their Attorneys and by the Attorney for the Federal Government[19]

Sentiments of the People

The following excerpt from Dr. Elrod's report to the ABS regarding the expressed feelings of one noteworthy and respected Mission Valley elder and his sense of others he had talked with is important because it established belief among American Bison Society leaders, the Bureau of Biological Survey, and President Roosevelt that the efforts to be undertaken were supported by important Tribal members and other respected elders living in the Valley.

"Sentiment of the People – Duncan McDonald rode with me over the proposed range and talked freely. I told him exactly what was proposed. He was bitterly disappointed that the Government of the United States had permitted the Pablo Buffalo herd to go to Canada.

> 'What is the use of hunting for a buffalo range if the Buffalo are all gone?" was his laconic query, as he turned fiercely toward me while bemoaning the loss of the herd.'
>
> "Duncan, the Buffalo of America are not all dead yet, nor are the men who are trying to save them, I replied."
>
> "Then I told him of the animals yet living, of which he had read something, and of the plans of the American Bison Society, the men back of the effort to save the noble animal, and the great value to the community if such a herd were located in its midst."
>
> "If we can get the range, the animals will be put on it, I stated."
>
> 'Do you think so?'
>
> "I am sure of it."
>
> 'Professor Elrod, I hope they will do it. We all hope so. The Indians are very sorry to see the Buffalo go. They all love them. They all think the Government should keep them. They don't want to kill them. They love to see them roam over the hills and plains. Every Indian will be glad if the Government can and will save them and keep them where they can be seen. And if there is anything in this world I can do to help, I want to do it.'

"All the intelligent men whom I have talked with on the reservation express the same opinion. Enterprising people in Missoula with whom the matter has been discussed are hopeful of the outcome, and greatly desire that the undertaking will be worked out successfully. The press has in a number of cases spoken highly of the proposed plan. Few have knowledge of the proposed range, and when its boundaries and the character of the land are understood the plan will meet with universal favor. I have previously mentioned the efforts of Joe Allard to interest Congress in the herd. Col. Rankin, allotting agent, is full of enthusiasm over the plan. There will not be a dissenting man, unless perhaps it may be someone who wants a portion of the range for himself."[20]

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[19] The Confederated Salish and Kootenai Tribes of the Flathead Reservation, Montana *v.* the United States. No. 50233. 437 F.2d 458 – 485 (1971)

[20] Elrod, Morton J., PhD. 1908. *The Flathead Buffalo Range – A Report to the American Bison Society of an Inspection of the Flathead Indian Reservation, Montana, For the Purpose of Selecting a Suitable Location for a National Buffalo Range.* First Annual Report – Am. Bison Society, NY; pp. 39,41.

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1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

The Vision Statement

"… The vision statement should focus on what will be different in the future because of our efforts, capture the essence of what we are trying to do, and why… . At a minimum, each refuge should develop goals for wildlife species or groups of species, habitat…compatible wildlife dependent recreation, other mandates (such as refuge specific legislation, executive orders, special area designations, etc.), and fish, wildlife, and plant populations as appropriate. The vision statement and goals will reflect planning unit purposes; help fulfill the mission of the Refuge System; maintain and, where appropriate restore ecological integrity; and will be consistent with the mandates and principles of sound fish and wildlife management… ."

The above partial quote from the FWS Manual Chapter 602 FW 3 – Comprehensive Conservation Planning Process seems unrelated to the Vision Statement on Page 9 in the Region 6 Draft CCP for the National Bison Range.

3-3

The statement of "Refuge Purposes" (section 1.5) misstates the primary establishing act for the NBR. As we quoted in the History section of these comments: *"The President is hereby directed to reserve and except … for a permanent national bison range for the herd of bison to be presented by the American Bison Society."* The material in quotes following your less than complete restatement of the enacting clause is not a part of the establishing Act, and therefore should not be in quotes. If it is from some alternative document, then it should be specifically cited as such. In simple terms – the National Bison Range was intended to preserve, shelter, appropriately increase and manage that founding buffalo herd and its necessary environs indefinitely.

3-4

Where is a statement focused on what will be different in the future because of fresh approaches to resolve identified natural resource issues and restore ecological integrity to stressed habitats, bighorn sheep populations depleted by a disease likely originating from outside the refuge boundaries, etc.? The matters and descriptions in sections 1.7-1.8 are mere restatements of NBR goals that have guided its management and annual work plans for at least the past half century.

3-5

When you speak of partners, in the actual vision statement on page 9, and the unique opportunities they ***may*** (a word of qualification that seems to have been omitted during the drafting process) offer, shouldn't you include areas of common interest with such obvious partners as the two involved Counties, the State Fish and Wildlife agency, the Bureau of Reclamation, State Highway Department, U.S.G.S. Biological Resources Division, and others rather than obviously confine your partnering to a single group?

The current Vision Statement *per se*, is neither informative nor helpful to the broad public audience interested in supporting future programs and activities for the National Bison Range. It openly leaves them out of consideration while relegating them to scarce mention in the follow-up details. The actual statement fails to meet the required provisions expressed in your own Manual and utilized by all National Wildlife Refuges in their previously written CCPs. It should be abandoned and replaced by a statement in compliance with the obvious intentions of the guidelines. It should be written to inform all supporters of what they specifically will be sanctioning.

3-3: Thank you for your comment. You are correct, we have revised the discussion of the refuge purpose in section 1.5.

3-4: Goal statements are defined by the Service as descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose, but does not define measurable units (USFWS 2004). The goal statements have been developed by the refuge staff on the planning team, our cooperating agencies and were shared with the public for a 30-day comment period. We agree that restoring ecological integrity to stressed habitats is important, as described in section 1.7, the Habitat Goal is to "Conserve, restore, and promote biological integrity in function and sustainable ecologically diverse habitats of the inter-montane ecosystem of Western Montana."

3-5: The Service disagrees. The vision statement was developed in compliance with our planning policy. The vision has been developed with input from multiple stakeholders including refuge staff on the planning team, our cooperating agencies and the public during a 30-day comment period.

BLUE GOOSE ALLIANCE
1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

3-6

Elements Common to All Alternatives (Section 2.2)

We heartily endorse the FWS commitment to comply with all applicable laws, regulations, and policies for management activities that could affect listed refuge resources.

Regarding the list of key legislation and policies (Appendix C) we recommend adding the Federal Activities Inventory Reform Act P.L. 105-270 (112 Stat. 2382) 10/19/1998; (31 U.S.C. 501). Also, the ensuing Presidential policy statement developed by the Office of Management and Budget and published at: Fed. Register/Vol. 76, No. 176, Sept. 12, 2011; pp. 56227-56242. This statute and resulting policy affects contracting by all federal agencies for activities and services under their respective auspices.

3-6: Thank you for your comment, this statute and policy have been added to Appendix C.

3-7

In the list of bulleted items under this Section, the fourth item raises questions. We believe all that needed to be stated within the scope of this CCP is found in the first sentence: "We will collaborate and cooperate with CSKT in ongoing, and future, projects consistent with the Service's Native American Policy." The remainder of that bullet provides information about speculative and uncertain matters. Comply with the Policy and, in that context, consider and accept when appropriate.

3-7: Comment noted.

3-8

The fifth bullet also exceeds the proper scope and purpose of this CCP. It is unnecessary information for the 15-year plan intended to present the necessary activities and actions of the FWS in its management of NBR, and again, it is mainly conjectural. The statement regarding additional NEPA compliance is inaccurate in that FWS is already subject to a Federal Court order stating that any future AFA at the NBR must fully comply with NEPA requirements. The EIS being prepared for this CCP cannot address issues requiring NEPA documentation under the laws governing AFAs without a specific draft negotiation from which to base impact analyses.

3-8: Comment noted.

3-9

The final sentence in the bullet is quite literally untrue. There are two pertinent examples from previous AFAs that are well-documented in the files and records of the FWS and DOI. The first is when the Director of the FWS terminated an AFA due to non-compliance with Project Leader instructions regarding the feeding of bison marked for transfer to other locations. The second is a lengthy, well-documented and analyzed, record of CSKT personnel's performance at the NBR in relation to the work items accepted by the CSKT in the agreement. We need not explicitly state those findings but remind the FWS that they demonstrate that the environmental effects of <u>CSKT operating</u> [emphasis added] the National Bison Range would not be identical to impacts from Service performance. Further, to the extent such matters are truly addressed in the CCP and EIS, they would explicitly be beyond the scope of these documents and should be removed. This CCP/EIS under the mandate in the NWRSAA is for the purpose of developing plans for the FWS refuge management of the NBR for the next 15 years. Compliance with and actions under the laws governing a potential AFA are not relevant to that mandate. Such actual matters are too far in the future to properly address in these documents as well as being irrelevant.

3-9: Comment noted.

We strongly recommend that the fifth bullet in this series be entirely deleted.

BLUE GOOSE ALLIANCE
1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

3-10

Lack of Pre-planning

Throughout the Draft CCP are obvious signs that absence of pre-planning negatively affected major sections of the plan. Our previous presentation regarding History is but an example of important omissions in this Draft resulting from failing to take time to fully review the rich and well-documented activities, actions, issues, problems, and results from attempted remedies over the 110 years that the NBR has existed and generally succeeded in achieving its legislated purposes. Much of the deficiency in the pre-planning segment of this CCP is owing to the lack of a Project Leader over much of the time period when the planning team has been in operation. The existing Project Leader, with an outstanding knowledge of the refuge, its habitats, wildlife, problems stemming from invasive species, past experiences with integrated pest management and their shortcomings, etc., was suddenly reassigned and unable to contribute that vital information to the remaining planning staff. The series of acting refuge managers were not able to fill the knowledge void and this Draft CCP suffers the result. More time and effort must be devoted to digging into the files, records and research that is available at the NBR, outreach efforts to now retired Project Leaders and other key staff members, such as previous biologists, to record their experience and knowledge. Such effort would pay dividends with factual and in-depth knowledge and permit the Final CCP to make up much of the ground lost in this Draft.

3-11

One readily available starting point would be a thorough review, and possible updating, by biologists and range managers of the now dated, but informative Fenced Animal Management Plan for the NBR, last revised in the early 1990s. Examples of baseline data contained in that plan (based on the Table of Contents seen by this author circa 2003) include tabulations of Range Condition rankings over a period of 15 years coupled with 30 years of AUM data and analyses, other tabulations contain species population objectives for all seven ungulate species then present on the NBR, including allotted AUMs. Another table shows the relationship of objective population levels to available habitats. Updates to those should have been accomplished during preplanning.

3-12

The current Draft CCP presents no such data, making analysis and understanding by the readers impossible. The concept of "carrying capacity" is mentioned only once in the Draft (related to setting the reduced level of bison numbers). The objective levels for the five other species are mentioned a few times, but never in the context of "Carrying Capacity" or assigned AUMs. Thus, it appears to this reviewer that those levels are arbitrary and lack a basis in grassland capacities or species needs.

Absence of recent data on estimated or calculated AUMs for each of the existing pastures and habitat types is a prominent discrepancy requiring correction. Each ungulate species on the NBR should have an assigned range of population size, based on their food habits and nutritional requirements necessary to maintain a healthy population. Because there is an element of competition among all NBR ungulates and because, in combination, they present a limiting influence on the objective level assigned to the primary species – the bison – these data should be considered essential in each of the Alternatives presented in the CCP. In addition, necessary culling of these populations when they exceed allotted AUM usage is necessary to maintain the intended bison population and permit it, as habitat improvements are realized, to expand.

3-10: We disagree with the comment that there was an absence of pre-planning. We have prepared this final EIS/CCP in compliance with the Service Planning Policy (602 FW3). Pre-planning effort can be directed toward a CCP's development long before any formal process to undertake a CCP begins and that has occurred here. Previous refuge managers, refuge biologists and planning staff had anticipated a start to the CCP in the years prior to the start of this effort and have been conducting pre-planning, which has been reviewed and incorporated in the present effort. Pre-planning has also been an interactive process as we became aware of new materials during the development of this final EIS/CCP. All of the elements of pre-planning described in Service policy have been completed, documented in the planning record and as appropriate, were included in the development of the final EIS/CCP. In addition to the extensive experience of the current National Bison Range staff on the planning team, we also reached out to, and incorporated input from, former managers and biologists of the refuge as well. Please see Appendix A, Table A-2 for details.

3-11: We agree that an update to the Fenced Animal Management plan would be beneficial. The level of detail, such as specific AUMs, is most appropriate as a step down plan after the overarching goals and objectives have been established in the CCP. Because the management of the animal populations is tightly linked to the habitat we would incorporate what was previously in the Fenced Animal Management Plan into the Habitat Management Plan proposed for completion in 2022.

3-12: Please refer to response 3-11.

BLUE GOOSE ALLIANCE
1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

Such tables and comparable data would definitely help interested readers understand the management complexities at the NBR, and demonstrate that refuge staffs over the years have worked hard to coordinate, monitor, and improve efforts to maintain healthy grasslands, forests, wetlands and riparian areas in the NBR for the benefit of its diverse wildlife. In so doing, these data also improve public support for the needs of this vitally important and popular bison conservation endeavor. Absence in this draft of such basic and significantly important data is a serious deficiency needing to be corrected.

The Novel Ecosystem Proposal

3-13

Unembellished mention of this apparently new idea several times in the Draft has been noted with considerable alarm. No explanation is made of the way this will be designed, who will do it, how, when, where it will be completed or evaluated. No discussion is made of what controls will be used to ensure the resulting new plant complex doesn't emulate, or invite an unintended invasive species scenario, or otherwise negatively impact the native grasslands. Sources and limitations on components being tested, criteria for defining success, costs, including FTEs (expertise and level of experience desired) are also unmentioned.

Such matters should not be started at a refuge field station level, rather it should begin as a research project at a University, at a master's or PhD level, or with the Division of Biological Services in the U.S. Geological Survey. Experienced personnel from the NCRS should be consulted, as should Range Management personnel in the BLM and USFS.

Lacking necessary information on all listed matters, this idea seems to directly conflict with the Mission of the NWRS to "Maintain the Biological Integrity" of every refuge in the System. Until this idea is fully and explicitly described, answering, at a minimum, the questions raised in the preceding paragraphs and fully analyzed under NEPA for possible impacts and cumulative effects, it should be removed from this CCP.

The WMTC must be analyzed in this EIS

3-14

The perfunctory statement in the Draft that the WMTC is "beyond the scope of this EIS" is patently untrue, and insupportable. Although initially indicated to be a decision made in the future, the WMTC was decided and implemented as the Draft CCP was being finalized. Potential negative effects, and resulting environmental impacts from the decision are likely to originate from:

1) Replacing the long and successfully operational NBR Complex by incorporating all its units (plus the Lee Metcalf NWR) into the previously existing, but now substantially enlarged Refuge Complex located 149 miles (a three to four-hour drive) from the NBR headquarters; even further from Lee Metcalf NWR.
2) Placing the NBR, with its proven needs for specified staffing expertise and experience levels, under the supervision of a unit lacking in demonstrated capacity or knowledge of Bison management, as further complicated by the

3-13: Please refer to response 3-11.

3-14: Refuge realignment in the Mountain-Prairie Region is addressed in the draft CCP/EIS and does not need further discussion. Also see comment 5001 under Responses to Individual Comments.

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1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

full components of hundreds of ungulates and including the presence of large predators, all located within an enclosed 18,800 acre reserve;

3) The NBR complex includes significant migratory bird management areas and resources and the Bison Range itself was designated a migratory bird reservation, thereby extending the complexity of on-the-ground management expertise required and the range of operations and maintenance demands placed upon its present and the described limited staff in the Draft CCP.

4) Reducing the grade levels (and modifying the previously approved staffing plan) for the existing NBR Complex;

5) Implementing the described changes without general public notification (except the perfunctory notice in the current document), lacking full disclosure of resulting lines of authority, budgeting decisions, staff availability during periods of special needs at the NBR, or in case of emergencies.

Such matters constitute a major federal action and full NEPA consideration. The present Draft CCP/EIS is undeniably the proper time and place for properly fulfilling that obligation. Proceeding without NEPA compliance could result in a legal challenge to this planning process.

Co-Management not permitted in NWRS

3-15

In 1974-75 a series of internal DOI discussions, negotiations, and decisions culminated in a Secretarial decision to transfer three western "game ranges" long managed "jointly" by the Fish and Wildlife Service within the National Wildlife Refuge System and the Bureau of Land Management to unilateral control by the BLM. The BLM indicated intent to administer these refuges under the NWRSAA, *et. al.* using authorities delegated to it by the Secretary of the Interior.

The joint management concept in place was the same as that currently described as co-management. Each agency had its own objectives – refuge management had charge of the wildlife and BLM focused on cattle grazing. Apportionment of available grazing was a constant issue, but ranching interests most often provided the cattle larger allotments resulting in deteriorated habitat ratings (as demonstrated by statistics offered to the court and in hearings).

Reaction within the conservation community quickly evolved from deep concern initially, to solid objections and resistance to the transfers. The Wilderness Society filed a lawsuit challenging the authority of the Secretary to delegate refuge management authority outside the Fish and Wildlife Service. Conservationists drafted and introduced legislation intended to halt any transfer of refuges to states, other federal agencies, or other entities. Congressman John Dingell (D-MI) introduced legislation, supported by many NGOs, which would have removed the National Wildlife Refuge System from the FWS and established it as a separate DOI agency.

3-15: Comment Noted.

BLUE GOOSE ALLIANCE
1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

Both the lawsuit and basic legislative thrust were successful in 1976.[21] In *Wilderness Society v. Hathaway*, the D.C. Federal District Court enjoined the transfer of authority to BLM on the ground that "the Secretary is required to exercise his discretion and authority with respect to the administration of the game ranges and wildlife refuges through the Fish and Wildlife Service.[22] The court also found that the Secretarial action had failed to comply with NEPA. A month later Congress confirmed that decision and, further, amended the "BLM Organic Act of 1976" requiring that all refuges then in the System, or subsequently added to the System, remain so except under specific, limited conditions.[23]

A DOI Solicitor's opinion on the subject "Affect of Public Law 94-223… ." issued June 4, 1976, at the request of the Director of FWS, stated:

> "We point out that nothing in the NWRSA amendments prohibits the Service from entering into cooperative agreements… ."[emphasis added]

It also stated:

> "…[T]he NWRSA amendments do render suspect constructive transfers or disposals of ultimate management [*sic.*] authority over refuge areas… ."[24]

Final court decisions since these described events have resolved Refuge System jurisdiction conflicts uniformly in favor of sole management by the Fish and Wildlife Service.

The Alternatives

3-16 As a general matter, the submission of merely two Alternatives (given that NEPA regulations require the presence of a "No Action Alternative in all Environmental Assessments and Environmental Impact Statements) can hardly be claimed as representing a visionary approach to future management at the National Bison Range.

The No Action Alternative

3-17 Given that the National Wildlife Refuge System Improvement Act of 1997 required (in Section 7 (B)) that a comprehensive conservation plan be prepared for each refuge within 15 years after the date of enactment (thus, by 2012), this draft plan denotes a grave failure of compliance with a statutory mandate. Logically, it would be appropriate to expect that the No Action Alternative be based on conditions present in 2012, as an effort to recover a degree of compliance with the "Organic Act for the Refuge System." Instead, the draft now presented is based on severely reduced staffing and funding that has been imposed over the seven year period of non-compliance thereby representing a

[21] The following discussion is based closely on pp. 289-291 in *The Evolution of National Wildlife Law* (3rd Ed.) 1977 by Michael Bean and Melanie Rowland, Praeger Publ. Co., CT.
[22] Civil No. 75-1004 (D.D.C. Jan. 26, 1976)
[23] Act of Feb. 27, 1976, Pub. L. No. 94-223, 90 Stat. 199 (Codified at 16 U.S.C. 668dd). Also see: Federal Land Policy and Management Act of 1976, 43 U.S.C. 1701-1784, (Secretarial constraints related to terminating withdrawals of lands for National Wildlife Refuges.
[24] U.S. DOI, Office of the Solicitor; Memo to Director, FWS; From: Assoc. Solicitor, Conservation and Wildlife.

3-16: The planning team originally developed five alternatives. After a 30 day comment period where the public was given a chance to review and comment on these alternatives, we responded to the public input and revised the original five alternatives into three for the draft EIS/ CCP.

3-17: We disagree. According to CEQ guidance, Section 1502.14(d), for a management plan, such as a CCP, describes the "no action" where ongoing programs initiated under existing legislation and regulations will continue, even as new plans are developed. In these cases "no action" is "no change" from current management direction or level of management intensity. Therefore, the "no action" alternative may be thought of in terms of continuing with the present course of action until that action is changed. To instead base the "no action" on conditions seven years ago would not appear to be in accordance with this guidance. See also comment 2812.

BLUE GOOSE ALLIANCE
1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

harshly applied set of conditions that have negatively affected the wildlife populations, habitats, physical plant, and personnel of this once iconic unit of the System. The general rationale offered by the Regional Office for these circumstances has been that Congressional appropriations and allocations of personnel have made it necessary to invoke the applied reductions. However, appropriations and expenditure data provided to this author from FWS's Washington, D.C. office fail to support such a trend. Further, fiscal and personnel records specific to the NBR over several years indicate that funds and full-time-employee allocations by Congress may have been "reprogrammed" without documentation and not made available to the Project Leader for expenditure.

The result is that the No Action Alternative in the current Draft CCP is equivalent to gerrymandering a district – planned to bring about a specific intended outcome. Alternative A of the Draft CCP would not, in fact cannot, successfully achieve the primary purpose for which the National Bison Range was established or properly contribute to the Mission of the National Wildlife Refuge System as required in its basic law. The matter is made even more severe because the funding and personnel allocations indicated in the NBR draft apply to the entire NBR Complex which includes two other National Wildlife Refuges and nine Wetland Management Areas, plus several disconnected conservation easements where responsibilities to maintain compliance has been assigned to NBR.

Quite simply, as presented Alternative A is unrealistic in the extreme and unacceptable by its terms (*e.g.* no refuge manager, with a supervisor unfamiliar with managing ungulates located 3 hours from the on-the-ground reality).

3-18 Logic and reasonable compliance with the intent of NEPA and its regulations would dictate that the No Action Alternative would be based upon conditions extant in 2012 rather than 2019 (*i.e.* 13 FTEs and $1,797,000 actual budget allocations). The BGA urges adoption of that change in the final CCP document enabling a more accurate comparison to the other alternatives in the final CCP/EIS.

3-18: Comment Noted

Alternative B

The BGA would not support this alternative. Its primary objective presents a diversion from achieving the primary purposes of the NBR and could contribute to pressures to emphasize visitor numbers at the expense of habitat improvement and health along with

3-19 diligent wildlife management (*e.g.* maintaining essential balance of other ungulates with the primary mammal species, the bison). The NBR has become one of the top-ranked visitor refuges in the NWRS. Many Visitors develop a true fondness for the NBR and return visit rates are quite high. Only the most recent situations resulting from inadequate staff and proper funding of the NBR have brought a decline in the visitation. The proposed visitor services position is not adequate to properly handle the essential duties of that job.

3-19: We have increased the grade of the Visitor Services position under Alternative B to a GS-11 in the final EIS and CCP.

A full and responsive operation of the visitor center requires volunteers. The visitor services job requires a level of capability and experience beyond grade GS-9 (as demonstrated during 2017). The job must necessarily include capability to train and oversee the active and demanding tasks associated with recruiting and training

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1050 MATADOR DR. SE
ALBUQUERQUE, NM 87123

volunteers. The NBR has historically attracted a large cadre of volunteers whenever it has made an outreach effort. The amount of planning, training, supervising, mentoring and providing necessary accommodations for the diverse group of people involved requires a vast knowledge of the NBR, and advanced knowledge of FWS and government personnel practices and procedures. It requires in-depth knowledge of the animals, plants, the seasons, effects of weather on each, and many other aspects essential to providing visitors with an introduction to the NBR that facilitates their gaining knowledge as well as improving their experiences during their visits.

3-20

The success of the NBR visitor and volunteer programs during the 25 years 1990-2015 demonstrate what it takes and how it should be done. The presentation in Alternative B would not be capable of replicating those accomplishments.

3-21

Alternative C

Given the incorrect basis derived from Alternative A as presented, Alternative C becomes unrealistic and unacceptable. All in All, there is only a single item proposed in C that is unique from demonstrated achievements of the NBR prior to 2004. That is the proposal to "conduct a comprehensive rangeland health assessment." And that action could be accommodated within an Alternative A developed and presented as recommended in our comments above. Looking at proposed Alternative C considering the documented parameters and demonstrated accomplishments of the NBR prior to 2004, there is no vision to be found.

Concluding Statement

As a representative of the Blue Goose Alliance, I appreciate this opportunity to review and make comment on the CCP/EIS released by Region 6 of the U.S. Fish and Wildlife Service. Although critical in some instances, these comments are intended to be constructive and based on direct field and administrative experiences of the author. Those experiences spanned a 24-year period of employment with the Agency and another 32-year period of close association while engaged as part of Non-Governmental Organizations devoted to Refuge and Wildlife management both in Washington, D.C. and elsewhere. It is with great respect for the devoted and talented men and women in the service of refuge management that I offer both the criticisms and the suggestions.

William C. Reffalt, Vice President

Blue Goose Alliance
Albuquerque, NM 87123

3-20: We agree that a successful volunteer program needs support from the entire staff and a dedicated person to manage it. In Alternative B, under Funding and Staff Objective 1B, we state that "A visitor services specialist must be stationed on NBR in order to recruit, train, direct and supervise a robust volunteer program and those interns assigned to the public use program". The Service will work to find the highest quality candidates to fill the visitor services position. The overall volunteer program would also be supported by the station manager. We believe this level of support from permanent staff is adequate to achieve the objective of 25 volunteers under Alternatives B (Volunteer Objective 1B).

3-21: Comment noted.

National Headquarters
1130 17th Street, N.W. | Washington, D.C. 20036-4604 | tel 202.682.9400 | fax 202.682.1331
www.defenders.org

Submitted electronically to scoping_NBR@fws.gov

May 20, 2019

Bernardo Garza
U.S. Fish and Wildlife Service
Branch of Planning and Policy
134 Union Boulevard, Suite 300
Lakewood, Colorado 80228

Re: National Bison Range Draft Comprehensive Conservation Plan and Environmental Impact Statement

Dear Mr. Garza:

Defenders of Wildlife (Defenders) appreciates the opportunity to provide comments on the National Bison Range Draft Comprehensive Conservation Plan (CCP) and Environmental Impact Statement (EIS).

Founded in 1947, Defenders is a national organization focused on conserving and restoring native species and their habitats across the country. Based in Washington, DC, the organization also maintains six regional field offices and represents 1.8 million members and supporters in the United States and around the world, with nearly 5,000 in Montana. Defenders is deeply involved in public lands management and wildlife conservation, including the protection and recovery of flora and fauna in the Northern Rockies.

Defenders supports Alternative C in the EIS, as it best meets the purpose and need for the plan and ensures that the National Bison Range (NBR) is managed consistent with the principles of the National Wildlife Refuge System Improvement Act and the purposes of the NBR, the National Bison Range Complex, and the National Wildlife Refuge System.

Management actions under Alternative C will build ecological resiliency, promote species and genetic diversity, and support sustainable range operations and personnel management capabilities. Defenders supports the appropriate focus on landscape-level management for wildlife species and habitat connectivity in Alternative C. We are also encouraged that management will facilitate collaboration, cooperation, and coordinated management with federal, tribal, state, local, public, and private partners, including in research, planning and adapting to the effects of climate change (p. 77).

As described in the EIS, Alternative C is preferable to other alternatives as it will deliver major benefits to grasslands and forests, intermediate to major benefits to bison, and major benefits to cultural resource management, while also providing for socioeconomic and visitor services and opportunities for wildlife-dependent recreation that fosters understanding of refuge resources. The

impacts disclosed in the EIS associated with the other alternatives diminishes their ability to meet the purpose and need for the new CCP.

We support objectives specific to Alternative C, including the conversion of the current fenced animal management plan to a habitat management strategy (p. 72); balanced ungulate grazing across the landscape to promote connectivity with other populations without risking disease transmission (p. 72); and a focus on the health and integrity of plant communities and wildlife populations through increased wildlife surveys and monitoring. We also support the emphasis in Alternative C on restoring and improving grassland habitat to reduce the spread of invasive species and provide suitable habitat for the Spalding catchfly (p. 80). We support the restoration of natural floodplains within the NBR (p. 91). The CCP discloses that benefits to wildlife and migratory birds will be higher under Alternative C than in Alternatives A and B.

4-1 Implementation of Alternative B is expected to have minor adverse impacts on all physical aspects of the range environment, including intermediate impacts on forests, with only minor benefits for wetlands/riparian areas. Maximizing recreational opportunities under Alternative B only yields marginal improvements to visitor experiences, yet poses a risk to refuge resources, and is thus a less viable option to achieve the purpose and need for the CCP.

4-1: Thank you for your comment.

4-2 Alternative B also fails to appropriately prioritize conservation actions on the NBR. Management of grassland, forest and wildlife would be focused in areas to benefit public visitation and use, rather than other resource needs. While visitor experience is important, it is not appropriate to de-prioritize conservation actions needed to maintain and restore ecosystem health and wildlife persistence on the refuge. We support the prioritization framework under Alternative C to identify and define future conditions on the NBR to guide management options.

4-2: We agree with your concerns. Under Alternative C, the preferred alternative, we set the following Objective for Monitoring (2C): Over the next 15 years, continue to support and expand existing monitoring programs focused on resilience, integrity, and sustainability for priority species and refuge habitats. Monitoring will be linked to management to determine if intended outcomes are being achieved through management actions. We also list a strategy under this objective to specifically develop effective monitoring protocols aligned with management objectives for sustainable forest management. We agree that bats would be an important consideration in the development of forest monitoring protocols.

Please also consider the following input on the EIS.

- As noted in the EIS, bull trout may occur in the portions of Mission Creek and the Jocko River that flow through the NBR, and the entire area is located within the Columbia Headwaters Recovery Unit in the Lake Pend O'Reille core area; in addition, the stretch of the Jocko River that flows through the range has been designated as critical habitat for he species. Under Alternative C the EIS notes that "[a] greater focus on riparian habitats…would provide greater benefits to the threatened bull trout" (p. 80). Bull trout will also benefit from the ongoing Jocko River restoration project developed by CSKT (p. 94). We support these efforts and encourage the CCP or step-down plans to include specific conservation actions delineated within the U.S. Fish and Wildlife Service Columbia Headwaters Recovery Unit Implementation Plan for Bull Trout for riparian and instream management.

- We are concerned about potential adverse impacts from forest management under Alternative C, specifically to bats. According to the EIS, "[t]hree bat species of concern—fringed myotis, hoary bat, and Townsend's big-eared bat—would be affected by the reduction of Douglas fir habitat, resulting in long-term, adverse impacts [to the species]. Retaining the ponderosa pine overstory, which provide roosting for bat species, would help to reduce the adverse impacts to these protected species" (p. 80). The EIS also states that

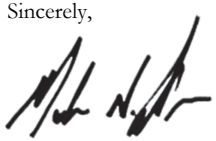
"leaving snags or girdles for cavity-nesting birds and bats under [Alternative C] would also benefit Montana species of concern that use the forested areas on NBR. Therefore, beneficial impacts to wildlife, including threatened species and species of concern, would result in long-term, minor, beneficial impacts" (p. 80). Given the potential adverse effects of forest management on at-risk species, we encourage the refuge to carefully consider and closely monitor forest management actions to verify that forest practices and mitigation actions (e.g., snag retention) are providing the expected conservation benefits and outcomes. These would be appropriate considerations to include in the monitoring protocol to track forest health and management actions (p. 23). As a general matter, we encourage the NBR to carefully assess and monitor mechanical removal of trees; in many cases, prescribed and managed wildfire may be the preferred management action for securing the desired restored forest condition.

4-3

- Alternatives A, B, and C propose a 50 percent reduction in juniper along Mission Creek, and we believe that Alternative C takes the right approach with a riparian objective that outlines replanting the area with native perennial plants to prevent stream temperature increase, soil erosion, and runoff. Alternative B, which plans to allow vegetation to regrow naturally, could present adverse impacts to bull trout.

Thank you for this opportunity to offer comment on National Bison Range planning. We look forward to the next stage of the process.

Sincerely,



on behalf of

Peter Nelson
Director, Federal Lands

4-3: Thank you for your comment.

Flathead Audubon Society
PO Box 9173
Kalispell, MT 59904

May 1, 2019

Bernardo Garza
U.S. Fish and Wildlife Service,
Branch of Planning and Policy, 134 Union Boulevard
Suite 300
Lakewood, Colorado 80228
scoping_NBR@fws.gov

Dear Mr. Garza,

The Flathead Audubon Society is a local chapter with deep concern for our environment. Our members are long-time and regular users of the National Bison Range. We submit the following comments for the Draft Comprehensive Conservation Plan and EIS for the National Bison Range.

The Plan (Draft Comprehensive Conservation Plan and Environmental Impact Statement National Bison Range) addresses three alternatives. Flathead Audubon appreciates the refinement of management at the Bison Range and the acknowledgement to manage for ecological conditions including Migratory Birds and species of concern. The Bison Range is to be managed to provide a representative herd of bison, or buffalo, under reasonably natural conditions, to help ensure the preservation of the species for continued public benefit and enjoyment and reserved the NBR "as a refuge and breeding ground for birds."

The Plan identifies mandates several things common to all Alternatives. In particular interest to Flathead Valley Audubon are the following:

- *Wildlife conservation, including habitat conservation, is the Service's first priority for managing national wildlife refuges. Public uses, specifically wildlife-dependent recreational uses, are allowed and encouraged as long as they are appropriate and compatible with the establishment purposes of each refuge.*
- *"Our mission is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."*
- *The Refuge System will continue to conserve and enhance the quality and diversity of fish and wildlife habitat within refuge.*

5-1

The Plan states the "*refuge also supports over 200 native bird species. In addition to the federally threatened grizzly bear and bull trout, there are forty-three Montana species of concern that occur on the refuge*", but offers little of any specific

5-1: One of the primary ways the refuge fulfills its purpose as a 'refuge and breeding ground for birds' is to manage the habitats to support the over 200 species that have been documented to occur. The objectives and strategies for each of the habitat types were developed to support all of the wildlife on the refuge, including native birds. Also see comment 2404.

management objectives, constraints, or actions that would maintain or improve these species, or enhance the quality and diversity of fish and wildlife habitat.

5-2 The proposed action lacks much specificity, making it difficult for thorough comparison of alternatives or evaluation of impacts of each. We recommend that guiding principles be implemented under each (all) alternatives that would establish management thresholds for all the resources. These could include restricting activities during the breeding season, maintaining a certain percentage of the habitat in untreated (ie non-sprayed, burned, grazed) condition; ensuring that visitors do not disturb the bison or wildlife in a way that would cause displacement, abandonment or undue stress.

5-3 Clarify the ambiguous terminology regarding undesirable plants. The plan appears to mix the terms "noxious" and "invasive" and "weeds". The indistinct definitions can lead to counter-productive management. Clarity in the terminology will help to more effectively meet the goals and objectives of the plan. We recommend you use the nationally consistent terms and definitions defined by NRCS (Natural Resources Conservation Service, USDA). (https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ct/technical/ecoscience/invasive/?cid=nrcs142p2_011124)

Noxious plants have a legal designation usually related to the impacts of those plants on agricultural interests. A list of the plants on that list can be found at this website. (https://plants.sc.egov.usda.gov/java/noxiousDriver)

5-4 Utilize the expertise of the NRCS to aid your establishment and management of desired conditions of rangelands. Their classifications are based on the site potential, soil type, climate, and predictable plant succession of the ecological plant community. A long-grazed area may have deviated significantly from the "natural" state. Knowing what the healthy community should have present can help define how to manage the area for the desired condition.

5-5 The Plan mentions several generic methods to manage undesirable species, including herbicides, prescribed fire and "removal". The Plan lacks essential information regarding treatments:

- location, type of herbicide, timing and extent of application, application method, target species
- location, type, extent, season, duration, pattern, season, control mechanisms and intensity of fire
- location, extent, trees per acre, removal methodology, access, season of treatment, how removed trees will be handled (left in place; hauled out for firewood; used for lumber, chipped)

These details would refine impacts to the resources of concern.

5-2: Thank you for your comment. The refuge does currently restrict certain activities during sensitive times or in sensitive locations for wildlife. For example, limiting access to certain areas during big horn sheep lambing season. Visitors are also directed to stay in their car, next to their vehicle or on designated trails. This is in part for their safety, but it is also to reduce disturbance and stress on wildlife.

5-3: We have revised the final EIS/CCP to improve clarity and consistency in our use of the words noxious, invasive and weeds, according to the Department of the Interior's definitions and guidance.

5-4: Thank you for your comment. We agree and regularly utilize NRCS ecological site type descriptions. The most recent rangeland assessment on the refuge (Marlow et al 2014) was based on NRCS methodology. This assessment was a key reference for developing the grassland alternatives in the final EIS/CCP. We also regularly collaborate with rangeland specialists from NRCS.

5-5: Thank you for your comment. This type of detailed information is developed in the Integrated Pest Management step-down plan, currently scheduled for completion in 2021. In addition, as described under all of the Alternatives, the Service would only use herbicide formulations that are appropriate for the target weed species, with appropriate consideration for the ecological site condition, application method, weather conditions, and timing, as specified according to the product label for each herbicide.

Just for one instance, the discussion of herbicides is quite vague. Glyphosate becomes inert when it contacts soil (making one of your statements in the EIS incorrect), but dicamba has well-documented airborne non-target impacts and has some fairly long residual effects. A generic USFWS document guiding weed management is not adequate to ensure that significant impacts might not occur at specific locations under some circumstances. Other management actions can have widely different impacts, depending on the details, and should be defined more thoroughly. If specifics can't be identified in this level of analysis, we recommend that some minimum conservation standards be incorporated across all alternatives to ensure significant adverse impacts wouldn't occur, and documented in the Plan and EIS.

5-6 There are similar concerns regarding fire. Cheatgrass and other fire responsive plant in the area are mentioned. Fire is a great disturbance factor when an ecosystem is functional, and if the fire occurs in late summer/fall when grasses and weeds are cured out. However, most prescribed fires occur in spring when escapement and smoke risks are less. Spring burns impact nesting birds and young animals, and plant response is often quite different...and stimulation of annual grasses is a real risk. It's not an easy tool. In eastern Oregon, once cheatgrass (or other annual grasses) become prominent, fire can make things worse. The annual grasses are stimulated, some of the perennial forbs and grasses are killed (because they are burned during a vulnerable season), and even worse plants can become established.

5-6: Comment noted.

5-7 The Plan focuses on the management of bison in "*reasonably natural conditions*" habitat. The bison on the refuge are managed more like livestock than wildlife. Bison once had huge habitats that ranged over thousands of acres, although they were nearly extirpated in the wild before good life history information on free-ranging bison could be thoroughly researched. According to a plains bison document from Canada, (/https://www.sararegistry.gc.ca/virtual_sara/files cosewic/sr_plains_bison_e.pdf), Van Vuren (1983) estimated typical individual female bison home ranges of 32-82 km^2, while Lott and Minta (1983) estimated a range size of 27-71 km^2. Home range sizes have not been examined for plains bison in wild herds. It is unlikely that bison on the Bison Range will ever have enough unfenced habitat to live under normal movement patterns. Free ranging bison, controlled by food quality and distribution, weather, predators and disease would typically move across vast areas of their home range and not camp out in areas to cause it to be over-utilized. In a captive semi-wild situation such as the Bison Range, over-use of their habitat has probably occurred, and changes to the ecological conditions of the grasslands have probably resulted.

5-7: Thank you for raising the point that managing bison within a fenced refuge presents challenges in maintaining native habitat and diversity. We have revised the discussion of grasslands in Chapter 3, section 3.2, to clarify this.

It would be clearer to the public to explain that the bison on the Bison Range are representative of the herds that used to occur prior to the development of agriculture and wide-spread extirpation of bison, but are not currently functioning as wild animals. We realize management of bison as wildlife may be beyond the scope of the Refuge, but clear explanation of the current status of bison as a managed species should be provided for the public to understand limitations to recreating a "natural" system.

We support the concepts of Alternative C, the Proposed Action and applaud the goal to "*enhance ecological communities in light of environmental changes, build in resiliency, promote genetic diversity and build sustainability in management capacity*". We offer some recommendations to better refine actions to meet these lofty goals.

5-8

E-bird is mentioned as an action under Alternative C. E-bird can be an excellent method to survey the presence of birds, but offers no management guidance or habitat recommendations. In addition to basic survey data, the identification of which species are year-long, summer, or migratory species would be prudent. Once these are identified, the mapping and protection/habitat improvement of the important components of these species can be highly beneficial.

5-9

For instance, if one of the nesting species requires tall grass, certain areas of the Bison Range could be kept out of grazing areas until after the nesting season. Similarly, if some species are known to migrate at particular times of year, the feeding resting habitat used by those species for that short amount of time could be managed so those resources are available. Using that information could also provide opportunities for the public to view migration from areas where their presence would not disturb the migration, but allow visitor enjoyment. Alternative B offers some recommendations for small groups of people to view an area. The option of guided field trips or viewing blinds in key locations could enhance visitor enjoyment without disturbing the resource.

5-10

Standing and down dead wood is extremely valuable to the biodiversity of the ecosystem. Many birds and insects require this habitat component. If trees are to be removed from the canopy to reduce their encroachment on grassland habitat, leave many of them on site to maintain a good size/age/species/decay distribution of dead wood across the management area. Add girdling to the management actions that would reduce tree competition while simultaneously creating dead wood habitat for birds, mammals and insects.

5-11

Alternative B incorporates some actions that seem to conflict with the overall mandate of the Bison Range. In particular, Alternative B identifies a public use "goal" of more than 184,000 visitors per annum (estimated), but fails to provide good analysis on how that current use is compatible with the other mandates of the agency and the Bison Range. The Plan suggests this is the highest use estimated for the Bison Range, and sets a goal of greater than that number of visitors each year, with no maximum limit. It further identifies conversion of habitat to infrastructure and development (roads, buildings, parking, restrooms etc), without addressing how that loss of habitat would affect the ecological condition, movement patterns, bird habitat and "natural" condition of the Bison Range. It provides for opening of "closed areas" in some circumstances to meet the desires of the public. It suggests the increase of fishing access with some impacts to riparian habitat. The "success" of these increases in infrastructure would be measured by the "satisfaction survey" of users. Photographers, wildlife viewers, bird watchers, plant enthusiasts and fishing publics have often insatiable and contradictory desires for the use of public lands. Date from many other places suggest that public

5-8: Thank you for your comment. We recognize that while eBird has many advantages, it will require the refuge to conduct additional analysis outside of what is provided by the national program to develop habitat management guidance or recommendations.

5-9: Thank you for the suggestions.

5-10: We agree that standing and down dead wood creates valuable habitat for birds, mammals and insects and contributes to ecosystem biodiversity. Under Grasslands Objective 2C, we identify a strategy to "Remove or girdle encroaching trees, leaving some stumps for pollinator nesting sites and snags for cavity-nesting birds and bats".

5-11: The Services visitor goals for all three alternatives are "at least 180,000 visitors per year" and acknowledges that Alternative B may result in increased visitation over the other two alternatives considered. The Environmental Consequences (Chapter 4) does analyze the impacts of increased visitation and proposed infrastructure projects to the physical environment, habitat, and wildlife. Analysis has been added to identify potential impacts to wildlife movement patterns from increased visitation. The Service agrees that Alternatives A and C would result in less impacts to wildlife and habitat than Alternative B.

use be encouraged, but managed in a way to be compatible and non-destructive to the resources in the area. Flathead Audubon supports public use and education, and wise stewardship of resources, including infrastructure, but considers Alternative B counter-productive to the mandates of the Bison Range.

Literature cited

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Lott, D.F., and S.C. Minta. 1983. Random individual association and social group instability in American bison (Bison bison). Zietschrifte fur Tierpsychologie 61:153-172.

Kay Mitchell, President
Flathead Audubon Society
P.O. Box 9173
Kalispell, MT 59904
406-756-8130

Comments by Flathead Wildlife, Inc. on the National Bison Range Draft CCP/EIS

Flathead Wildlife, Inc. (FWI) is the oldest group of sportsmen and women in western Montana, founded in 1963. Our goals are to preserve our hunting and fishing heritage, protect public access, protect and enhance wildlife habitat and to involve youth in the outdoors. Management of the National Bison Range can touch on all those goals.

6-1

The Flathead Wildlife, Inc. Board of Directors has reviewed the draft National Bison Range CCP/EIS. FWI strongly supports Alternative C, the Proposed Action. We support the goal of management actions to improve grassland conditions and promote ecological community resiliency and sustainability. Part of that push, as noted, will be to reduce Invasive Plant Species (weeds). Building sustainability and expanding ecological processes will also be require collaborating on a scale beyond the NBR boundaries with private landowners and the Confederated Salish and Kootenai Tribe.

6-2

There have been various attempts to enter into funding agreements with CSKT to improve partnering and integrate more cultural history. The National Wildlife Refuge System under the US Fish and Wildlife Service provides unique opportunities to manage wildlife and their habitat and to accommodate public use. Bison management, both good and bad, is part of American history and FWI feels it is imperative that the NBR remains under USFWS. We have no objection to attempting to develop annual funding agreements with CSKT as long as USFWS retains primacy in jurisdiction and management. FWI prefers the approach described in the EIS wherein USFWS would work with CSKT to establish their own bison range and to provide NBR bison for that effort. CSKT has extensive similar land holdings to the west of the NBR that would appear to be suitable. That would allow CSKT full control over their facilities and hopefully would provide a complement to the NBR in terms of ecological sustainability and connections, genetic integrity of bison and cultural connections to CSKT.

Thank you for the opportunity to comment.

Jim Vashro, President

Flathead Wildlife, Inc., PO Box 4. Kalispell, MT. 59901

jsjvash@montanasky.us

6-1: Thank you for your comment.

6-2: Thank you for your comment. We would like to clarify that we are not proposing to work with the CSKT to establish their own bison range. Rather, the Service is proposing to explore opportunities to cooperate with the CSKT on bison conservation and management. Any specific proposals or ideas would be discussed in collaboration with CSKT Tribal Council and staff. The description of Alternative C (section 2.6) and Bison Objective C-1 in Appendix F have been revised.

Public Employees for Environmental Responsibility
962 Wayne Avenue, Suite 610 • Silver Spring, MD 20910
Phone: (202) 265-PEER • **Fax:** (202) 265-4192
Email: info@peer.org • **Web:** http://www.peer.org

May 20, 2019

Bernardo Garza, Planning Team Leader, NBR
U.S. Fish and Wildlife Service, Mountain-Prairie Region
Branch of Planning and Policy
134 Union Boulevard, Suite 300
Lakewood, Colorado 80228

By email to scoping_NBR@fws.gov

Dear Mr. Garza,

I submit these comments on behalf of Public Employees for Environmental Responsibility (PEER) concerning the draft Comprehensive Conservation Plan/Environmental Impact Statement (CCP/EIS) for the National Bison Range. Rather than repeat extensive comments on issues of concern to PEER that have already been filed, PEER adopts the comments of the Blue Goose Alliance, by William Reffalt, and the comments of Marvin Plenert and Ralph Webber. PEER would like to emphasize the following issues.

7-1

First, the No Action alternative, which is considered the baseline for the other alternatives and considerations, reflects sadly depleted staffing, programs and conditions compared with the historic norm for the Refuge. Permanent staff is now listed at 6.5, while the Bison Range really needs the full 17 it had in 2003,.or at the very least the 10 it had in 2013, in order to protect the environment and wildlife and serve the public. Pretending that 6.5 is a legitimate baseline will condemn the Bison Range to the continued decline now evident in the shrinking of visitor services programs, the diminished health of the range and substandard maintenance of fences and other facilities. The Bison Range is currently understaffed compared with other refuges comparable in size, visitation, and importance to the System, likely due to all of the disruptions and uncertainties caused by past AFAs, AFA negotiations and transfer proposals. This should not be accepted as the objective for the future. A CCP is intended to analyze what is actually needed to meet the goals of the Refuge and the Refuge System, not what the authors believe may be available due to funding constraints or political circumstances.

7-1: Thank you for your comment. See response to comment 3-17.

7-2

Most important, however, none of the three alternatives is a realistic depiction of what the Service is actually planning in connection with the complexing of Western Montana Refuges (WMTC), a matter which is central to, but severely downplayed in the draft CCP/EIS. There is no section or sections of the draft CCP/EIS that discusses how the WMTC will affect the various aspects of each of the alternatives set forth. Often, the CCP/EIS reads as if the National Bison Range Complex will continue to be basically a stand-alone and autonomous unit. The WMTC is mentioned only in a couple places, and if the reader does not miss them entirely, they reveal that all the management plans in the rest of the document are likely to be overridden by the WMTC structure. In one paragraph, the draft CCP/EIS (p. 27) reveals that there will be an estimated 22 staff for the entire complex who could be located anywhere within the WMTC; that all job titles, functions and duty stations within the WMTC will be flexible and changeable over time and that staff at any particular refuge could be used to meet needs at any other refuge. (p. 27). This nearly buried statement renders all of the budgeting, staffing and program plans in the CCP/EIS for each alternative basically without substance, since the WMTC structure may be entirely different, and not place those particular staff or fund those particular programs at the Bison Range at all.[1] For example, there may not even be a Project Leader located at the Bison Range (p. 26). Not having a Project Leader at the Bison Range, one of the more important and highly visited Refuges in the entire System with many complex management challenges, but instead having a Project Leader located possibly hundreds of miles away and shared with several other refuges, poses significant challenges entirely unaddressed or even acknowledged in this document. In fact, it appears that the Bison Range Complex will largely lose its identity as a separate and autonomous entity, and its future will not be guided by this CCP/EIS at all, but rather by higher level planning for the WMTC. The meaning and utility of this CCP/EIS is called into serious question.

Without a realistic analysis of what is actually planned for the WMTC, the CCP/EIS discussions of management alternatives are largely fictional, and cannot possibly meet the objectives to provide a clear statement of direction or long-term guidance for the management of the Refuge, provide a basis for prioritizing allocation of funding and staff across programs, or ensure that legal requirements of the Improvement Act and other laws are met. Moreover, the CCP/EIS cannot itself meet the requirements of the Improvement Act and NEPA.

7-3

Finally, in discussing the possibility of another AFA with the CSKT, the CCP/EIS states that "the environmental effects of CSKT operating the National Bison Range according to the CCP would be identical to the impacts of the Service performing these functions." (p. 88). This statement is demonstrably false based upon past experience and was specially rejected by the U.S. District Court in *Reed v. Salazar*, 744 F. Supp. 2d 98 (D.D.C. 2010). Any attempt to enter an AFA without further environmental review in compliance with NEPA would not withstand legal scrutiny.

[1] Claims that having NBR lands managed as part of a regional complex would enhance any functions, such as visitor services, (p. 95) are entirely unsupported by facts or data or even logic, given that the larger complex would likely reduce overall staffing for all of the component refuges.

7-2: We disagree that refuge realignment requires additional NEPA analysis in this FEIS/CCP. The Realignment Strategy and Staffing Framework are intended to communicate the necessary and desired internal management of the Mountain-Prairie Region's National Wildlife Refuge program and is not intended to, and does not, supersede decisions made through any and all planning processes addressed in current Comprehensive Conservation Plans.

As described in the Realignment Strategy, the NBR will become part of the new Western Montana Complex (WMTC). In the new WMTC, there will be up to 22 full-time, permanent staff that will support both the station where they are located and, as appropriate, other stations in the complex. The project leader for the WMTC has recently been hired and is stationed at the Benton Lake Refuge in Great Falls, Montana. Other job titles, functions, and duty stations within the WMTC will be flexible and can be adapted to meet the needs of the entire WMTC over time, including allocating funding and staff time to priority strategies in the CCP of the National Bison Range. We will continue to monitor and evaluate the implementation of the realignment process to determine if we are making progress in achieving the purpose(s), vision, and goals for all of the units of the WMTC. As the Refuge System has and continues to evolve, so shall our knowledge, workforce, and management. Also see response to comment 5001.

7-3. The Service disagrees. We stand by our existing analysis.

We ask that the CCP/EIS be withdrawn or substantially modified to address these issues.

Respectfully submitted,

Paula Dinerstein

Paula Dinerstein
General Counsel
Public Employees for Environmental Responsibility

May 16, 2019

FROM: Sunrisers Lions Club of Kalispell

RECEIVED MAY 2 0 2019

TO: National Bison Range
Comprehensive Conservation Plan
Attn: Bernardo Garza, Planning
P.O. Box 25486
Denver, CO 80225-0486

8-1

We are the Sunrisers Lions Club of Kalispell. Our club holds an annual ice fishing derby at Smith Lake, bordering the Smith Lake Waterfowl Production Area. Many of our members also hunt, fish and recreate on the many USFWS units that are part of the greater Bison Range Complex.

Of special interest to many of our members is the Smith Lake Waterfowl Production area which includes Smith Lake, one of the most heavily fished lakes in Northwest Montana. Some of our members fish there many time a year.

There is an urgent need to expand the existing Montana Fish, Wildlife and Parks lake access site on Smith Lake and the only logical acreage available is part of the Smith Lake WPA. We recently wrote a letter to Montana Senator Daines for his assistance. Your Regional Director response to that letter suggested we provide input to your existing planning effort for the Bison Range Complex. So here is our response.

We found the draft plan and EIS to be very board and conceptual in nature. We could find no specific reference to Smith Lake or the Smith Lake Waterfowl Production Area.

So, we are recommending the FWS Alternative B, which maximizes the quality of public experiences. That alternative states, "The Service would provide improved access, facilities…".

Under the TOPIC AREA-Fishing, it states, "Increase awareness of opportunities and access to the public." We support providing more public use opportunities.

Your draft Plan is very lengthy and difficult to understand. But please be assured there is a critical need to expand public parking at Smith Lake. Sometimes there are 50-100 cars and trucks parked along the narrow county road adjacent to the existing fishing access site. Someone is going to get injured or killed. FWS land is the only logical place to expand the existing small parking lot. Our club and other local fishing groups are ready to help finance this project.

Our contact person for this project is Warren Illi, 115 Dover Drive, Kalispell, MT 59901. His cell is 406-890-0205. Thank you for considering our input.

Sincerely yours,

Les Tinseth

Les Tinseth
President

8-1: The Smith Lake WPA is not included within this CCP and EIS, which is only for the National Bison Range. Smith Lake will be part of the CCP and EA for Lost Trail, Ninepipe, Pablo refuges, Flathead County WPAs and Lake County WPAs. Comments on Smith Lake WPA will be accepted at that time.

May 6, 2019

FROM: Flathead Chapter of Montana Walleyes Unlimited of Montana

TO: National Bison Range
Comprehensive Conservation Plan
Attn: Bernardo Garza, Planning
P.O. Box 25486
Denver, CO 80225-0486

RECEIVED MAY 2 0 2019

9-1

We are the Flathead Chapter of Walleyes Unlimited. Many of our members hunt, fish and recreate on the many USFWS units that are part of the greater Bison Range Complex.

Of special interest to many of our members is the Smith Lake Waterfowl Production area which includes Smith Lake, one of the most heavily fished lakes in Northwest Montana. Some of our members fish there more than 50-100 days per year.

There is an urgent need to expand the existing Montana Fish, Wildlife and Parks lake access site on Smith Lake. We are enclosing a copy of our recent letter to Montana Senator Daines and your Regional Directors response to that letter. We can summarize our letter by saying it we are requesting FWS to lease or grant 2-4 acres of adjacent land under your management, to the Montana FWP to expand the parking lot at Smith Lake.

Your Regional Director suggested we provide input to your existing planning effort. So here is our response.

We found the draft plan and EIS to be very board and conceptual in nature. We could find no specific reference to Smith Lake or the Smith Lake Waterfowl Production Area.

So, we are recommending the FWS Alternative B, which maximizes the quality of public experiences. That alternative states, "The Service would provide improved access, facilities…".

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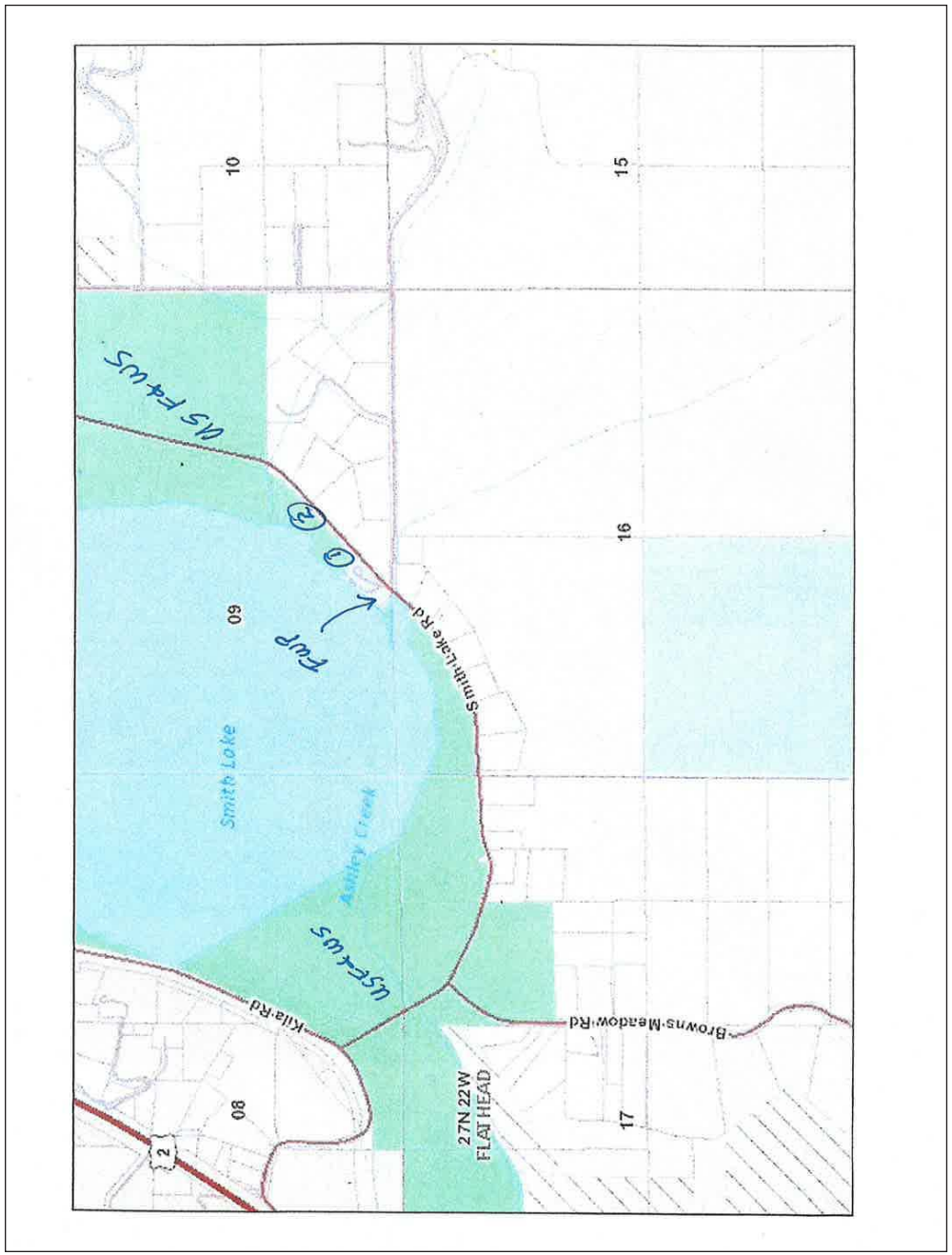
Your draft Plan is very lengthy and difficult to understand. But please be assured there is a critical need to expand public parking at Smith Lake. Sometimes there are 50-100 cars and trucks parked along the narrow county road adjacent to the existing fishing access site. Someone is going to get injured or killed. FWS land is the only logical place to expand the existing small parking lot. Our club and other local fishing groups are ready to help finance this project.

Our contact person for this project is Warren Illi, 115 Dover Drive, Kalispell, MT 59901. His cell is 406-890-0205. Thank you for considering our input.

Joe Rudolph
President

CC: Senator Daines

9-1: The Smith Lake WPA is not included within this CCP and EIS, which is only for the National Bison Range. Smith Lake will be part of the CCP and EA for Lost Trail, Ninepipe, Pablo refuges, Flathead County WPAs and Lake County WPAs. Comments on Smith Lake WPA will be accepted at that time.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USFS #4 WS
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Browns Meadow Rd
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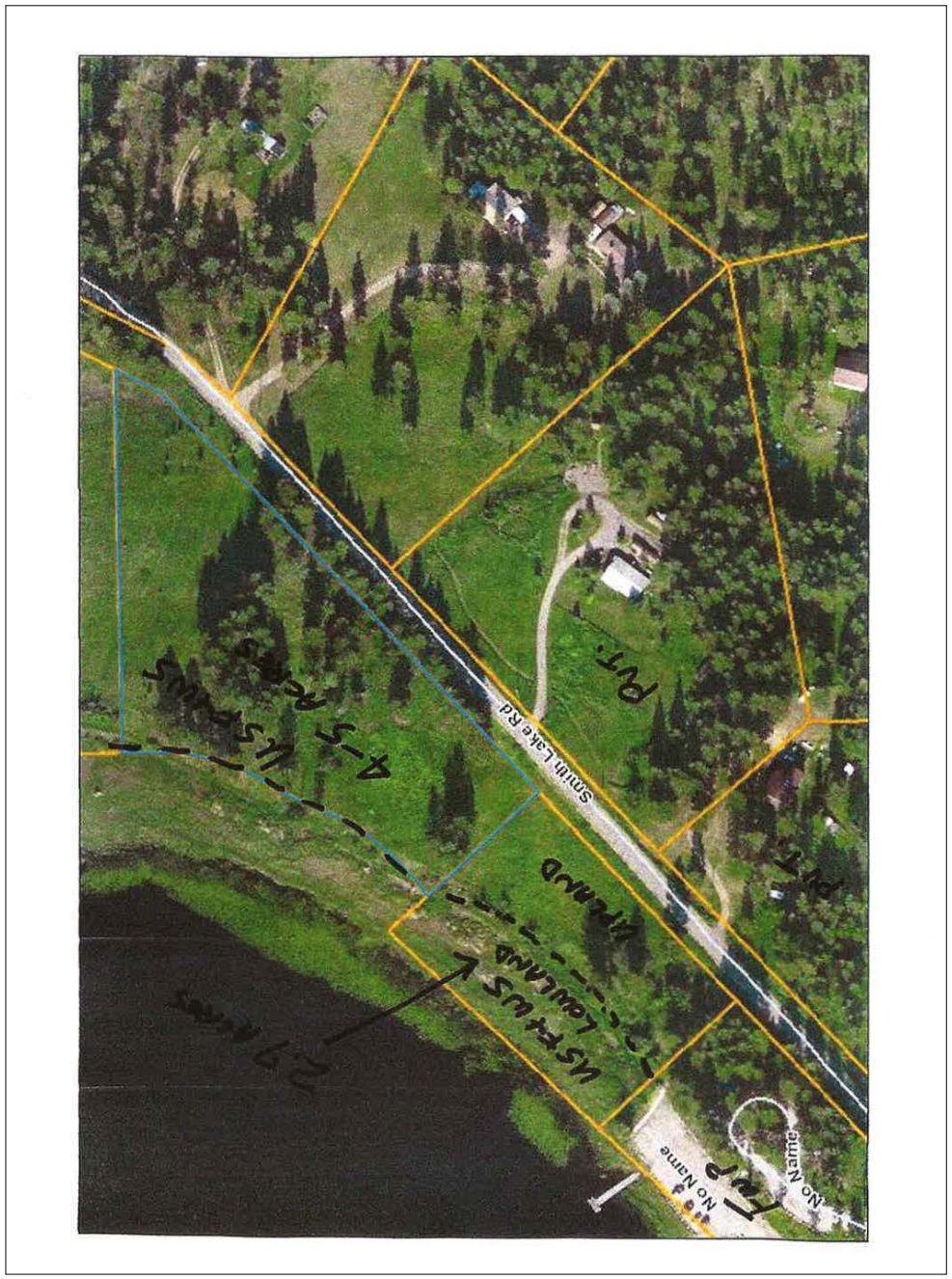
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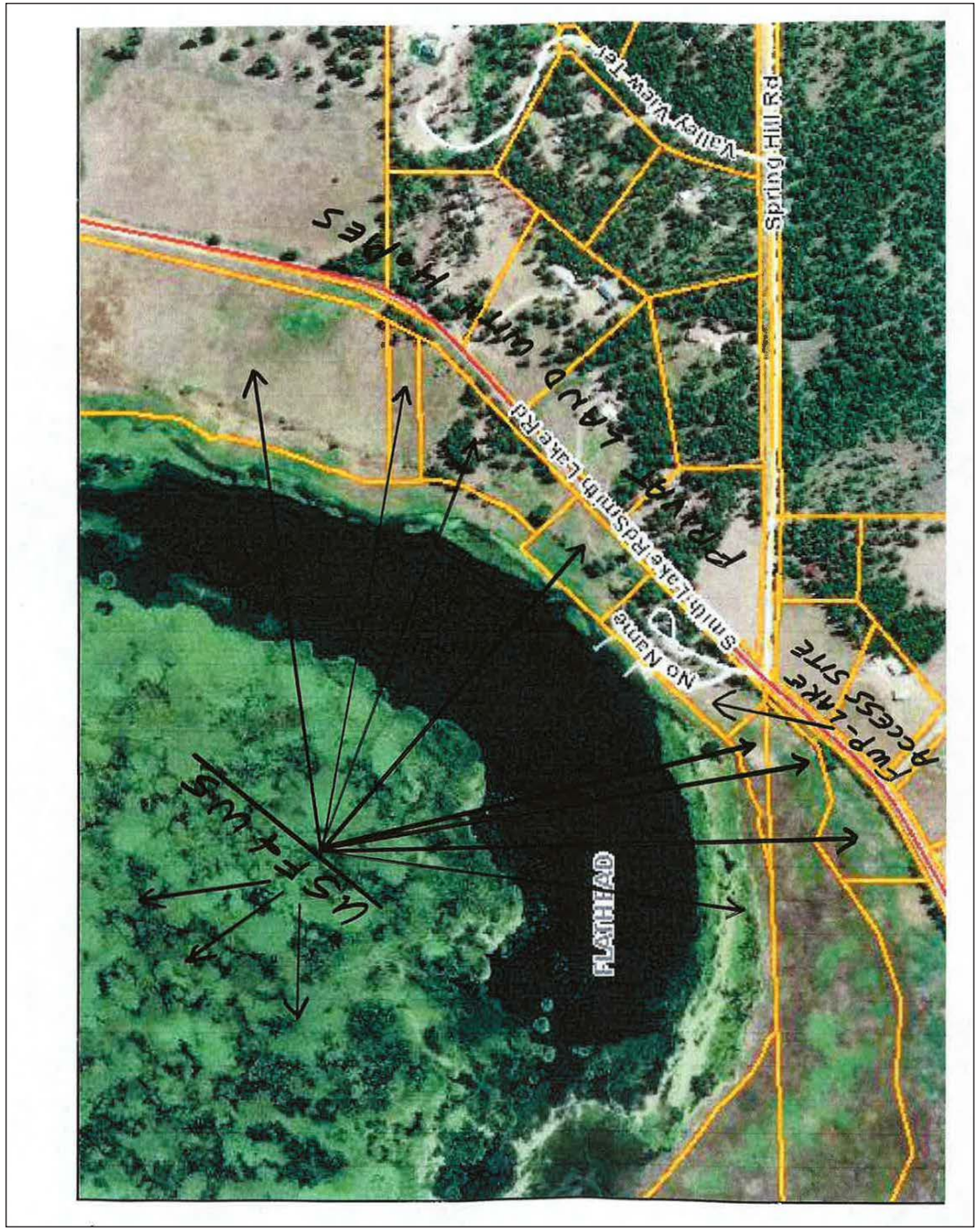
Valley View Ter
Spring Hill Rd
Private Land
Smith Lake Rd
No Name
FWP-Lake Access Site
FLATHEAD
USFS Lands

FLATHEAD WILDLIFE, INC.

P.O. Box 4, Kalispell, MT 59901

February 24, 2016

Mr. Jeff King, Project Leader
National Bison Range
58355 Bison Range Road
Moiese, Montana 59824

Dear Mr. King:

Your agency manages most of the land surrounding Smith Lake, just west of Kalispell. The Montana Department of Fish, Wildlife and Parks manages a small public fishing access site in the southeast corner of this lake. Smith Lake is one of the most popular fishing lakes in Northwest Montana, experiencing well over 8,000 angler days each year. The FWP fishing access site is very small and cannot accommodate parking for the numerous cars and trucks used by anglers. There are many days when their two small parking lots are overflowing. This forces anglers to park on the narrow county road bordering the access site. During some peak days of fishing, cars and trucks are parked on either side of the county road for a half mile or more, up and down the county road.

This creates a hazardous situation where anglers, often with children, must walk down the middle of the road, dodging auto and truck traffic. One day this situation will lead to citizens being hurt or killed. The Smith Valley Fire Department has identified this as a public safety hazard because angler parking blocks the county road from use by fire engines and emergency vehicles.

The county road and lake has the current FWP fishing access site hemmed in on three sides. The only logical land available for parking lot expansion is to expand to the northeast on land managed by the USF&WS. We have tried to work with the local wildlife manager for the last year, with no luck.

With hundreds of acres, perhaps thousands of acres of land surrounding Smith Lake under your management and bordering the FWP fishing access site, it seems unnecessarily restrictive on the agency's part not to cooperate with FWP and lease 2-5 acres of land for an expanded parking lot at Smith Lake.

We believe public use for hunting, fishing and outdoor recreation is an important part of your mission and mandate from Congress.

There are a number of local groups that are ready to fund leasing costs and development of an expanded FWP fishing access parking lot at Smith Lake. The public is strongly behind this effort. But we cannot do anything without your cooperation.

We would like to meet with you to begin planning how to proceed. We suggest meeting at FWP headquarters in Kalispell during March.

We understand there are numerous rules and regulations that must be followed before the parking lots can be expanded on USF&WS land. But the key to this proposed project is your cooperation.

Please contact Warren Illi at 406-257-5703 or 406-890-0205 (cell) to set up a meeting.

We are attaching a couple of maps that clearly show the situation.

Thank you for giving this your thoughtful consideration and we look forward to working with you.

Sincerely ,

Jim Vashro, President of Flathead Wildlife, Inc.

Mark Weed, President of the Flathead Chapter of Walleyes Unlimited

Mike Wood, President of the Kalispell Sunrisers Lions Club

D.C. Haas, Chief, Smith Valley Fire Department

Page 2 of 2

Responses to Individual Comments

This section includes general responses to individual comments, listed by the comment number in the following table. As shown in the table, we tracked the number of individuals who submitted each type of comment and responded to substantive comments as well as some nonsubstantive comments that reflected strong public interest. While we acknowledged many comments expressing particular sentiments or concerns, many of those that were considered nonsubstantive are not addressed in the responses.

How to Find Responses to Individual Comments

Comments are organized in the following table by topic, and each comment has a corresponding comment code number. The comment code numbers identified with bold text and an asterisk (*) indicate that the comments are considered to be substantive and/or received a response.

Using the comment code for the substantive comment of interest, the corresponding USFWS response can be found in the pages following the table.

Most Common Concerns or Issues

The most common concerns or issues expressed in the individual comments were:

1. Comment about the management of the NBR outside of the scope of this CCP and EIS (comment 5004)
2. Comment regarding the Western Montana Complex Realignment (comment 5001)
3. General comment that the proposed staffing levels are inadequate (comment 2806)
4. Comment detailing specific editorial suggestions, clarifications or errors in the document (comment 5012)
5. Comment in support of Alternative C (comment 2006)
6. Comment that the vision statement is too specific or too general (comment 1006)
7. Comment regarding potential future Annual Funding Agreements and environmental effects (comment 1009)
8. Comment opposing the removal of interior pasture fences for bison grazing and requesting additional analysis or scientific basis (comment 2106)
9. Comment about existing habitat condition and surveys (comment 2101)
10. Comment about the existing and proposed Visitor Center (comment 2609)
11. Comment about partnerships within the plan (comment 2704)

Comment Code	Comment Description	Number of Comments	Percentage
	Introduction		
1001*	Comment that the Purpose and Need be revised	1	0.4%
1002	Comment about NBR mission	1	0.4%
1003*	Comment suggesting the CCP clarify policy and regulations for consultation with Native American Tribes	2	0.7%
1004*	Comment about revisions to history of refuge establishment and acquisition	4	1.4%
1005*	Comment about the Flathead Indian Reservation and ancestral territory	1	0.4%
1006*	Comment that the vision statement is too specific or too general.	7	2.5%
1007*	Comment about cooperating agencies	1	0.4%
1008*	Comment about clarification of “co-management”	2	0.7%
1009*	Comment regarding potential future Annual Funding Agreements and environmental effects	7	2.5%
	Alternatives		
2001	Comment in support of Alternative A	2	0.7%
2002	Comment opposed to Alternative A	2	0.7%
2003	Comment that Alternative A is an inaccurate baseline for staffing	1	0.4%
2004	Comment in support of Alternative B	1	0.4%

Comment Code	Comment Description	Number of Comments	Percentage
2005	Comment opposed to Alternative B	1	0.4%
2006	Comment in support of Alternative C	9	3.2%
2007	Comment opposed to Alternative C	1	0.4%
2008*	Specific substantive comment about the alternatives	2	0.7%
2009*	Comment on *Elements Considered but Eliminated from Further Analysis*	1	0.4%
2010	Comment about prioritizing wildlife and habitat goals over others	1	0.4%
2011*	Comment that invasive species control should be an objective rather than a goal	1	0.4%
2012*	Comment about the Visitors Services and Outreach program	1	0.4%
2013*	Comment about fees and passes	2	0.7%
2014*	Comment about expanding the refuge	1	0.4%
	Habitat Goal and Objectives		
2101*	Comment about existing habitat condition and surveys	5	1.8%
2102	Comment about importance of the rangeland	3	1.1%
2103*	Comment on invasive species management tools/ partnerships	3	1.1%
2104*	Comment about adequacy of proposed staffing for invasive species control	1	0.4%
2105*	Comment about the fire management plan	1	0.4%
2106*	Comment opposing the removal of interior pasture fences for bison grazing and requesting additional analysis or scientific basis	6	2.1%
2107	Comment in favor of removal of interior pasture fences	1	0.4%
	Wildlife Goal and Objectives		
2201*	Specific comment about grazing management	1	0.4%
2202*	Comment in support of maintaining bison genetic integrity in all alternatives	3	1.1%
2203*	Comment about bison reproduction rates	1	0.4%
2204	Comment about bison monitoring	1	0.4%
2205	Comment supporting landscape-level management of wildlife species	1	0.4%
2206	Comment about surplus bison	3	1.1%
2207	Comment that EO 3596 is inadequately addressed	1	0.4%
2208	Comment that refuge management should emphasize wildlife rather than public use	2	0.7%
2209	Comment in favor of maintaining health of wildlife	3	1.1%
2210	Comment about predator control	1	0.4%
2211	Comment not in favor of hunting at NBR	2	0.7%
2212	Comment providing additional reference literature	1	0.4%
2213*	Comment on connectivity within the NBR as a fenced refuge	1	0.4%
2214*	Comment about wildlife present on NBR	1	0.4%
	Research and Science Goal and Objectives		
2301*	Comment requesting further explanation of TEK	1	0.4%
2302*	Comment about TEK incorporation into biological programs	1	0.4%

Comment Code	Comment Description	Number of Comments	Percentage
	Monitoring and Adaptive Management Goal and Objectives		
2401*	Comment about adaptive management within the plan	1	0.4%
2402*	Comment asking about the incorporation of climate change and carbon neutrality in the CCP	1	0.4%
2403*	Comment about ability to achieve an adaptive management program for grasslands given planned staffing levels	1	0.4%
2404*	Specific comment about methods of bird monitoring to accomplish the refuge purpose for birds	1	0.4%
	Cultural Resources Goal and Objectives		
2501	Comment on cultural resource management	1	0.4%
	Public Use Goal and Objectives		
2601*	Specific comment in support of environmental education and outreach	3	1.1%
2602*	Comment asking for clarification on Alternative B *Objectives for Funding and Staff* focus on enhancing experiences for the public	1	0.4%
2603	Comment about Alternative C visitors services compared to Alternative B	1	0.4%
2604*	Specific substantive comment about potential community education and outreach opportunities	3	1.1%
2605*	Comment about increases in public outreach to foster awareness	2	0.7%
2606*	Specific comment suggesting additional public use opportunities	2	0.7%
2607*	Comment about methods to increase public viewing opportunities	2	0.7%
2608*	Comment regarding the wildlife viewing areas	2	0.7%
2609*	Comment about the existing and proposed Visitor Center	5	1.8%
2610*	Comment about accessibility	1	0.4%
2611*	Comment about allowing horses on NBR and Saddle Club Trail Ride	4	1.4%
2612*	Comment about partnering on improvements to visitor services	1	0.4%
2613*	Comment about collecting shed antlers and compatibility determination	1	0.4%
2614*	Comment about commercial filming and compatibility determination	1	0.4%
2615	Comment about pets on designated trails and compatibility determination	1	0.4%
2616*	Comment about TEK in outreach materials, publications, and interpretation	1	0.4%
2617	Comment in support of existing signs with native language	1	0.4%
2618	Comment that strategies are unattainable	1	0.4%
	Partnership Goal and Objectives		
2701	Comment that the Partnership Goal should be revised	1	0.4%
2702	Comment in favor of partnerships	2	0.7%
2703	Comment about partnership opportunities	3	1.1%
2704*	Comment about partnerships within the plan	5	1.8%

Comment Code	Comment Description	Number of Comments	Percentage
2705	Comment in support of DOI Bison Conservation Initiative	1	0.4%
2701	Comment that the Partnership Goal should be revised	1	0.4%
	Administration and Operations Goal and Objectives		
2801*	Comment about clarification of the use of visitor contact station vs. visitor center under Alternative A	3	1.1%
2802*	Comment about the condition of refuge facilities under Alternative A	1	0.4%
2803*	Comment about increasing housing/infrastructure to accommodate increased volunteers, seasonal employees, etc.	2	0.7%
2804*	Comment asking for clarification on current staffing and under each Alternative	3	1.1%
2805	Comment in support of proposed staffing levels	1	0.4%
2806	General comment that the proposed staffing levels are inadequate	12	4.2%
2807*	Specific substantive comment about staff positions/levels and feasibility of achieving specific CCP goals and objectives	3	1.1%
2808*	Comment that staff is needed to oversee volunteers	2	0.7%
2809	Comment about Range Officer staffing at multiple locations	1	0.4%
2810	Comment about volunteer staffing and opportunities	4	1.4%
2811	Comment that Lost Trail Refuge should not be included in staffing structure	1	0.4%
2812*	Comment regarding additional information on historic budgets and how funding for the plan was determined	4	1.4%
2813*	Comment suggesting grants and volunteers to help with operations and administration	1	0.4%
2814	General comment that refuge funding is inadequate	4	1.4%
2815	Comment in support of funding the CCP	2	0.7%
	Affected Environment and Environmental Consequences		
3001*	Comment that the analysis in the draft CCP and EIS is inadequate	3	1.1%
3002*	Comment about including glacial features such as shorelines and erratics	1	0.4%
3003*	Comment about invasive plants	2	0.7%
3004*	Comment about grassland communities and rotational grazing	2	0.7%
3005	Comment about the impacts of budget on visitation and wildlife	1	0.4%
3006*	Comment about existing Visitor Services	1	0.4%
3007*	Comment about increased visitation resulting in diminished visitor experience	1	0.4%
	CCP and NEPA Process		
4001*	Comment about why an EIS was warranted	1	0.4%
4002*	Comment about developing the CCP through the Regional Office	1	0.4%
4003*	Comment about public distribution of comments	1	0.4%
4004	Comment about how the final Alternative is selected	2	0.7%
4005*	Comment that preplanning and scoping steps were not adequate	1	0.4%

Comment Code	Comment Description	Number of Comments	Percentage
4006*	Comment that a project leader was lacking during the CCP process	2	0.7%
4007*	Comment about CCP/EIS timeline	1	0.4%
4008	Comment in support of CCP to be adopted and put into action quickly	1	0.4%
	Other Comments		
5001*	Comment regarding the Western Montana Complex Realignment	13	4.6%
5002	Comment that the Western Montana Complex should be based out of NBR	1	0.4%
5003	Comment about the Regional Office	3	1.1%
5004	Comment about the management of the NBR outside of the scope of this CCP and EIS	16	5.7%
5005	Comment suggesting transfer of NBR to the National Park Service	1	0.4%
5006*	Comment about an alternative entrance to the NBR off Highway 93	4	1.4%
5007	Comment that the CCP should be developed for the potential of the refuge even if current resources couldn't support it	1	0.4%
5008	General comment about level of detail in the plan	1	0.4%
5009	Comment on refuge shop building	1	0.4%
5010	Comment on water resources not relevant to the CCP	2	0.7%
5011	Comment endorsing Blue Goose Alliance comments	1	0.4%
5012*	Comment detailing specific editorial suggestions, clarifications or errors in the document	10	3.5%
5013	No comment included	17	6.0%

Responses to Individual Comments

1000 – Introduction

Comment 1001: Comment that the Purpose and Need should not include "to recognize and address, as appropriate, NBR's location within the Flathead Indian Reservation and address the refuge's importance to the tribes and the communities within the Mission Valley of Montana".

Response 1001: The Service disagrees. The refuge's location within the exterior boundaries of the Flathead Reservation, as well as our Tribal trust responsibilities, make this an appropriate statement for inclusion in the purpose and need section.

Comment 1003: Comment suggesting the CCP clarify policy and regulations for consultation with Native American Tribes

Response 1003: Thank you for your comment. Section 1.3, Native American Policy, has been revised and expanded.

Comment 1004: Comment about revisions to the history of refuge establishment and acquisition

Response 1004: Thank you for your comment. There are numerous sources of information on the history of the NBR and the CCP is meant to be a concise management policy document, not an exhaustive history of the refuge. While some aspects of the refuge history have been revised based on other comments received, we believe the CCP includes a sufficient amount of historical information to provide the necessary context to the planning process, while also adhering to the recent guidelines of Secretarial Order 3355: *Streamlining NEPA.*

Comment 1005: Comment about the Flathead Indian Reservation and ancestral territory (specific text) *Having language in the CCP that includes acknowledgment of the Flathead Indian Reservation and the ancestral territory of the Bitteroot Salish, Upper Pend d'Orielle, and Ksanka people is paramount, not only for repairing relationships between the FWS and CSKT but also to show the public that we stand together for what is best for the National Bison Range.*

Response 1005: Thank you for your comment. The Service continually strives to foster a foundation for Tribes and Federal agencies to come together and cultivate meaningful conversations and actions that ultimately build long-term relationships and improve trust. We have revised the refuge history to include additional information about the Salish, Pend d'Orielle and Kootenai tribes. We agree that we should move forward together to accomplish what is best for NBR.

Comment 1006: Comment that the vision statement is too specific or too general.

Response 1006: The Service stands by the current version of the vision statement. The vision was developed in compliance with our planning policy. The vision was developed with input from multiple stakeholders, including refuge staff on the planning team, our cooperating agencies, and the public (during a 30-day comment period and public meetings held in 2018).

Comment 1007: Comment about cooperating agencies (specific text) *My comments dated September 13, 2017 submitted during the scoping meetings pointed out that there was a gigantic conflict of interest by naming the Confederated Salish and Kootenai Tribes (CSKT) as a Cooperating Agency. To my knowledge this has never been addressed.*

Response 1007: Service policy (602 FW 3) directs CCP planning efforts to involve other federal, state, tribal, and local agencies, with interests and particular expertise in the planning area, during the planning process. CSKT and other Native American tribal governments were identified as having ancestral and cultural interests in the planning area. Therefore, as with other federal, state, and local agencies, the CSKT were invited to participate in the planning process as a cooperating agency. Furthermore, federal law requires all federal agencies to enter into consultation and coordination with Native American tribes, when the planning area encompasses lands identified as having ancestral and/or cultural ties to the tribes. This planning effort has sought to comply with these laws, regulations and guidelines by involving Native American tribal representatives as an integral part of the planning process.

Comment 1008: Comment asking for clarification of the term "co-management".

Response 1008: The Service does not propose any specific co-management activities in the CCP. However, as we describe in section 1.2, under Native American Policy, co-management can occur where there is a legal basis for such. Also, the United States' trust responsibility is a well-established legal obligation that originates from the unique, historical relationship between the United States and Indian Tribes. The trust responsibility consists of the highest moral obligations that the United States must meet to ensure the protection of Tribal and individual Indian lands, assets, resources, and treaty and similarly recognized rights (see Secretarial Order 3335). As a result of treaties, statutes, Executive Orders, and court rulings, certain Tribal governments and State governments may have shared responsibilities to co-manage fish and wildlife resources. In such cases, and where Service jurisdiction is involved, we will consult and collaborate with Tribal governments and affected State or local

resource management agencies to help meet the objectives of all parties while honoring the Federal trust responsibility (see Rationale under Cultural Resources Objective 2A).

Comment 1009: Comment regarding potential future Annual Funding Agreements and environmental effects

Response 1009: As stated in Chapter 2, section 2.2, under all alternatives, the Service could enter into an annual funding agreement pursuant to the Indian Self-Determination and Education Assistance Act (Public Law 93-638) and therefore it is appropriate to mention this possibility in the final EIS/CCP. The CSKT has not requested an AFA, and any additional necessary NEPA compliance will be addressed prior to FWS entering into any agreement.

2000 – Alternatives

Comment 2008: Specific substantive comment about the alternatives

Comment 2008a. *Why do you consider Alternatives B and C mutually exclusive? Both are good. Can aspects of both be used? Can they be combined?*

Comment 2008b. *Alternative B. We do not understand why the Service has prepared an alternative that implies that if the NBR has a more ambitious visitor services plan, then the biological program, required for proper protection and management of valuable resources, would have to practically be ignored unless it in some way supported or enhanced a public use program. This and Alternative C will need to be revisited and perhaps create a new option that incorporates some of the objectives and strategies found in both proposals. This is a much more balanced approach to managing any refuge, including the NBR.*

Response 2008a-b: Thank you for your comment. The alternatives are intentionally packaged into different themes to be able to draw out the distinctions between various refuge management options and their effects. However, alternatives B and C are about where the refuge would place more emphasis, but not to the exclusion of the visitor services or biological programs. In addition, we have incorporated some elements of Alternative B into Alternative C in the preferred alternative, such as a more experienced visitor services specialist and striving to keep the visitor center open seven days a week in the summer.

Comment 2009: Comment on Elements Considered but Eliminated from Further Analysis (specific text) I*n Section 2.7.2, I am greatly alarmed by the paragraph entitled "Alternatives Based on Staffing Levels". This sounds to me as if the program and work load was set based upon the staffing levels rather than the determination being made first to fully understand the work to be completed and then determine the staffing levels necessary to meet those demands.*

Response 2009: We agree. Section 2.7.2 is within section 2.7 titled "Elements considered but Eliminated from Further Analysis" and therefore an "Alternative Based on Staffing Levels" was not developed or analyzed. We did not choose to develop an alternative first based on staffing levels for exactly the reasons you describe. CCP planning policy guides us to focus first on the desired future conditions of the refuge and to provide management direction to achieve refuge purposes. Doing so then provides the basis for budget request for operation, maintenance and capital improvement programs.

Comment 2011: Comment that invasive species control should be an objective rather than a goal (specific text) *Invasive species issues should be elevated in stature with management at the objective level using strategies and other guiding principles in adaptive management.*

Response 2011: We considered having a separate goal for Invasive Species and after much discussion in the planning team and feedback from the public, we decided to incorporate the management of invasive species into our objectives and strategies. Invasive species management is an important component of achieving the goals and objectives for grassland, forest and riparian habitats.

Comment 2012: Comment about the Visitors Services and Outreach Program (specific text) *We do not agree that the NBR Visitor Services and Outreach programs should be planned and managed in accordance with this Region 6 Visitor Services Program Guidance. Again, this plan was developed to address lean budgets that the Region 6 NWR System is currently experiencing. It limits broad thinking and no other planning process in Region 6 was subject to its restrictions. If the NBR CCP had been completed when required by law, it would not be constricted by this plan. This is particularly important because this plan was developed based on the Region 6 Realignment strategy which, as we explain later, disregarded the needs of the NBR. Also, the potential for the NBR visitor services program is incredible and limits set on staffing, funding, and creativity as described in this Guidance and the Region 6 Realignment plan, should not have been permitted.*

Response 2012: This is the current guidance in our region for visitor services programs on all refuges. We do not consider there to be a sufficient basis for the National Bison Range to be exempt from this.

Comment 2013: Comment about fees and passes (specific text)

Comment 2013a. *How is the section that talks about fees and passes relevant and necessary to*

the elements common to all alternatives? Also, the fees mentioned should be part of the current program description (affected environment) not common elements. Also, the fee for the tour road is way overdue for an increase (over 15 years). By including the fee amounts here you could be setting them in stone for the next 15 years, making it difficult for future managers to increase this fee as needed. I would completely remove this from this section or simply state that fees will be collected for refuge-specific and Department of Interior pass programs.

Response 2013a: Thank you for your comment. We have revised Chapter 2.2 and Chapter 3 as suggested. We do not believe that stating the fee collected for the passes would lock us into only being able to collect that specific amount. However, for clarity we have amended to following sentence to read, ""The refuge determines the price of these passes, and the fee can be adjusted in accordance with FWS policy and regulations."

Comment 2013b. *Specific comments about increasing entrance fee to $10.*
Response 2013b: We appreciate your comment about increasing the refuge-specific entrance fee to $10. We believe we should analyze the effects and potential for an increase in the entrance fee before we propose this action in the CCP. We believe this proposal can best be analyzed and evaluated in a step-down plan for Public Use currently planned for completion in 2020.

Comment 2014: Comment about expanding the refuge (specific text) *Under your preferred Alternative C, the NBR would be expanded onto adjacent public land. The reasons for this proposal are not well stated. We are very concerned about this action because it could lead to unforeseen consequences in the future. Any such action should be clearly communicated to the public, and reasons and ramifications be made clear.*

Response 2014: We do not propose expanding the refuge. We do propose exploring opportunities to cooperate with the CSKT on bison conservation and management. Any specific proposals or ideas would be discussed in collaboration with CSKT Tribal Council and staff.

2100 – Habitat Goal and Objectives

Comment 2101: Comment about existing habitat condition and surveys (specific text)

Comment 2101a. *Habitat Goal: rangeland health assessment for grasslands. This type of data should have already been gathered as part of pre-planning. There are two major flaws with the approach of using native species composition to classify rangeland condition. 1) many attributes must be measured in combination with native species to get an accurate assessment of grassland health: percent frequency and cover of species, structural diversity, vegetation biomass production, plant height and density, bare ground, litter, and basal condition... when used in combination with native species composition they paint a more accurate picture of condition and trends. 2) the current fair-good condition assessment is far too broad when based exclusively on native species composition.*

Response 2101a: We agree all these factors apply when classifying the health and sustainability of the system. While the outcome we want (objective) is described in terms of native species, a rangeland condition assessment would consider several other factors as was done in the two previous refuge rangeland assessments in 2005 and 2014 (CSKT 2005, Marlow et al 2014). We reviewed both of these assessments as we prepared for and developed the CCP objectives. NRCS guidelines for assessing range condition consider the degree of departure from climax plant communities and species and help to determine when there is significant departure from climax conditions, to what degree the rangeland can still support key species.

Comment 2101b. *Habitat Goal: forest health inventory. Would be worth considering other measurements such as diameter breast height, snag densities, and percent canopy cover. Further assemblage of baseline information will help when looking at desired future conditions, esp. when considering biological requirements for breeding migratory land birds and other priority species. Same for riparian and wetland habitats.*
Response 2101b: Thank you for your comment. We agree these are also important measurements that contribute to forest health assessment and will be included.

Comment 2101c. *No Action Alternative. "Under this alternative, we would continue the practice of conducting a range condition survey approximately every 10-15 years, with the most recent being completed in 2005 and 2010 (CSKT 2005, Marlow et al 2014)." I would not describe them as a range condition surveys. The intent and accuracy of these documents should have been reviewed during preplanning and it would clearly demonstrate that they did not provide that type of analysis.*
Response 2102c: We disagree. These documents were reviewed as part of developing the CCP and consider them to be informative on rangeland condition.

Comment 2101d. *How do you know that the riparian areas on the refuge are in good condition? Do you have assessments or surveys that can justify this statement? Unless a survey was done during the CCP process, you have not had enough biological staff to conduct this assessment and make this statement. Please correct it or provide supporting information.*
Response 2101d: The description of the riparian habitat was based on staff knowledge and experience in managing the riparian habitat.

However, we acknowledge that this is a subjective term. We have revised the summary in Chapter 2 and the rationale for Wetland and Riparian Objective 1A.

Comment 2101e. *Has there been a baseline analysis of the ecological health of the NBR (i.e., water quality/quantity, habitat conditions, invasive species, forest health) in order to craft the alternatives?*
Response 2101e: The planning team did review existing information for these topics, as well as others, prior to and during the crafting of the alternatives, objectives and strategies. The relevant studies are cited in the corresponding sections of the affected environment (Chapter 3) and under the "Rationales" for proposed Objectives. In some cases, such as grasslands and forests, the planning team suggest conducting updated or new assessments as one of the first objectives once the plan is implemented.

Comment 2103: Comment on invasive species management tools/partnerships (specific text)
Comment 2103a. *I would also comment that a vehicle cleaning station be added to reduce the introduction of weeds. I reference the USDA Forest Service Document "Vehicle Cleaning Technology for Controlling the Spread of Noxious Weeds and Invasive Species" October 2005 0551 1203-sdtdc.*

Response 2103a: We appreciate your comment about adding a vehicle washing station at the entrance to the NBR to limit the spread of noxious weeds. We believe that this proposal would be better evaluated in the step down plans for Visitor Services (to be completed in 2020) and the Integrated Pest Management Plan (to be completed in 2021).

Comment 2103b. *Regarding the weed situation, some Native Americans are looking forward to any opportunity to share responsibility for the land, whether in ownership and in a participatory role for the management of the land (due to a cultural and long-term sense of looking after the land). Could Native Americans receive incentives or a challenge/reward for participation in invasive species management? Is it possible to use mountain goats or big horned sheep to consume the weeds?*
Response 2103b: The NBR currently works with many partners on invasive species management issues, including those individuals and parties who are affiliated with Tribes. It is likely that bighorn sheep (there are no mountain goats on the NBR) consume some percent of invasive forbs but like other species on the Refuge will continue to be managed as wildlife.

Comment 2103c. *Invasive species must be actively controlled, not just contained. Bio control works for some species but not others. For instance, there is no bio control for sulfur cinquefoil and there never will be due to its close relationship to the strawberry. Therefore, chemical control is needed, and certainly no sporadic hand pulling of the weed.*

Response 2103c: We agree that all tools should be considered for invasive species management and tailored to the specific plant and site conditions. We also agree that sporadic treatment of invasives, with any tool, is unlikely to succeed. However, in areas where non-native species have become established and widespread, complete eradication can be very expensive and less likely to succeed. In these areas, the refuge will manage the grasslands to promote native species and contain and reduce invasive species. Developing an updated Integrated Pest Management plan, in conjunction with partners, will be key to prioritizing treatments, assessing all potential tools and identifying the treatment strategies most likely to succeed.

Comment 2104: Comment about adequacy of proposed staffing for invasive species control

Response 2104: We agree that invasive species on the refuge are a high priority management concern. The addition of the permanent, full time biological technician is proposed under Alternative C in large part to help achieve the Habitat Objectives targeted at managing and reducing invasive species.

Comment 2105: Comment about the fire management plan (specific text) *What is the "fire management plan"? Should it not be presented here? Should not this be or will it be subject to NEPA analysis and comment? Fire is obviously going to play a significant role in the habitat quality for many species. I would think it would be a significant role in habitat management here.*

Response 2105: Fire is an important tool for habitat management on the refuge. The current fire management plan for the National Bison Range was completed in 2010. It is a step down plan from an Environmental Assessment for prescribed fire (USFWS 1985b). When the Fire Management Plan is revised in 2020 any required additional NEPA analysis will be conducted at that time.

Comment 2106: Comment opposing the removal of interior pasture fences for bison grazing

Response 2106: We received several comments on grazing management on the NBR, prompting us to 1) review and revise the wording in a manner that more accurately reflects the direction Refuge management wishes to take regarding fence retention and/or removal, 2) add additional language to the rationales concerning this issue and 3) synthesize comments to offer the following response.

Thank you all for your comments supporting management and prioritization of the NBR habitat.

We agree that maintenance of a healthy grassland ecosystem is of great value to the NBR and as a commitment to that, Alternative C proposes a comprehensive habitat management plan (HMP) by 2022.

First, we would like to address the topic of rotational grazing. We contend that managing duration, intensity and frequency of grazing periods is ineffective given the existing infrastructure/pasture size in relation to bison population size. This has resulted in patterns of over and under grazing within individual pastures, despite diligent efforts to maintain a rotational system and an adequate stocking rate. Evidence of this can be found in review of the downward trend in AUM calculations across range condition surveys (Table H.1), which was corroborated with comparison of the parker's three step data across similar years. Also, the 2014 habitat condition assessment does not support the grazing system in place between 1992 and 2010.

Table H.1 AUM calculations from range condition surveys on the NBR for 6 of 9 existing pastures.

Pasture	1940	1964	1969	1973	1977	1989	2005	2010
Alexander Basin	495	840	1024	636	640	529	435	349*
Mission Creek/ Northside	397	390	390	765	805	655	438	244*
Headquarters/ Lower West	559	518	592	532	690	623	443	440*
Southwest	456	224	226	482	596	608	658	443
Lower South	352	388	461	407	472	380	421	218
Upper North/ Highpoint	513	418	430	695	813	766	645	932

*calculations from the 2014 assessment that are adjusted for landform preference

Without data to support continuation of a grazing system designed for domestic livestock, coupled with a desire to manage bison as wildlife within the confines of the boundary fence, these practices have been discontinued. This decision is both adaptive and supported by science. Bison are considered prairie engineers, their selection and timing of grazing can drive heterogeneity on the landscape. That said, the intent is not to endorse permanent changes, quite to the contrary we recommend conducting a robust analysis prior to development and implementation of the HMP. Our priority is to better inform habitat objectives in a manner that addresses issues such as those set forth in these comments e.g. species diversity, invasive species, soils, birds etc. If the best available science and current knowledge were to indicate a significant benefit to rangeland health by implementing yet a new system (rotational or otherwise), current NBR management is in favor of adapting accordingly. All alternatives seek to investigate whether implementation of passive distribution tactics would be beneficial to the habitat and any subsequent plans will promote management specific to the wildlife and habitat resources on the NBR.

We further contend "that continued advocacy for rotational grazing as a superior system of grazing is founded on perception and anecdotal interpretations, rather than on the preponderance of experimental evidence. Rotational grazing as a means to increase vegetation and animal production has been subjected to as rigorous a testing regime as any hypothesis in the rangeland profession, and it has been found to convey few, if any, consistent benefits over continuous grazing. Grazing research has demonstrated that a set of potentially effective grazing strategies exist, none of which have unique properties that set one apart from the other in terms of ecological effectiveness." (Briske et al. 2008}

In response to concerns about removal of interior fences, we apologize for the vague and inaccurate wording in the document. The fences we wish to consider for removal are those that have not been maintained since the 1992 change in grazing systems and are currently considered obstacles

to wildlife movement. Alternative C proposes to maintain use of internal fences to restrict or defer grazing, allowing for periods of rest. The wording in the document will be changed to reflect this.

In response to concerns about invasive species, we agree that disturbance is a significant reason noxious weeds have been able to invade rangelands across the West. Identifying in detail how the habitat objectives and strategies will be carried out is a priority. We are committed to development of an invasive plant management plan by 2021.

2200 – Wildlife Goal and Objectives

Comment 2201: Specific comment about grazing management (specific text) *Bison grazing management on the NBR needs to be similar to that used by cattle ranchers, employing a grazing system that uses a rest rotation system, not letting the bison roam wherever they choose. Also, good grazing distribution could be enhanced by more water development by using pumps, plus the use of salt in granular form.*

Response 2201: Thank you for your thoughtful suggestions. We will further evaluate the ability of and need for water development and salt use to improve distribution of animals on the landscape in our upcoming habitat management plan. Bison on the National Bison Range are wildlife and although we strongly support allowing them to access the landscape as such, we have maintained the ability to "rest" or exclude areas from grazing as needed.

Comment 2202: Comment in support of maintaining bison genetic integrity in all alternatives

Response 2202: Maintaining and improving bison genetic integrity for the bison herd on the refuge is a priority (see Bison Objectives 1A-1C). The refuge is successfully doing this currently with available resources. The additional biological staff identified in Alternative C is expected to further enhance and support this objective. This is discussed in Appendix F, pages F9-F10, For Bison Objectives 1A, 1B, and 1C. Lee Jones from the Mountain-Prairie Region Wildlife Health Office works with the refuge every year to manage the genetics of the bison herd and assist with the annual capture operations. She also was a significant contributor to the Bison Objectives and other information relative to bison management in the final EIS/CCP.

Comment 2203: Comment about bison reproductive rates (specific text) *There is a red flag on the NBR with the Montana State University study showing that reproduction rates have dropped from 87 to 33 calves per 100 cows.*

Response 2203: This study was conducted in 2008-2009. Recruitment can vary from year to year depending on a variety of conditions (disease, habitat condition, age of cows etc.). Ongoing monitoring is needed to understand the drivers of recruitment in the bison herd.

Comment 2213: Comment on connectivity within the NBR as a fenced refuge (specific text) *On another matter concerning wildlife connectivity, where is this discussion? How, where or when is this issue going to be addressed? How does the USFWS plan on implementing a policy on connectivity within the NBR? I would like to hear an explanation and understand the complexities of the how the NBR really interacts with the surrounding landscape.*

Response 2213: In order to better understand ways the refuge can contribute to connectivity and the surrounding landscape, we identify a specific strategy for this in Alternative C to "evaluate, through research, existing corridors for priority species and landscape-level opportunities".

Comment 2214: Comment about wildlife present on NBR (specific text) *On page 8, "The NBR supports a healthy population of plains bison as well as populations of elk, mule deer, white-tailed deer, bighorn sheep, and pronghorn." Since this is a summary, vary this statement by including some of the predators that reside on the NBR as well, including mountain lions and wolves. It shows the reader that the NBR is able to sustain a complete suite of wildlife that is native to this part of Montana.*

Response 2214: Thank you for your comment. We will revise this statement within the document.

2300 – Research and Science Goal and Objectives

Comment 2301: Comment requesting further explanation of TEK (specific text) *TEK – traditional ecological knowledge – needs to be defined, at a minimum, in the glossary. I would like to see an explanation on why and how it would be used, and particularly in ways to resolve any conflicts between Tribal and current Service/ scientific practices.*

Response 2301: Thank you for your comment. We have added a definition of TEK to the glossary. We would like to refer anyone interested in learning more about TEK and how it has been used elsewhere to the Service publication cited in the CCP "Traditional Ecological Knowledge for Application by Service Scientists" (Rinkevich et al 2011). This document is available for reading or download at: https://www.fws.gov/nativeamerican/pdf/tek-fact-sheet.pdf

Comment 2302: Comment about TEK incorporation into biological programs (specific text) *Throughout the alternatives, you have committed in numerous sections to incorporate*

TEK into all biological programs, including research projects. While we believe this is worthy of some effort, this statement makes it clear that this objective can be difficult to achieve. For that reason, there should be no mandate requiring this integration and it should be integrated slowly and monitored to ensure these methods meet the criteria of approved scientific standards and support the objectives for refuge biological programs. We are glad to see that you added the statement, 'where possible' and this should be added to other sections of the plan where it appears a mandate to incorporate TEK exists.

Response 2403: We consider the statements about how we will seek to incorporate TEK into refuge management as congruent with the Service's Native American Policy (510 FW 1) when it states, "We will listen to and consider the traditional knowledge, experience, and perspectives of Native American people to manage fish, wildlife, and cultural resources." While we would not characterize the statements in the CCP about TEK as a "mandate", we do intend to seek opportunities to learn about TEK and incorporate it to enhance refuge management, where possible.

2400 – Monitoring and Adaptive Management Goal and Objectives

Comment 2401: Comment about adaptive management within the plan (specific text) *The term "adaptive management" is liberally sprinkled throughout the CCP. I am not opposed to adaptive management, but it must be emphasized this process, from developing the plan (design), through the structured steps of implementation, monitoring, evaluation and adjustment is extremely time consuming and demanding. This takes a serious commitment of staff time and is not a casual effort as implied by the frequent use of the term in this CCP.*

Response 2401: Comment noted. Please also see comment 2403.

Comment 2402: Comment asking about the incorporation of climate change and carbon neutrality in the CCP

Response 2402: Thank you for addressing the important issue of carbon emissions and climate change. While carbon neutrality is not specifically addressed in this document, we recognize the importance and potential impacts of climate change to the resources we manage. The NBR will improve efforts to reduce our carbon footprint by using renewable energy where feasible (for example, wind and solar energy) and green technologies in the development of new facilities.

Comment 2403: Comment about ability to achieve an adaptive management program for grasslands given planned staffing levels

Response 2403: The Service recognizes the investment required to design and implement a rigorous adaptive management project. That is one reason why we are only proposing one such project, for the highest priority habitat on the refuge, grasslands. In addition to refuge staff including a GS-11 wildlife biologist, a GS-7 biological technician, seasonal and volunteer help, the refuge would also have the assistance of scientists from the Division of Science Resources in Mountain-Prairie Region. Through this program, refuge staff have access to assistance from GS-13 Inventory and Monitoring biologists, a GS-13 Biometrician, a GS-13 Invasive Species biologist and GS-12 spatial analysts. At least two of the current staff have experience in developing and coordinating a decade long adaptive management program in the prairies on native grassland management. It is also highly likely, given the interest of other agencies and researchers that the refuge would have additional partners supporting such a project.

Comment 2404: Specific comment about methods of bird monitoring to accomplish the refuge purpose for birds (specific text) *Even though one of the legislative purposes of the refuge is "as a refuge and breeding ground for birds", you have proposed to use things like 'biologist for a day' or citizen scientists to assess the health, presence, and condition of migratory birds that use the NBR, including assessing monitoring their habitats.*

Response 2404: One of the primary ways the refuge fulfills its purpose as a 'refuge and breeding ground for birds' is to manage the habitats to support the over 200 species that have been documented to occur. The objectives and strategies for each of the habitat types were developed to support all of the wildlife on the refuge, including native birds. We also recognize that monitoring the birds that use the refuge using protocols that are well designed, achievable, and supportive of refuge objectives also improve the efficacy of refuge programs and allow for more effective management. As described in the rationale under the Monitoring Objective 1A, in 2013, the Service partnered with the University of Montana Avian Science Center to provide the NBR with technical assistance related to development and field testing of monitoring protocols, statistical design of monitoring techniques, and quantitative analysis of monitoring data. After thorough review of previous protocols and historic data from the refuge, and an in-depth structured decision-making effort, the ebird.org platform was selected as a viable method for sustainable bird monitoring on the refuge. eBird is the world's largest biodiversity-related citizen science project, with more than 100 million bird sightings contributed each year by eBirders around the world. Data collected by the public on NBR will help document when and where bird species occur on the refuge, thereby providing time and site-specific information about the occurrence and abundance of bird species. Also, eBird data has the ability

to contribute to refuge habitat management and conservation decisions.

2600 – Public Use Goal and Objectives

Comment 2601: Specific comment in support of environmental education and outreach (specific text)

Comment 2601a. *Many people have commented on the fact that they'd like to see the Environmental Education and Visitors Services programs continue and/or be restored to past levels. Some specific aspects: (a) Add to Alt C (preferred) an effort that should at a minimum be made to provide for volunteers to also be recruited for Public Use, not just Biology. (b) I really like the fact that it was acknowledged that the Service's history is also important to relay to visitors, as well as other cultural and historical aspects of wildlife and the land.*

Response 2601a: We appreciate your comment about the importance of environmental education and outreach. Under Alternative C, one of the strategies for the Education, Interpretation and Outreach Objective specifically states "train seasonal employees and volunteers to provide environmental education, interpretation and outreach that focuses on priority species and habitat."

Comment 2601b. *Replacement of the current visitor center appears to be a given, but there is little clarification of how the new "contact station" would differ from the current center or among the various alternatives. Although the Bison Range is a refuge, it has a broader mission than most and is a unique opportunity to not only preserve bison, which is now also happening at many US locations, but educate the public about bison and other wildlife in general. The visitor center would best serve this objective by providing adequate space for educational materials, displays and programs that might be provided by other organizations, such as ours, possible on a rotating basis. An additional visitor center staff person as proposed in alternative B & C would also enhance this objective. Anything that would limit or diminish public access for education and viewing as hinted in Alternative C should be discouraged, although the same may not apply to recreation.*

Response 2601b. We appreciate your comment regarding the Visitor Center and limitations on public use. The exact location and size of the new Visitor Center has not been determined yet and would require a separate NEPA analysis before construction began. We agree with your comments on the value of the visitor center and will take those into consideration moving forward. Alternative C would only limit access or public use to areas where there is a potential for significant disturbance to wildlife or plants or the health or safety of the public is in jeopardy.

Comment 2601c. *Education to schools + Outreach Critical. Need to hire full-time: to create curriculum and visit classes throughout winter. Need a rep. to visit those children.*

Response 2601c. Environmental Education is one of the six priority public uses that was deemed an appropriate use of a refuge by The National Wildlife Refuge System Improvement Act. We recognize the importance of environmental education at the National Bison Range. Alternatives B and C both recommend the hiring of a full time Visitor Services Specialist who would assist in facilitating environmental education and outreach at the National Bison Range. Alternative B would seek to utilize FWS personnel as the primary conduit for presenting environmental education and outreach to visitors of the National Bison Range. Alternative C would seek to utilize FWS personnel to coordinate and partner with other organizations who would then primarily present environmental education and outreach to visitors of the National Bison Range.

Comment 2602: Comment asking for clarification on Alternative B Objectives for Funding and Staff focus on enhancing experiences for the public (specific text) *Why is this objective and the associated new positions only focused on enhancing the experiences for the public? Where are the positions that are critical to properly manage the refuge and achieve the biological purposes and objectives for the NBR?*

Response 2602: Alternative B is focused on enhancing the quality public use on the refuge. Therefore, additional positions were proposed to support this emphasis. The biological objectives (which are more modest under Alternative B than C), would be supported in Alternative B by the wildlife refuge manager, the wildlife biologist, the range technician and also substantially by the maintenance staff (e.g. invasive plant treatment, fence maintenance, elk and predator control, bison capture, etc.).

Comment 2604: Specific substantive comment about potential community education and outreach opportunities (specific text)

Comment 2604a. *The Bison Range contains a suite of ice age flood features and a grand vista of many of the other key aspects for interpretation of the Ice Age Floods National Geologic Trail. Consider an alternative where the range and the lower day use area are key stops along the route of the Ice Age Floods National Geologic Trail. Park Service or Ice Age Floods Institute would like to work with you on this. Google IAFI for contact info.*

Response 2604a: We recognize the importance of environmental education and outreach (see comment 2601c), including education and outreach about the natural and geologic processes that

helped formed the landscape of the National Bison Range. We believe this suggestion fits within the Education and Outreach Objectives for Alternatives B and C and can be further evaluated in a step down plan for Visitor Services.

Comment 2604b. *Community outreach like annual spring and fall ceremonies including CSKT carried out by the Salish Pend d'Oreille culture committee designee welcoming the spring, praying for the animals' survival through the winter in the fall. A community program possibly partnered with the Tribes so it can be jointly funded. If you open in the winter, host Coyote Stories in your theater (which needs to be rejuvenated). Of course, update your outreach material in the visitor center so it reflects the tribes that are here, not using native words from Tribes that don't even occur in our region, because "people recognize Dance's with Wolves words for wildlife". Recognize that Tribes are distinct not just lumped together.*

Response 2604b: We recognize the importance of environmental education and outreach (see comment 2601c). We also recognize the importance of partnering with the CSKT as is called for in the Service's Native American 510 FW 1. We believe these suggestions fits within the Education and Outreach Objectives for Alternatives B and C and can be further evaluated in a step down plan for Visitor Services. All of the Alternatives propose communicating to the public how the Service incorporates Traditional Ecological Knowledge (TEK) into its management practices and incorporating native languages to maximum extent possible. We agree that we should specifically incorporate the languages of the tribes near the National Bison Range. All of the alternatives propose building staff capacity for understanding and interpreting local indigenous culture, history, and TEK.

Comment 2604c. *I would also suggest developing a "tour guide disk" which visitors could purchase to enhance their visit to the range. For example at the sign indicating the level of lake Missoula additional information could be added on the disk.*

Response 2604c: We appreciate your comment about a tour guide disk that could be utilized by visitors to the NBR. We agree that a wide array of multimedia tools can enhance the visitor experience and understanding of the refuge. This suggestion would be best evaluated in the step down plan for Visitor Services.

Comment 2604d. *Take a survey of what is working at other Refuges in terms of community support and low cost or partnered outreach activities so the NBR is a welcoming place for learning and protection of Bison.*

Response 2604d: We agree with the idea that we can learn from other refuges about what low cost and partnered outreach activities have been effective within the Refuge System. We have a Regional Visitor Services Specialist and a National Visitor Services Program that helps facilitate and disseminate information about effective low cost and partnered outreach activities.

Comment 2604e. *Live cams: eagles and bears.*

Response 2604e: We recognize the importance of environmental education and outreach (see comment 2601c). Although this document does not specifically call for the installation of a live wildlife camera, it does not preclude the installation and use of one. This comment can be more thoroughly evaluated in the step down plan for Visitor Services. It is important to note that live wildlife cameras have an initially startup cost and take staff time to monitor and maintain.

Comment 2604f. *An annual calendar would benefit public.*

Response 2604f: We agree that a calendar of events posted on the National Bison Range website would be beneficial to the public. In response to your comment we have added this suggestion as a strategy under Education, Interpretation and Outreach Objectives 1B-C.

Comment 2605: Comment about increases in public outreach to foster awareness

Response 2605: We appreciate your comment and agree that the National Bison Range is an incredible resource. Alternatives B and C both propose hiring a visitor services specialist that would assist with outreach and environmental education efforts, including social media posts and updating the National Bison Range web page. The recent Visitor Services Program guidance for refuges in the Mountain-Prairie Region will be used to develop the scope and scale of the NBR visitor services and outreach program under all of the alternatives (USFWS 2018b).

Comment 2606: Specific comment suggesting additional public use opportunities (specific text)

Comment 2606a. *I would also suggest the addition of Glacier National Park type tour busses be added as a means of providing access for visitors in tour busses over size vehicles and families uncomfortable driving on the upper road. This service could be provided via a contract with a vendor who would be allowed to charge an agreed amount for the service.*

Response 2606a: We appreciate your comment about the NBR utilizing a contractor to provide tour buses to drive visitors over the tour road. We believe this idea would be better evaluated in a step down plan for Visitor Services.

Comment 2606b. *I would also suggest allowing*

snow vehicles access to the range during months when historically access has been limited. There would need to be a cost for this access as the cost of providing emergency services to visitors would certainly increase.

Response 2606b: We appreciate your comment about allowing access specialty vehicles access to historically closed areas of the NBR during the winter months. We believe that allowing public access to a larger portion of the NBR during the winter months would create an increased disturbance to bison and other wildlife during a metabolically challenging time and would ultimately not be compatible with the primary purpose of the NBR.

Comment 2606c. *I'd like to go w/ staff on "photo safaris" would get public to come + charge fee. :nominal: "slush fund" Have a photography contest: nominal fee and must only be shot at bison range. you need staff and volunteers to pull this off Purchase a mini bus: have wildflower walks and / or culture site visits on and off NBR. fees charged*

Response 2606c: We appreciate your comments on having staff or volunteer led photography tours, photo contests, and purchasing a mini bus for on and off site nature and cultural tours. These ideas can be more adequately addressed in the step down plan for Visitor Services.

Comment 2607: Comment about methods to increase public viewing opportunities (specific text)

Response 2607a. *The current signs on Highway 93 indicating the way to the NBR are minimal, and do little to indicate what a great attraction it is. Additional signs, such as those west on SR 200 that proclaim "Road to the Bison" would be very helpful for tourists, and should be placed at the Ravalli Junction and the junction to Charlo. Again, if the NBR budget does not cover this, I am sure that Government or non-governmental agencies in the Mission Valley would help with the effort. Promotion of the NBR is definitely in the interest of increased tourism in the Mission Valley, which should be a destination site between Yellowstone and Glacier National Parks.*

Response 2607a: We appreciate your comments with regard to improving our outreach by increasing our signage. We believe the proposal to hire a Visitor Services Specialist will assist in reaching out to partner organizations to improve our outreach and informational signage.

Comment 2607b. *This is a National Wildlife Refuge and as we always told our visitors, wildlife is unpredictable and so unless you plan to create wildlife pens, artificial food plots, or increase wildlife number to a level that would cause habitat damage, you cannot guarantee or achieve this proposal. It should be removed. Instead you could improve public use programs, educate visitors on how to safely view wildlife, or give additional opportunities for the public to enjoy wildlife in other areas of the refuge. A perfect is example is restoring the historic "behind the gate tours" that was led by refuge staff and volunteers. These were very popular events and only ended when we lost of visitor services manager who made the time to coordinate this program. As written, this proposal cannot be achieved.*

Response 2607b: We are not proposing to "guarantee" public opportunities, but increase them, for example with better viewing facilities in the corral during annual bison capture operations. We have suggested two strategies under Wildlife Observation and Photography Objective 1B:

- Facilitate workshops and guided wildlife observation and photography tours through the use of staff or partner organizations
- Facilitate wildlife observation and photography tours in current closed areas through staff led excursions or by providing special use permits when appropriate (e.g. mule deer rut)

Comment 2608: Comment about the wildlife viewing areas

Response 2608: We appreciate comments about adding wayside viewing areas along the NBR boundary to Alternative C. Alternative C does not specifically preclude entering into a partnership with Montana Department of Transportation and/or the CSKT to enhance the wildlife viewing opportunities in these areas. This proposal would best be addressed in a step down plan for Visitor Services. The pullout on Ravalli Hill that abuts the NBR is CSKT property. It is a popular location to view wildlife on the NBR that is otherwise not seen from the NBR itself. Any outreach or interpretive panels that could be installed here would have to have the permission of the landowner, the CSKT.

Comment 2609: Comment about the existing and proposed Visitor Center

Response 2609: We appreciate your comment regarding the importance and value of having the NBR Visitor Center open 7 days a week. As of the publishing of these comments the NBR Visitor Center is currently open 7 days a week. Alternatives B and C both propose the hiring of a full time Visitor Services Specialist. This position could help facilitate the Visitor Center being open 7 days a week but would be subject to funding and availability of interns, seasonal employees and or volunteers.

Alternatives A, B and C proposes replacing the existing refuge Visitor Center. The location and construction of any future visitor center would be subject to the NEPA process and any impacts to the environment or habitat would be evaluated

in that process. The location of the new Visitor Center has not been determined, but could likely be located in the same general area as the existing facility. The determination on what would happen to the old visitor center has not been made and is not a part of this plan, but would likely be torn down and replaced by the new visitor center.

Comment 2610: Comment about accessibility (specific text) *You need to do more than 'investigate'. Due to a lack of staff and funding, the trails on the NBR are in disrepair and are no long ADA compliant. Interpretive signs are damaged or outdated and other supporting facilities, such as benches and trail signage, needs replacement. Also, there are additional opportunities for new trails, but they must be carefully designed and managed to prevent damage to resources, due to the number of visitors that come to this high visitation refuge.*

Response 2610: It was our intention that this proposal would be part of a larger scale public use assessment that would include a sign inventory, trail maintenance, etc. Part of this assessment would include placing items on a hierarchy that need repair, improvement, or expansion.

Comment 2611: Comment about allowing horses on NBR and Saddle Club Trail Ride

Response 2611: A Compatibility Determination was completed for Horseback riding/Saddle Club Trail Ride (see Appendix D.9). The Compatibility Determination does not reference a quarantine. A special use permit with general conditions would be required to conduct horseback riding on the NBR. If a special use permit is approved, general conditions would be attached that allow refuge staff the flexibility to minimize conflict and disturbance to priority species or habitats, including minimizing the spread and deposition of weed seeds from fecal matter or from hay and other feeds transported to the NBR.

Comment 2612: Comment about partnering on improvements to visitor services

Response 2612: We appreciate comments about having permanent, and not detailed, visitor services staff. Alternative B and C both propose hiring a permanent full time Visitor Services Specialist.

Comment 2613: Comment about collecting shed antlers and compatibility determination

Response 2613: We agree that permitting special user groups to collect antlers on the NBR helps to deter trespassing and illegal antler collecting in sensitive bighorn sheep lambing and Rocky Mountain elk calving areas. We have added this to the Justification for compatibility determination for D.6 Description of Use: Collecting Shed Antlers.

Comment 2614: Comment about commercial filming and compatibility determination

Response 2614: We appreciate your comments and concerns about funding and staff time to monitor and assess commercial filming special use permits. It was not our intention to imply that every commercial filming special use permit would always require the physical presence of refuge staff at all times during the filming process. Some special use permits may require staff assistance, but would only be approved if the refuge manager deems that the staff has the time and funding to administer the special use permit. The commercial filming, audio recording, and still photography uses are administered with current resources. Administrative costs for review of applications, issuance of special use permits, staff time to conduct compliance checks, replacement of any damage to refuge property, operational costs of government equipment or any other direct costs may be offset by a fee system designated for the agencies within the DOI.

Comment 2616: Comment about TEK in outreach materials, publications, and interpretation

Response 2616: We appreciate your comment regarding the incorporation of TEK. We believe the incorporation of TEK is directly in line with the Service's Native American Policy (510 FW 1) when it states, "We will listen to and consider the traditional knowledge, experience, and perspectives of Native American people to manage fish, wildlife, and cultural resources." The Service is not required to create an exhaustive list of objectives or strategies under any topic heading. Rather, the planning team has included those objectives and strategies that the refuge will focus on over the next 15 years. TEK is identified as a particular type of communication the refuge plans to focus on and further develop over the life of the plan.

2700 – Partnership Goal and Objectives

Comment 2704: Comment about partnerships within the plan

Response 2704: Partnerships are a legitimate tool for achieving the goals and objectives in this plan. Partnerships may take on many forms depending on the desired outcomes. We would seek to develop partnerships within our legal and policy mandates for the benefit of the NBR. We identify several current and potential partners throughout the document including CSKT, Montana Fish, Wildlife and Parks, Pheasants Forever, Natural Resources Conservation Service, Lake and Sanders Counties, University of Montana, the Avian Science Center, the Partnership for Regional Invasive Species Management, private landowners, and other governmental and non-governmental organizations. We agree that successful partnerships include

clearly defining roles, responsibilities and desired objectives in order to have positive outcomes. However, providing operational details on future partnerships, many of which may not exist yet, would be speculative at this point.

2800 – Administration and Operations Goal and Objectives

Comment 2801: Comment about clarification of the use of visitor contact station vs. visitor center under Alternative A

Response 2801: We agree that using the terms Visitor Center and Visitor Contact Station can be confusing. We have revised the document to simply use the term visitor center. The exact location and size of the new Visitor Center has not been determined yet, but it will be developed with consideration of the regional guidance for high visitation refuges. Any additional NEPA analysis will be completed, as needed, prior to construction.

Comment 2802: Comment about the condition of refuge facilities under Alternative A (specific text) *Administration and Operations. No Action. "Facilities and real property will be maintained in operational condition that meets Service standards and NBR goals." Given the poor conditions of refuge facilities, most of which do not meet even minimum Service standards and refuge needs, I do not believe you can make this statement under the No Action alternative, given the limited staff and resources available. None of the refuge visitor facilities even meet ADA standards and should be altered or replaced. This would take substantial staffing or contracting and I see no commitment of resources under this alternative to ensure this happens. Instead, you should describe how most refuge facilities and real property are in serious need of repair or replacement to comply with Service standards and the requirements of all federal facilities.*

Response 2802: The strategies listed under this alternative further elaborate on what maintenance activities would occur under Alternative A. The strategies listed are currently occurring and would be expected to continue with the available resources. These strategies include mostly maintaining the existing facilities and only doing updates as resources allow. We would not expect that over 15 years there would never be an opportunity to update any facilities on the refuge, even under Alternative A. The strategies also identify replacing the visitor center starting in 2020, which is included in all of the alternatives.

Comment 2803: Comment about increasing housing/infrastructure to accommodate increased volunteers, seasonal employees, etc.

Response 2803: Thank you for your comment. The plan already states the need for increasing infrastructure to support the increased number of staff (See Facilities Objectives 1B and 1C).

Comment 2804: Comment asking for clarification on current staffing under each Alternative

Response 2804: We have updated the staffing Table (2.2) in Chapter 2.

Comment 2807: Comment about staff positions/ levels and feasibility of achieving specific CCP goals and objectives

Response 2807: The refuge staff and planning team developed the personnel needs based on the objectives and strategies under each alternative. We recognize the important stewardship responsibility we bear as public land managers. We take this responsibility seriously and strive to balance the needs and desires of many, while using science to guide and safeguard these lands and the wildlife that call them home for current and future generations throughout the region, including at the NBR. Staff positions are prioritized to align with priority regional and national conservation outcomes and to manage for wildlife, habitat, safety, and recreational opportunities. While these decisions are often difficult and challenging, they are made with the intent of best achieving our mission of working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

Once a CCP is finalized, the Service's planning policy (602, FW3, (7)(8)) directs refuges to begin implementing the CCP and to allocate funding and staff time to the priority strategies as defined in the CCP. The policy also directs refuges to review the plan annually and modify the plan and associated management activities whenever this review or other monitoring and evaluation determine that we need changes to achieve refuge purpose(s), vision, and goals. If at some point in the future the Service determines that priority objectives and strategies cannot be met with current staff, then the CCP can be modified accordingly.

Comment 2808: Comment that staff is needed to oversee volunteers

Response 2808: We agree that a successful volunteer program needs support from the entire staff and a dedicated person to manage it. In the rationale under Alternatives B and C we state that a "Visitor Services Specialist is necessary to recruit, train, direct and lead the volunteer program and those interns assigned to the public use program". The preferred alternative has been revised to include a more experienced visitor services specialist (GS-11). Volunteers and interns for the biological or maintenance program would be directed by either the wildlife biologist or maintenance staff. The overall volunteer program would also be supported by the station manager. Collectively, we believe this level of support from permanent staff is adequate to achieve the

objective of 20-25 volunteers under Alternatives B and C.

Comment 2812: Comment regarding additional information on historic budgets and how funding for the plan was determined

Response 2812: Fiscal year budget allocations (October 1 through September 30), once authorized and appropriated by Congress, go through the Office of Management and Budget to the Department of the Interior to the U.S. Fish and Wildlife Service to Regional Offices (e.g. Mountain-Prairie Region) to field stations (e.g. National Bison Range). Since Fiscal Year 2010, budgets for the refuge program in the Mountain-Prairie Region have been declining or flat.

Leadership decisions factor into each stage of the budget process as agency officials assess available resources and allocate them accordingly. In the Service, resources are allocated such that they strategically support the Service's programs (including the National Wildlife Refuge System) in achieving the Service's conservation mission. While we have developed this plan based on the best available knowledge we have today, our CCP policy guides the Service to review the plan annually and, as needed, modify funding and staff allocations to address priority objectives and strategies. This flexibility will allow the Service to respond to adapt to changing conditions, including budgetary fluctuations.

Comment 2813: Comment suggesting grants and volunteers to help with operations and administration

Response 2813: Thank you for the suggestion. We agree that grants and volunteers are valuable tools in refuge management. We have included a specific objective under each Alternative to recruit volunteers to support all refuge activities.

3000 – Affected Environment and Environmental Consequences

Comment 3001: Comment that the analysis in the draft CCP and EIS is inadequate (specific text)

Comment 3001a: *The No Action Alternative fails to achieve the mandated purpose of the NBP. Further, it fails to fulfill the mission of the FWS. The Significant Issues to be Addressed in the EIS are largely ignored under this alternative. Staffing at present is inadequate, hours are restricted because of staffing, research staff are essentially absent, and Visitor Services are inadequate and limited.*

Comment 3001b: *None of the 3 alternatives for the Bison Range are realistic or acceptable. I take students on field trips to the Bison Range and the Visitor Center is like a ghost town with seriously outdated displays and educational films about the bison range. Informational signs at the day use picnic area are decaying and outdated. It gives the message to the public that the FWS doesn't care about the refuge or the people who visit it. None of the 3 proposals adequately fund staff to manage the Bison Range to uphold the mission of the national refuge system.*

Response 3001ab: We recognize the objections by some individuals to some proposed management objectives, particularly those related to visitor services and refuge operations, as well as the staffing levels described under each alternative. Despite these areas of contention, we stand by the analysis of effects described in the draft and final EIS/CCP. Based on the comments and suggestions on the final EIS/CCP, we made minor changes to the alternatives and clarified some of the key concepts and analyses. The changes to the draft and final EIS/CCP are summarized in Appendix B.

Comment 3002: Comment about including glacial features such as shoreline and erratics (specific text) *The ice age floods story was unknown at the time the range was created, but the area that includes the Range has now been identified as central to the formation of much of the northwest. The plan should mention that not only did Glacial Lake Missoula impact the current soils of the areas (pg 31) but it left behind shorelines and erratics that should be recognized and protected as a natural resource. Some features also occur at Nine Pipes.*

Response 3002: Thank you for comment. This information will be incorporated into the document.

Comment 3003: Comment about invasive plants (specific text)

Comment 3003a: *"Several invasive forbs that historically threatened the integrity of these ecosystems have now been reduced to "acceptable" levels, where they exist but are no longer the dominant species." This is a very deceptive and evasive statement which downplays the seriousness of the invasive plant problem at the NBR. "Several" invasive forbs are at acceptable levels. What does this mean? How many invasive forbs are not at acceptable levels? Table 3.1 (p.42) lists 16 invasive plants found on the NBR, and their combined abundance is a serious threat to the native habitat and the ability to support a genetically viable, representative herd of bison . . . the original purpose of the refuge. Of the six National Wildlife Refuge Stations I have worked at, the NBR has by far the worst invasive plant infestation problem I have encountered.*

Response 3003a: Several invasive forbs that historically threatened the integrity of these ecosystems have now been reduced where they exist but are no longer the dominant species. The CCP is directed at preserving a genetically diverse

bison herd and diverse and healthy grasslands. We could maintain bison on entirely nonnative forage, but we value diverse and healthy native grasslands.

Comment 3003b: *A better look at the invasive plants as a habitat limiter may be a good inquiry. This limits usable forage, usable habitat for some species and function of habitat overall. Especially native species recruitment, etc.*

Response 3003b: Thank you for your comment. The Service has revised Section 4.3.1 Grasslands in Chapter 4 to state how invasive plants can cause a reduction in forage habitat quality and availability in native grasslands for bison and other ungulates. For the proposed Alternatives, we also stated how invasive plant management activities potentially will improve the forage habitat quality and availability.

Comment 3004: Comment about grassland communities and rotational grazing (specific text)

Response 3004a: *"Grassland communities cover approximately 75 percent of NBR and comprise one of the largest remaining tracts of bunchgrass prairie (Belovsky and Slade, in prep)" I think this statement highlights one of the greatest values of the NBR that many do not recognize. This habitat found on the NBR is special and endangered; nevertheless, I do not see any proposals where it will properly cared for in this plan. Protecting the remaining native grassland areas on the NBR is critical and right now the refuge is losing this battle. New invasive species threats are crossing refuge boundaries all the time. With the current staff and the proposed staffing alternatives, it will be impossible to properly monitor and react to these invasions. I am proposing that you restore the staff listed in the 2016 organizational chart.*

Comment 3004b: *Grasslands are the foundational habitat supporting bison on the NBR and are tremendously important to achieving a primary refuge goal (Public law 85-622). Unfortunately, it is impossible to comment on the "novel ecosystem" concept because sufficient detail has not been provided. What is the plant community composition? Where is there evidence of this envisioned "novel ecosystem" being beneficial to NBR wildlife? This simply appears to be an attempt to justify and accept a less than optimal habitat condition because the Service is unwilling to devote the necessary resources to adequately manage and/or restore NBR grasslands. The CCP references a rangeland assessment (Marlow et al 2014) but does not provide a link to this document. I request a copy of this document and additional time to provide comments on this topic.*

Response 3004ab: We agree that the grasslands on the refuge are one of its greatest resources. We have developed several objectives and supporting strategies to manage the grasslands, with special emphasis on the threat of invasive species. For grasslands that are in poor condition (less than 25 percent native plant species) we would consider creating a novel ecosystem (Grassland Objective 4C), i.e., supporting a plant composition of native and non-native, non-invasive species providing improved ecological diversity, integrity, and resilience. This approach would place a priority on halting the spread of annual noxious grass and increasing the forage production for bison and also provide grassland birds with vegetative structure. This management approach has the potential to benefit higher quality grasslands on NBR by reducing bison forage use (or intensity levels) in these higher quality grasslands.

Under Alternative C, in addition to the refuge manager, wildlife biologist, biological technician, rangeland technician, two maintenance staff, additional seasonal employees and volunteers on the refuge staff, the management of NBR grasslands has the support of the staff of the Division of Science Resources (see comment 48.10), in particular the Regional Invasive Species Program, partner agencies such as NRCS and the Lake County weed program, and researchers. While the refuge must stay vigilant to protect the grassland habitat, we disagree that it would be impossible to properly monitor and react to on-going threats with the resources described in the plan.

Comment 3006: Comment about existing Visitor Services (specific text) *I'm rather dismayed that the information in Chapter 3 (Affected Environment) does not reflect the current situation at the Bison Range, particularly under the Visitor Services section (pgs 49-51). The information under Communication and Outreach is at least 2 years out of date. Very few news releases regarding visitor information (Red Sleep Mountain opening and closures, special events, etc) have been issued nor has the website been updated with any consistency since I was asked not to volunteer at the Refuge any more. You are lucky that Dave keeps the Facebook page going. Don't mislead people on how things are really going on the Range.*

Response 3006: We appreciate your comment on the Affected Environment portion of the CCP. It was not our intention to mislead the public about the current state of communication and outreach at the National Bison Range. News releases and articles pertaining to the National Bison Range have and are continuing to be published. The NBR's website provides general information about the refuge and specific updates highlighting wildlife, annual events and activities are posted on our Facebook page. We greatly value all of the volunteers who assist with the operations at the National Bison Range.

Comment 3007: *How will higher levels of visitation degrade the experience for visitors? (car*

fumes, congestion, poorer experience).

Response 3007: We analyzed the potential effects of enhancing the quality of the visitor experience in Alternative B in Chapter 4 and determined that overall, we would expect long-term, minor to intermediate, beneficial impacts on visitor services. Alternative B has potential for increases in vehicular traffic, potentially affecting carbon monoxide emissions and increasing dust, however, it would have minor to negligible, short and long-term adverse impacts on air quality. If the enhancement of visitor services programs leads to increased visitation, it may necessitate added infrastructure and amenities that are not outlined in this CCP but would be addressed in future, step-down plans.

4000 – CCP and NEPA Process

Comment 4001: Comment about why an EIS was warranted

Response 4001: Thank you for your comment. Federal agencies may choose to develop an EIS, without first developing an EA, to analyze and accompany their projects if it is believed that the project may have a significant impact on the human environment.

Comment 4002: Comment about developing the CCP through the Regional Office (specific text) *I appreciate all USFWS staff that organized the three meetings but regret that the local NBR staff couldn't have done it so regional staff and consultants didn't have to be paid to fly in for the meetings at area hotels and libraries. I would have preferred to have had the local USFWS handling the entire CCP process at NBR as was done at all the other NWRs. Designing a CCP from a regional office is highly irregular and usual, not to mention expensive. Because the size of NBR staff and volunteer list has shrunk to such a small size, hiring expensive consultants and flying in regional staff was selected by the regional office as the solution.*

Response 4002: Thank you for your comment. Regional office personnel and consultants assist and support refuge personnel during public meetings for logistical and planning purposes. Every other CCP that has been completed in the Mountain-Prairie Region has had the support of a planner from the Regional office, as well as other regional office staff (e.g. writer/editors, map specialists, external affairs). We have used contractors to support meeting facilitation, NEPA analysis, writing and editing for several other CCPs in the Mountain-Prairie Region.

Comment 4003: Comment about the public distribution of comments

Response 4003: Thank you for your comment. As we stated during public meetings and in the optional public comment forms provided during public comment periods, the Freedom of Information Act (FOIA) requires the Service to provide any and all information available to the Service when we receive a FOIA request. Any member of the public may submit a FOIA request.

Comment 4005: Comment that the preplanning and scoping steps were not adequate

Response 4005: We disagree with the comment that there was an absence of pre-planning. We have prepared the EIS/CCP in compliance with the Service Planning Policy (602 FW3). Pre-planning effort can be directed toward a CCP's development long before any formal process to undertake a CCP begins and that has occurred here. Previous refuge managers, refuge biologists, and planning staff had anticipated a start to the CCP in the years prior to the start of this effort and have been conducting pre-planning, which has been reviewed and incorporated in the present effort. Pre-planning has also been an interactive process as we became aware of new materials during the development of the EIS/CCP. All of the elements of pre-planning suggested in Service policy have been completed, documented in the planning record and as appropriate, were included in the development of the final EIS/CCP. In addition to the extensive experience with the National Bison Range of the current staff on the planning team, we reached out to, and incorporated input from, former staff of the refuge as well. Please see Appendix A, Table A-2 for details.

Comment 4006: Comment that a project leader was lacking during the CCP process

Response 4006: The Planning Team endeavored to locate and gather baseline information during preplanning and up until the draft CCP/EIS was completed. The Service believes that the Planning Team has followed Service policy and guidelines during the development process of the draft CCP/EIS. The Service believes that the assessment of the environmental consequences for each of the proposed alternatives that is provided in the draft CCP/EIS complies with the spirit of NEPA and CEQ guidelines and is sufficient for the purposes of the CCP. The Environmental Protection Agency, which is charged with reviewing draft EIS from the Service and other agencies, reviewed the draft CCP/EIS prior to public release. EPA's review found the draft EIS to be well written and organized. The draft CCP/EIS could not have been released to public scrutiny if EPA had deemed it insufficient and out of compliance with CEQ regulations. The Service has endeavored to ensure that NBR had a refuge manager present and involved in the CCP/EIS development process throughout the planning process. Furthermore, highly experienced NBR staff with many years of institutional knowledge were involved throughout the development of the draft CCP/EIS. In addition, in the Mountain-Prairie Region planning

program staff have typically been the planning team leaders since Congress passed the NWRS Improvement Act.

Comment 4007: Comment about CCP/EIS timeline (specific text) *While I appreciate the fact that, after the process started, the Service was told by DOI leadership that all EIS processes would now be completed in a year, each agency was given the opportunity to request a waiver. I know for a fact that Region 6 Leadership decided not to pursue a waiver to allow more time to complete this plan. I'm certain a waiver would have been granted given the fact that the CCP process started before this requirement was put in place.*
Response 4007: The U.S. Fish and Wildlife Service (Service) is committed to investing all necessary resources to complete the National Bison Range CCP/EIS in a timely manner and begin CCP implementation soon thereafter. Based on the criteria outlined by the Office of the Secretary of the interior (Secretarial Order 3355), and discussions with Service leadership, the National Bison Range CCP/EIS process would likely not meet the "unusually complex project" criteria outlined by the Office of the Secretary of the Interior. There are nuances and complexities to managing each of America's 566 national wildlife refuge and the National Bison Range is not currently considered an "unusually complex project". Having started an EIS before the Secretarial Order was issued was not considered a valid criteria for a waiver.

5000 – Other Comments

Comment 5001: Comment regarding the Western Montana Complex realignment

Response 5001: Refuge Realignment in the Mountain-Prairie Region is addressed in the draft CCP/EIS and does not require further discussion. The Realignment Strategy and Staffing Framework are intended to communicate the necessary and desired internal management of the Mountain-Prairie Region National Wildlife Refuge program and is not intended to, and does not, supersede decisions made through any and all planning processes addressed in current Comprehensive Conservation Plans.

However, we recognize that many commenters had concerns or questions about how the formation of the new Western Montana Complex will affect the management of the National Bison Range. We will continue providing quality management for the National Bison Range and all other national wildlife refuges throughout the Mountain-Prairie Region by strategically leveraging available resources, staff, and funding to achieve outcomes supporting national and regional priorities.The ultimate aim is ensuring we have the right people in the right places working on the right projects to sustainably manage wildlife and public lands and to foster a connected conservation community. Staff positions are prioritized to align with priority regional and national conservation outcomes and to manage for wildlife, habitat, safety, and recreational opportunities. While these decisions are often difficult and challenging, they are made with the intent of best achieving our mission of working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

The Realignment Strategy and the associated Staffing Framework are the culmination of over 3 years of work and were developed with significant input from refuge managers and other field staff across disciplines. The Staffing Framework will align our workforce to meet three goals of the Realignment Strategy:

1) Our People – Attract, retain, and empower highly engaged, exceptional employees and leaders who reflect the rich diversity of the public whom we serve and who work together to accomplish the mission of the NWRS.

2) Ecologically Sustainable Management – Use modern technology and current conservation principles to manage our Refuge System lands in an ecologically sustainable manner.

3) A Connected Conservation Community – Provide experiences that help people find, appreciate, and engage with the natural world and its conservation on national wildlife refuges, conservation areas, and wetland management districts, as well as in their neighborhoods.

As described in the Realignment Strategy, the NBR will become part of the new Western Montana Complex (WMTC). In the new WMTC, there will be up to 22 full-time, permanent staff that will support both the station where they are located and, as appropriate, other stations in the complex. The project leader for the WMTC has recently been hired and is stationed at the Benton Lake Refuge in Great Falls, Montana. Other job titles, functions, and duty stations within the WMTC will be flexible and can be adapted to meet the needs of the entire WMTC over time, including allocating funding and staff time to priority strategies in the CCP of the National Bison Range. We will continue to monitor and evaluate the implementation of the realignment process to determine if we are making progress in achieving the purpose(s), vision, and goals for all of the units of the WMTC. As the Refuge System has and continues to evolve, so shall our knowledge, workforce, and management.

Comment 5006: Comment about an alternative entrance to the NBR off Highway 93

Response 5007: The exact location of the new Visitor Center has not been determined yet and

would require a separate NEPA analysis before construction began.

Comment 5012: Comment detailing specific editorial suggestions, clarifications or errors in the document
Response 5013: The Service appreciates the editorial suggestions and errors identified in the comments received. Each of these suggested changes was reviewed, and where appropriate, has been incorporated.

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National Bison Range
58355 Bison Range Road
Moiese, MT 59824

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