

Draft Comprehensive Conservation Plan and Environmental Assessment

Cokeville Meadows National Wildlife Refuge

Wyoming

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Summary

This section summarizes the draft comprehensive conservation plan and environmental assessment that we, the U.S. Fish and Wildlife Service, prepared for the Cokeville Meadows National Wildlife Refuge (Cokeville Meadows Refuge or refuge). The National Wildlife Refuge System Improvement Act of 1997 (Improvement Act) requires that a comprehensive conservation plan be developed for each unit of the National Wildlife Refuge System. The final plan for the refuge is scheduled to be completed in 2013 and will guide management of the refuge over the next 15 years.

THE REFUGE

Located within Lincoln County and immediately south of the Town of Cokeville, in southwestern Wyoming, Cokeville Meadows Refuge now manages 9,259 acres encompassing narrow forested riparian corridors, robust emergent wetland plants, wet meadow sedge and grass communities, and upland sagebrush or grassland communities. The refuge borders the States of Idaho and Utah and is within the watershed of the Bear River, which bisects the refuge throughout its length. The refuge elevation is around 6,300 feet above mean sea level and is home to a variety of wildlife. Game species include ducks, geese, sandhill cranes, elk, deer, pronghorn, moose, rabbits; furbearers and predators include beaver, muskrat, coyote, red fox, skunks, and raccoons.

THE NATIONAL WILDLIFE REFUGE SYSTEM

The refuge is part of the National Wildlife Refuge System (Refuge System). This system began when, in 1903, President Theodore Roosevelt designated the 5.5-acre Pelican Island in Florida as the Nation's first wildlife refuge for the protection of native nesting birds. This was the first time the Federal Government set aside land for wildlife. This small but significant designation was the beginning of the National Wildlife Refuge System. One hundred years later, the National Wildlife Refuge System has become the largest collection of lands in the world specifically managed for wildlife, encompassing more than 150 million acres within 560 refuges and more than 3,000 waterfowl production areas providing breeding and nesting habitat for migratory birds. Today, there is at least one refuge in every State as well as in Puerto Rico and the U.S. Virgin Islands.

The Improvement Act established a clear mission for the Refuge System.

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.

PLANNING ISSUES OF THE REFUGE

In November 2009, a notice of intent was published in the Federal Register announcing our intent to prepare a comprehensive conservation plan and environmental assessment for the refuge and to obtain suggestions and information on planning issues to be considered. Throughout the planning process, our planning team distributed information to stakeholders including the State of Wyoming, tribal governments, partners, and neighboring landowners and communities to involve them in this planning process.

Following the analysis of comments from our staff and the public and of a review of applicable laws, our planning team identified several key planning issues. The following issues were considered in the development of alternatives.

Refuge Habitats

Nonnative grasses dominate many wet meadows and there has been a proportional decline in some native sedge and rush communities. The refuge needs to improve the monitoring and evaluation of the effects of past water management projects on the meadows, including the location of water control structures in relation to historical sloughs and river channels.

There are concerns about subdivision encroachment and the conversion of upland habitats within the acquisition boundary and adjacent lands. Some of the refuge uplands are degraded because of past uses, such as when former croplands were left idle for years, which allowed for the development of a weed seed bank that could exacerbate the difficulty of re-establishing native communities.

The refuge's riparian and river habitats along the Bear River are severely degraded. There is a need to improve fish passage along the river to restore native game and nongame fish populations and to focus on Bonneville cutthroat trout, which is a species of concern on the refuge. There is a need to protect and manage riparian vegetation to provide habitat for passerine and other migratory birds and restore the diversity of native vegetation. The river's streambanks are in a condition that leads to erosion and require stabilization.

Haying, Grazing, and Prescribed Fire

Past management techniques and, possibly, herbicide spraying have degraded some key areas and habitat types, particularly woody riparian communities. Those areas need a period of rest from grazing and the elimination of haying. On some sites, the lack of naturally occurring fire may have caused the encroachment of invasive species, a decrease in plant diversity, and a lack of necessary plant succession to support adequate wildlife habitat.

Invasive Species

Our refuge staff has kept good working relationships with State and county officials and neighboring landowners to control invasive plant species on the refuge. There is now concern that aquatic invasive species, such as zebra and quagga mussels, may move into, and spread throughout, the Bear River watershed. The refuge needs to work with existing and new partners to address this issue, as well as on carp control, water quality, and sediment and pollutant loads on river water.

Some members of the public also expressed a desire to harvest carp from flooded refuge wet meadow habitats in the spring.

Wildlife Disease and Crop Depredation

There is concern that the comingling of domestic cattle and wild ungulates, or hooved mammals, on refuge lands has the potential to spread wildlife diseases to livestock.

Crop depredation, damage to small grain crops by waterfowl and other migratory birds, is also concern.

Access to the Refuge and Visitor Safety

Outside of the headquarters area and the kiosk and wildlife viewing area at the Netherly Slough, the refuge is closed to public use. State, county and local officials, as well as refuge neighbors and local residents and groups, have, for many years, requested access to refuge lands to engage in hunting, trapping, fishing, boating, wildlife observation, photography, shed antler hunting, and other outdoor recreational opportunities.

To increase access, our staff would figure out which of these uses are compatible with refuge purposes and can be opened in a safe manner to the public and what our resultant law enforcement need on the refuge would be. To assure safety, staff would develop and support all necessary public access points and infrastructure. For example, access to refuge lands from U. S. Highway 30, as it parallels the east side of the refuge, would require crossing an active railroad track that is not now signaled, thus railroad crossings would need to be improved.

Staff, Equipment, and Facilities

We are responsible for managing more than 9,000 acres at the refuge, which is unstaffed. Seedskaadee National Wildlife Refuge Complex staff, more than 80 miles away, conducts operation activities at Cokeville Meadows Refuge as best they can. The refuge has limited equipment to conduct refuge and maintenance operations, and some of the equipment is in poor condition and needs replacement. Water control structures and dikes are in generally good working condition but the 1903 Pixley Dam is near failure and requires replacement and the Beckwith and Quin Dam is in need of upgrades and repairs.

Water Rights and Resources

This is a floodplain refuge and all wildlife and habitats of the refuge are dependent on an adequate quantity and quality of fresh water. The refuge has identified its water rights and is working to keep the surface and ground water rights in good standing with the Wyoming State Engineers Office. The refuge needs to develop a water management plan that will quantify refuge water rights in relation to Wyoming water law, the Bear River Compact, and the water rights of neighboring landowners.

Land Protection, Energy Transmission, and Mineral Development

Little progress has been made in recent years in acquiring more lands within the refuge acquisition boundary. This is a complex issue involving funding and the availability of willing sellers.

We are concerned about the deleterious effect that mineral development and energy transmission via lines and pipelines could have on habitats and wildlife within the approved acquisition boundary. We would like to withdraw the Federal mineral estate of public lands now administered by the Bureau of Land Management within the acquisition boundary. Refuge laws and regulations do not apply to lands within the acquisition boundary that are not yet acquired.

Inventory and Monitoring

Refuge staff lacks the necessary resources to carry out a scientifically sound inventory and monitoring program on the refuge. There is a need to inventory and monitor wildlife populations, habitat conditions, and other baseline parameters, both on and off refuge lands, including water quality and salt loading in wet meadow habitats. These would help staff to make the best management decisions and to carry out best management practices.

Nuisance Animal and Predator Control

There is widespread interest on how the refuge intends to deal with predators and furbearers on refuge lands, specifically about the response to coyote or wolf depredation of livestock on private land when these animals use refuge habitats as a sanctuary. There are also concerns about the management of nuisance animals like beavers and muskrats, for example, which affect private or refuge infrastructure and the cooperative efforts that will take place between us, the Wyoming Game and Fish Department, and neighboring landowners. The refuge needs to develop a trapping plan in conjunction with the existing Wyoming Game and Fish Department trapping program along the Bear River.

VISION STATEMENT FOR THE REFUGE

Early in the planning process, the planning team developed a vision statement for the refuge. This future-oriented statement will guide the management of the refuge over the life of this comprehensive conservation plan.

For thousands of years, the sandhill cranes have returned each spring to dance on the Cokeville Meadows. Their thunderous majestic calls remind us of our obligation to manage wildlife for generations unborn.

Nestled on the upper reaches of the Bear River in southwest Wyoming, the wet meadows, sage steppe, and riparian habitats of Cokeville Meadows National Wildlife Refuge provide outstanding habitat for a myriad of migratory birds and resident wildlife species.

Spectacular views and clean air add to the visitor's enjoyment of compatible wildlife-oriented recreation. Refuge management and habitat restoration activities are complementary with historical land uses, creating opportunities for conservation partnerships with neighbors and friends.

GOALS FOR THE REFUGE

The following goals reflect the vision for the refuge and will help us ensure healthy ecosystems and compatible opportunities for the public to appreciate and enjoy the natural environment.

Habitat and Wildlife Management Goals

Three goals were developed for habitat and wildlife management at Cokeville Meadows Refuge.

Wet Meadow Habitat and Wildlife Goal

Using the best scientific practices to manage and preserve critical wet meadow habitat, the refuge will provide quality feeding, loafing, and breeding opportunities for a variety of migratory birds and resident wildlife.

Upland Habitat and Wildlife Goal

Manage and restore the diversity and composition of grassland and shrub–steppe habitats within the range of historical conditions for sagebrush-dependent species, upland nesting migratory birds, and other resident species.

Riparian and River Habitats and Wildlife Goal

Maintain and, where appropriate, restore the processes necessary to sustain the biological diversity and integrity of riparian vegetation and aquatic habitats for breeding birds, native fishes, reptiles and amphibians.

Wildland Fire Management Goal

Manage wildland fires using a full array of strategic options from suppression to manipulating a fire to achieve benefits. Prescribed fire, manual, and mechanical treatments will be used to: (1) reduce the threat to land and property through hazardous-fuel reduction treatments, and (2) meet the habitat goals and objectives identified in this CCP.

Visitor Services and Cultural Resources Goal

Provide appropriate public access to refuge lands where visitors can safely enjoy compatible, wildlife-dependent recreation, such as hunting, fishing, wildlife observation, photography, environmental education, and interpretation. The refuge will seek partnerships to help protect onsite cultural resources.

Partnerships Goal

Engage in mutually beneficial partnerships to promote wildlife and habitat conservation, and public enjoyment of wildlife resources in the upper Bear River watershed that are consistent with historic land uses, refuge purposes and goals.

Refuge Development and Operations Goal

Effectively utilize all available resources to develop, enhance, and support refuge facilities and operations for wildlife, habitat, and public use programs. We will pursue easements and other land protection opportunities with willing sellers within the approved refuge acquisition boundary.

MANAGEMENT ALTERNATIVES

We have prepared this draft comprehensive conservation plan and environmental assessment in cooperation with the Wyoming Game and Fish Department, Lincoln County Planning Department, the Bureau of Land Management, and the Town of Cokeville and with significant involvement from the public. After reviewing a wide range of public comments and management needs, we developed and analyzed the following alternatives for management of Cokeville Meadows Refuge. Alternative D is our proposed action, and it is presented in chapter 6 of the draft comprehensive conservation plan.

Alternative A—Current Management (No Action)

This alternative serves as a baseline by which other alternatives will be compared.

Under this alternative, the management issues identified in this draft comprehensive conservation plan and environmental assessment would not be fully addressed because current management programs and efforts would not change significantly unless money and staff were increased. Land and easement acquisition would continue to round out and complete the acquisition boundary. Habitat management, in the form of irrigation, haying, and grazing would continue at, or near, current levels to support existing conditions at the refuge. Outreach and priority public uses that are compatible and wildlife-dependent recreation (hunting, fishing, wildlife observation, photography, environmental education, and interpretation) would be limited and partnerships would only be developed if time and money were available.

Alternative B—Hydrology and Habitat Restoration

Under this alternative, refuge management would seek to restore habitats so that they closely resemble presettlement conditions.

Using recommendations from the recently completed Evaluation of Ecosystem Restoration and Management Options for Cokeville Meadows National Wildlife Refuge, the removal of dikes, water control structures, and irrigation infrastructure would be considered. Land and easement acquisition would continue to round out and complete the acquisition boundary. Wet meadow irrigation would follow historical flood patterns and allow vegetative communities that existed before development to reestablish. Flooding of wet meadows would primarily take place from overbank flooding from the river rather than from irrigation diversions. Management activities like haying and grazing would be used to keep habitats productive, and nonnative agricultural crops would be limited or used as a tool to establish native habitats.

Public uses that are compatible or that support habitat restoration would be emphasized.

Alternative C—Resource Enhancement

Under this alternative, refuge management would strive to improve resources and refuge development, with the help of partners, to increase wildlife and habitat productivity primarily within the refuge boundary.

Land and easement acquisition would continue to round out and complete the acquisition boundary. Wet meadows and upland habitats would be managed and restored to increase wildlife productivity and diversity. The use of agricultural practices would be specifically geared to enhance refuge habitats for wildlife.

Staff would increase their focus on developing visitor resources, access, and opportunities for wildlife-dependent uses to encourage a greater understanding and appreciation of the Bear River watershed, wet meadow habitats, and wildlife.

Alternative D—Current Management (Proposed Action)

This alternative best addresses the vision and goals for Cokeville Meadows National Wildlife Refuge, as well as the issues raised during the scoping process.

Under this alternative, refuge management would focus on managing lands within a greater landscape footprint by using partnerships to enhance habitats both on and off the refuge. Land and easement acquisition would continue to round out and complete the acquisition boundary. Wet meadow and upland habitats would be managed and restored to increase wildlife productivity and diversity. The use of agricultural practices would be specifically geared to enhance refuge habitats for wildlife both on and off the refuge lands.

Staff would increase their focus on developing visitor resources, access, and opportunities for wildlife-dependent uses (hunting, fishing, wildlife observation, photography, environmental education, and interpretation) to encourage a greater understanding and appreciation of the Bear River watershed, wet meadow, riparian and stream habitats, and wildlife.

Abbreviations

Administration Act	National Wildlife Refuge System Administration Act of 1966
BLM	Bureau of Land Management
BQ Dam	Beckwith and Quin Dam
CCP	comprehensive conservation plan
CFR	Code of Federal Regulations
cfs	cubic feet per second
Cokeville Meadows Refuge	Cokeville Meadows National Wildlife Refuge
EA	environmental assessment
ESA	Endangered Species Act
EVS	education and visitor services
°F	degrees Fahrenheit
FMP	fire management plan
GIS	geographic information system
HGM	hydrogeomorphic method
Improvement Act	National Wildlife Refuge System Improvement Act of 1997
IPM	integrated pest management
NEPA	National Environmental Policy Act of 1969
NWR	national wildlife refuge
refuge	Cokeville Meadows National Wildlife Refuge
Refuge System	National Wildlife Refuge System
Region 6	Mountain-Prairie Region 6 of the U.S. Fish and Wildlife Service
Service	U.S. Fish and Wildlife Service
U.S.	United States
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WGFD	Wyoming Game and Fish Department

Definitions of these and other terms are in the glossary, located at the end of chapter 6.

CHAPTER 1—Introduction

We, the U.S. Fish and Wildlife Service (Service), have developed this draft comprehensive conservation plan (CCP) and Environmental assessment (EA) to provide a foundation for the management and use of Cokeville Meadows National Wildlife Refuge (Cokeville Meadows Refuge or refuge) in Wyoming for at least the next 15 years.

This chapter introduces the CCP with descriptions of the steps in the CCP planning process; our involvement and that of the State of Wyoming, the tribes, the public, and others; and other plans that may be affected or supported by the future management of the refuge.

Located in Lincoln County in southwestern Wyoming near where the Idaho, Utah, and Wyoming borders meet (figure 1), Cokeville Meadows Refuge lies directly south of the town of Cokeville. Both were named for the coal located in the vicinity. The refuge now consists of 9,259 acres within a 26,657-acre acquisition boundary. The refuge lies in the Bear River Basin, which has a drainage area of about 4.8 million acres including parts of Idaho, Utah, and Wyoming.

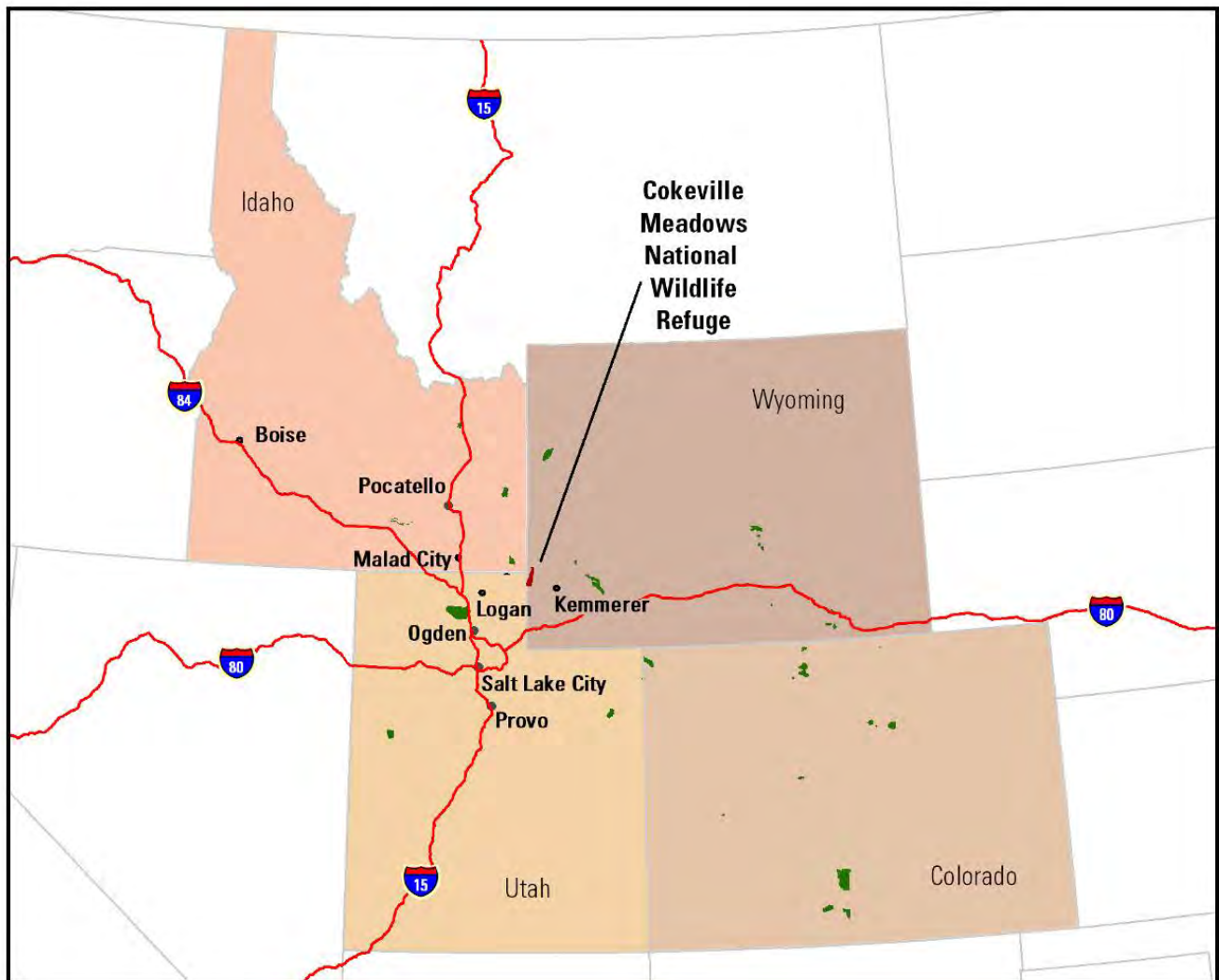


Figure 1. Vicinity map of Cokeville Meadows National Wildlife Refuge, Wyoming.

This draft CCP was developed in compliance with the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act) and Part 602 (National Wildlife Refuge System Planning) of “The Fish and Wildlife Service Manual.” The actions described within this draft CCP and EA meet the needs of the National Environmental Policy Act of 1969 (NEPA).

The draft CCP and the EA have been prepared by a planning team made up of representatives from the Wyoming Game and Fish Department (WGFD), Cokeville Meadows Refuge staff, various Service programs, the city of Cokeville, the Lincoln County Planning Department, Bureau of Land Management (BLM), and other cooperating agencies. Compliance with NEPA requires public involvement, and so the planning team incorporated public input as described in Section 1.6 The Planning Process.

After reviewing a wide range of public comments and management needs, our planning team developed alternatives for refuge management and now recommends one alternative to be our proposed action. This action addresses all substantive issues while also determining how best to achieve the purposes of the refuge. It is summarized in “Chapter 3—Alternatives,” and its predicted effects are described in “Chapter 5—Environmental Consequences.” The details of the proposed action can be found in “Chapter 6—Implementation of the Proposed Action.”

The final CCP will specify the necessary actions to achieve the vision and purposes of the Cokeville Meadows Refuge. When completed, the CCP will serve as a working guide for management programs and actions for this refuge over the next 15 years.

1.1 PURPOSE AND NEED FOR THE PLAN

The purpose of this draft CCP is to provide long-term guidance for management of refuge programs and activities so that Cokeville Meadows Refuge can fulfill the purposes for which it was created and to define the role that the refuge will play in support of the mission of the National Wildlife Refuge System (Refuge System). The CCP is needed to:

- communicate to the public and other partners of the refuge’s efforts to carry out the mission of the Refuge System;
- provide a clear statement of direction for management of the refuge;
- provide neighbors, visitors, and government officials with an understanding of our management actions on and around the refuge;
- make sure that the refuge’s management actions are consistent with the mandates of the Improvement Act;
- make sure that management of the refuge is consistent with Federal, State, and county plans;
- provide a basis for development of budget requests for the refuge’s operation, maintenance, and capital improvement needs.

1.2 THE U.S. FISH AND WILDLIFE SERVICE AND THE NATIONAL

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

U.S. Fish and Wildlife Service

The mission of the U.S. Fish and Wildlife Service, working with others, is to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people.

In the late 19th and early 20th centuries, America's fish and wildlife resources were declining at an alarming rate, largely because of unrestricted market hunting. Concerned citizens, scientists, and hunting and angling groups joined and generated the political will for the first significant conservation measures taken by the Federal Government. These actions included the establishment of the Bureau of Fisheries in the 1870s and, in 1900, passage of the first Federal wildlife law—the Lacey Act—which prohibited interstate transportation of wildlife taken in violation of State laws. Beginning in 1903, President Theodore Roosevelt established more than 50 wildlife refuges across the Nation.

Over the next three decades, the United States ratified the Migratory Bird Treaty with Great Britain, and Congress passed laws to protect migratory birds, establish new refuges, and create a money source for refuge land acquisition. In 1940, the U. S. Fish and Wildlife Service was created within the U.S. Department of the Interior, and existing Federal wildlife functions, including law enforcement, fish management, animal damage control, and wildlife refuge management, were combined into a single organization for the first time.

Today, we administer the Refuge System, enforce Federal wildlife laws, manage migratory bird populations, restore nationally significant fisheries, conserve and restore vital wildlife habitat, protect and recover endangered species, and help other governments with conservation efforts. We also administer a Federal aid program that distributes hundreds of millions of dollars to States for fish and wildlife restoration, boating access, hunter education, and related programs across the United States.

Service Activities in Wyoming

Our activities in Wyoming contribute to the State's economy, ecosystems, and education programs. The following lists the most recent information on our presence and activities:

- As of May 2013, we have 55 employees throughout Wyoming.
- More than 12,586 hours were donated by 675 volunteers to help complete projects on refuge lands in Wyoming.
- We also manage two fish hatcheries totaling 121 acres and six coordination areas totaling 16,291 acres (USFWS 2013b), one ecological services field office, and one Fish and Wildlife Management Assistance Office in Wyoming.
- We manage 7 national wildlife refuges totaling 86,427 acres (figure 2) (USFWS 2013b).
- On average, more than 857,000 persons visit the lands we manage in Wyoming every year:

- More than 2,000 of these visitors engage in hunting.
 - More than 5,300 of these visitors take part in fishing.
 - More than 583,700 visitors take part in wildlife observation.
 - Nearly 1,000 (576 in onsite programs) students take part in environmental education programs.
- We provided \$4.5 million to WGFD for sport fish restoration and \$4.2 million for wildlife restoration and hunter education.
 - We paid Wyoming counties \$744,583 under the Refuge Revenue Sharing Act.

Our activities in Wyoming contribute to the State's economy, ecosystems, and education programs. The following list describes our presence and activities:

- Between 1987 and 2011, our Partners for Fish and Wildlife Program helped private landowners to enhance or restore 5,427 acres of wetlands, 294 miles of riparian and instream habitats, and 282,568 acres of upland habitats in Wyoming (USFWS 2013c).
- In 2011, we paid Wyoming counties \$362,318 under the Refuge Revenue Sharing Act for use in schools and for roads (USFWS 2012).

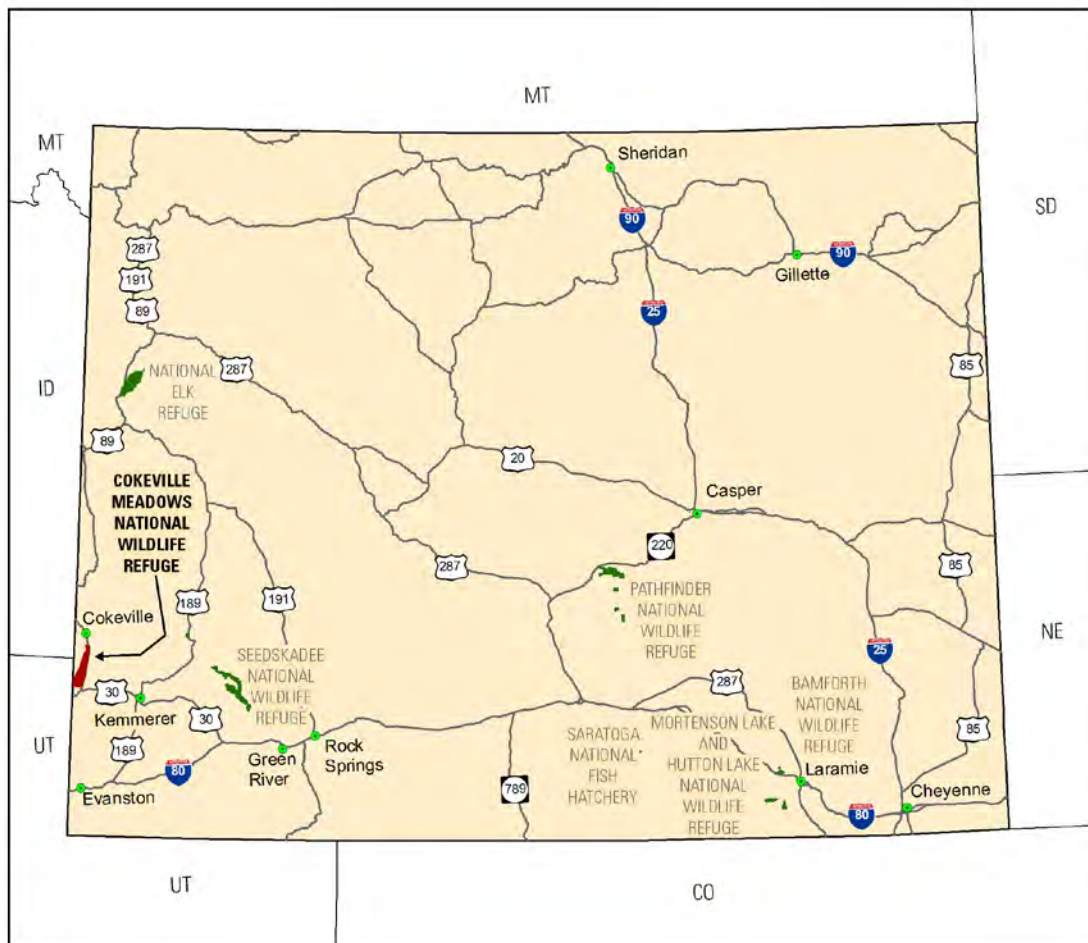


Figure 2. Location of Cokeville Meadows National Wildlife Refuge and other national wildlife refuges in Wyoming.

National Wildlife Refuge System

In 1903, President Theodore Roosevelt designated the 5.5-acre Pelican Island in Florida as the Nation's first wildlife refuge for the protection of native nesting birds. This was the first time the Federal Government set aside land for wildlife. This small but significant designation was the beginning of the Refuge System.

One hundred years later, the Refuge System has become the largest collection of lands in the world specifically managed for wildlife, encompassing more than 150 million acres within 553 refuges and more than 3,000 waterfowl production areas providing breeding and nesting habitat for migratory birds. Today, there is at least one refuge in every State as well as in Puerto Rico, U.S. Virgin Islands, Guam and the other Pacific Territories.

Individual units of the Refuge System were established under a wide variety of statutes and executive orders. Before 1966, each refuge was managed to meet its individual establishment purpose, but there was no law requiring the refuges to be managed as a cohesive system of lands. Passage of the National Wildlife Refuge System Administration Act of 1966 (Administration Act) changed that and created the Refuge System. In 1997, Congress significantly amended the Administration Act with the Improvement Act, which is the organic legislation of, and has a clear mission statement for, the Refuge System.

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.

The Improvement Act states that each national wildlife refuge (that is, each unit of the Refuge System, which has wetland management districts) must be managed to:

- fulfill the mission of the Refuge System;
- fulfill the individual purposes of each refuge and district;
- consider the needs of fish and wildlife first;
- fulfill the need of developing a CCP for each unit of the Refuge System, and fully involve the public in the preparation of these plans;
- support the biological integrity, diversity, and environmental health of the Refuge System;
- keep the authority of refuge managers to decide on compatible public uses;
- recognize that wildlife-dependent recreation activities including hunting, fishing, wildlife observation and photography, and environmental education and interpretation, are legitimate and priority public uses;

Besides the mission for the Refuge System, the wildlife and habitat vision for each unit of the Refuge System stresses the following principles:

- Wildlife comes first.
- Ecosystems, biodiversity, and wilderness are vital concepts in refuge and district management.
- Habitats must be healthy.
- Growth of refuges and wetland management districts must be strategic.

- The Refuge System serves as a model for habitat management with broad participation from others.

The following goals of the Refuge System (601 FW 1) will help guide the development of CCPs and the administration, management, and growth of the Refuge System:

- Conserve a variety of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered.
- Develop and support 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 take part 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.

Following passage of the Improvement Act, we immediately began to carry out the direction of the new legislation, including preparation of CCPs for all national wildlife refuges and wetland management districts. Consistent with the Improvement Act, we prepare all CCPs through public involvement.

1.3 NATIONAL AND REGIONAL MANDATES

Refuge System units are managed to achieve the designated purpose of the refuges and wetland management districts (as described in establishing legislation, Executive orders, or other establishing documents), and the mission and goals of the Refuge System. Key guidance for administration of the Refuge System is found in the Administration Act, as amended, Title 50 of the Code of Federal Regulations (CFR), “The Fish and Wildlife Service Manual.”

Descriptions of the laws and Executive Orders that may affect this CCP and the management of Cokeville Meadows Refuge can be found in appendix D. Policies on planning and management of refuges are found in the “Refuge System Manual” and “The Fish and Wildlife Service Manual” as well as in various Director’s orders, Regional Director’s Orders, and Service Handbooks.

1.4 REFUGE CONTRIBUTIONS TO NATIONAL AND REGIONAL PLANS

The Cokeville Meadows Refuge contributes to the conservation efforts described below.

Fulfilling the Promise

A 1999 report, “Fulfilling the Promise, The National Wildlife Refuge System” (USFWS 1999), is the culmination of a yearlong process by teams of our employees to evaluate the Refuge System nationwide. This report was the focus of the first national Refuge System conference in 1998, which was attended by refuge managers, other Service employees, and representatives from leading conservation organizations.

The report contains 42 recommendations packaged with 3 vision statements that address wildlife and habitat, people, and leadership. This draft CCP also addresses these three topics, and our planning team looked to the recommendations in the report for guidance during CCP planning.

Bird Conservation

Over the past few decades, there has been growing interest in conserving birds and their habitats. This trend has led to the development of partnership-based bird conservation initiatives that have produced international, national, and regional conservation plans. “All-bird” conservation planning in North America is being achieved through the North American Bird Conservation Initiative. Formed in 1999, the North American Bird Conservation Initiative committee is a coalition of government agencies, private organizations, and bird initiatives in the United States that is working to advance integrated bird conservation based on sound science and cost-effective management to help all birds in all habitats.

Conservation of all birds is being accomplished under four planning initiatives: the U.S. Shorebird Conservation Plan, the North American Landbird Conservation Plan by Partners in Flight, the North American Waterbird Conservation Plan, and the North American Waterfowl Management Plan.

U.S. Shorebird Conservation Plan

Partners from State and Federal agencies and nongovernment organizations from across the country pooled their resources and expertise to develop a conservation strategy for migratory shorebirds and the habitats on which they depend. The resulting document, completed in 2000, is the “U.S. Shorebird Conservation Plan.” It provides a scientific framework to find species, sites, and habitats that most urgently need conservation action.

The main goals of the plan are to make sure that adequate quantities and qualities of shorebird habitat are supported at local levels and to support or restore shorebird populations at the continental and hemispheric levels. Separate technical reports were developed that focused on a conservation assessment, comprehensive monitoring strategy, research needs, and education and outreach. These national assessments were used to step down goals and objectives into 11 regional conservation plans.

Although some outreach, education, research, monitoring, and habitat conservation programs are being carried out, the accomplishment of conservation objectives for all shorebird species will require a coordinated effort among existing and new partners.

North American Landbird Conservation Plan by Partners in Flight

The “North American Landbird Conservation Plan,” developed by Partners in Flight, began in 1990 with the recognition that the population levels of many migratory bird species were declining. The challenge, according to the program, is to manage human population growth while supporting functional natural ecosystems.

Partners in Flight is a cooperative effort involving partnerships among Federal, State, and local government agencies, philanthropic foundations, professional organizations, conservation groups, industries, the academic community, and private individuals. The goals of the Partners In Flight program (Rich et al, 2004) are:

- Make sure that there is an active, scientifically based conservation design process that identifies and develops solutions to threats and risks to landbird populations.
- Create a coordinated network of conservation partners to carry out the objectives of the landbird conservation plans at multiple scales.
- Secure sufficient commitment and resources to support vigorous implementation of landbird conservation objectives.

The main goal of Partners in Flight is to provide for the long-term health of landbird life on this continent. The first priority is to prevent the rarest species from going extinct. The second priority is to prevent uncommon species from descending into threatened status. The third priority is to “keep common birds common.”

Partners in Flight worked to name priority landbird species and habitat types and developed 52 bird conservation plans covering the continental United States. For planning purposes, they split North America into seven groups of birds by ecological area—avifaunal biomes—and 37 bird conservation regions (figure 3). The Cokeville Meadows Refuge lies within Bird Conservation Region 10, the Northern Rockies Region. This region includes the Northern Rocky Mountains and outlying ranges in both the United States and Canada, and the intermontane Wyoming Basin and Fraser Basin.

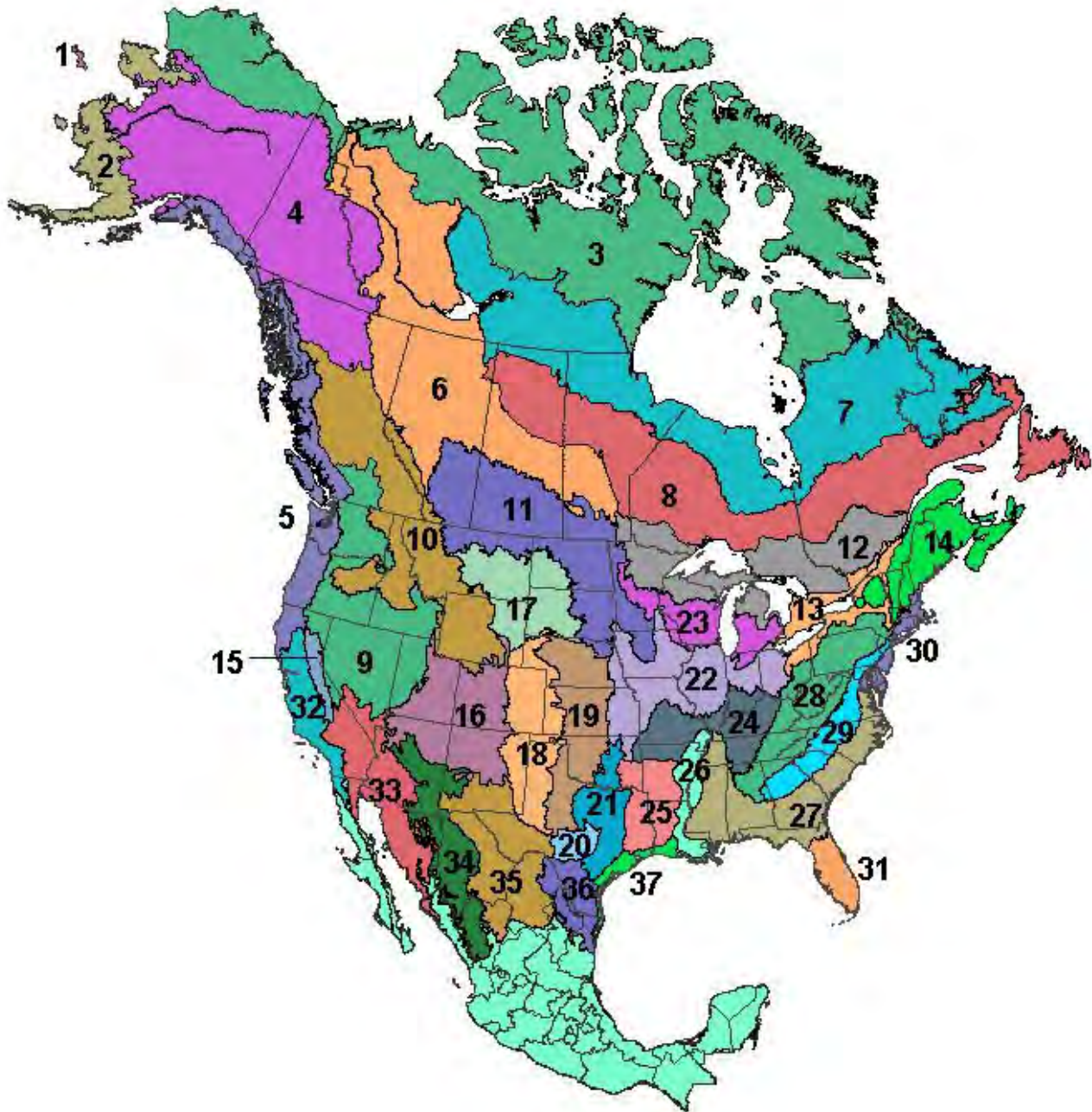


Figure 3. Map of the bird conservation regions of North America.

More specifically, the refuge sits within the physiographic area known as the Wyoming Basin (figure 4). This area is primarily in Wyoming but also extends into northern Colorado, southern Montana, and small parts of northeast Utah and southeast Idaho. The area consists of broad intermountain basins interrupted by isolated hills and low mountains that merge to the south into a dissected plateau. The Wyoming Basin is primarily shrub–steppe habitat, dominated by sagebrush and shadscale, interspersed with areas of shortgrass prairie. Higher elevations are in mountain shrub vegetation, with coniferous forest atop the highest areas. Partners in Flight priority bird populations and habitats of the Wyoming Basin are listed in table 1.

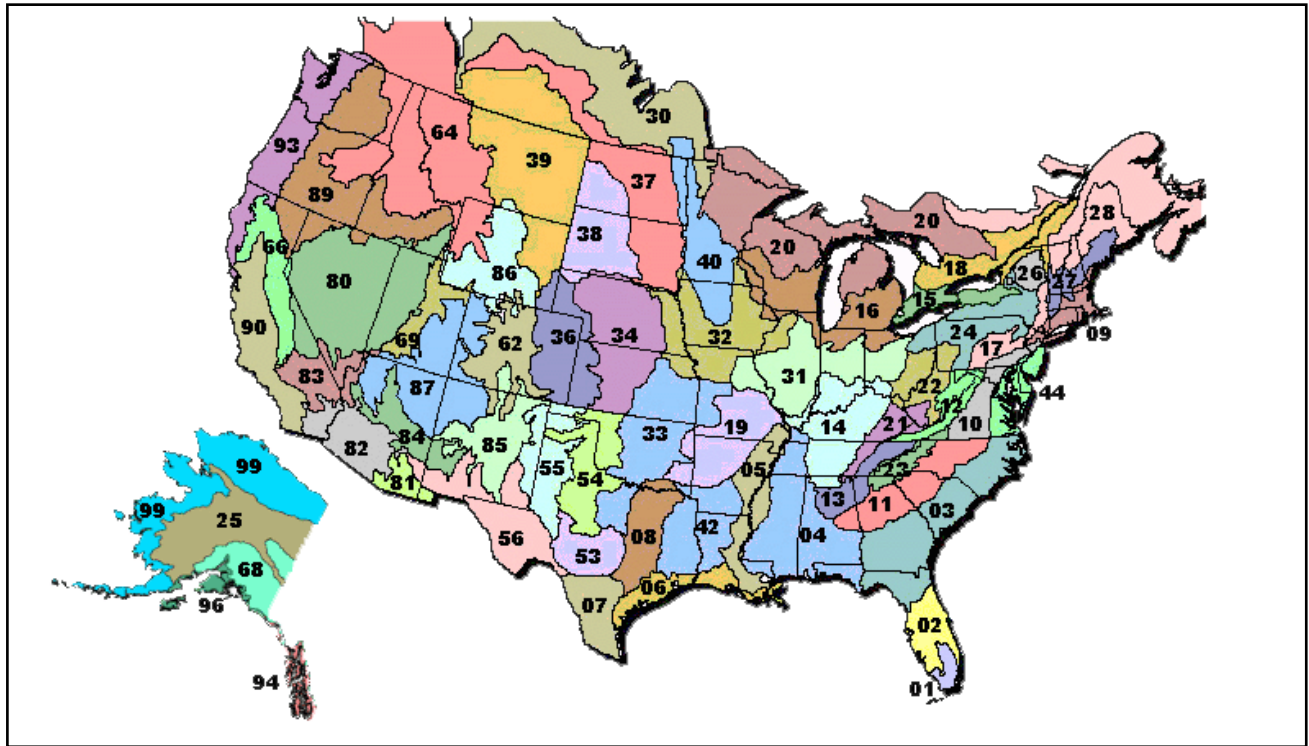


Figure 4. Map of physiographic areas of the United States, including area 86, the Wyoming Basin, which contains Cokeville Meadows National Wildlife Refuge, Wyoming.

Table 1. Priority bird populations by habitat at Cokeville Meadows National Wildlife Refuge, Wyoming.

<i>Shrub–steppe</i>	<i>Sagebrush grasslands</i>	<i>Wetlands</i>
greater sage-grouse	short-eared owl	American bittern
ferruginous hawk	Swainson’s hawk	Wilson’s phalarope
sage thrasher	mountain plover	white-faced ibis
sage sparrow		American avocet
Brewer’s sparrow		American white pelican

Source: USFWS 2013a.

North American Waterbird Conservation Plan

The North American Waterbird Conservation Plan is carried out by a waterbird partnership consisting of Federal, State, and Provincial wildlife agencies; individuals; and nonprofit conservation organizations covering 28 countries from Canada to Panama as well as islands and near-shore areas of the Atlantic and Pacific Oceans, the Gulf of Mexico, and the Caribbean Sea. It provides a contiguous framework for conserving and managing colonial-nesting waterbirds,

including 209 species of seabirds, coastal waterbirds (gulls, terns, and pelicans), wadingbirds (herons and ibises), and marshbirds (certain grebes and bitterns).

The overall goal of this conservation plan is to make sure that the following are sustained or restored throughout the waterbirds' ranges in North America: (1) the distribution, diversity, and abundance of waterbird populations; (2) waterbird habitats (breeding, migratory, and nonbreeding); and (3) important sites for waterbirds.

Political considerations and ecological factors influenced the drafting of waterbird planning region boundaries. Sixteen planning regions are identified in the Western Hemisphere, and Cokeville Meadows Refuge is located within the Intermountain West Waterbird Conservation Region. This Region's dispersed high-mountain lakes; large, terminal, hypersaline lakes; marshes; playas; rivers; streams; riparian zones; and fresh and brackish wetlands host about 40 waterbird species, including many, or most, of the world's California gulls, eared grebes, white-faced ibises, and American white pelicans.

Eleven waterbirds are identified as species of high concern in this Bird Conservation Region: yellow rail, Franklin's gull, black tern, eared grebe, western grebe, Clark's grebe, snowy egret, American white pelican, common loon, American bittern, and certain managed populations of the greater and lesser sandhill crane. Cokeville Meadows Refuge provides habitat for several of these species, including American bittern, black tern, western grebe, bittern, and sandhill crane.

The waterbirds that use this region are highly adaptable to constantly changing wetland conditions and depend on a regional-scale association of wetlands to meet habitat and forage needs during the stages of their annual life cycle. The competing demands for water from agriculture, development, and recreation pose the greatest threats to regional waterbird populations. Contaminants such as mercury and dichlorodiphenyltrichloroethane (DDT) and its breakdown products also threaten the region's waterbirds. Because of the West's feast-or-famine water regime, conserving a network of quality wetland habitats with secure water sources to provide choices for waterbirds during drought and flood cycles is stressed (Kushlan et al. 2002).

North American Waterfowl Management Plan

Written in 1986, the "North American Waterfowl Management Plan" envisioned a 15-year effort to achieve landscape conditions that could sustain waterfowl populations. Specific objectives are to increase and restore duck populations to the average levels of the 1970s—62 million breeding ducks and a fall flight of 100 million birds.

In the mid-1980s, waterfowl populations had plummeted to record lows. Duck nesting habitat was disappearing at a rate of 60 acres per hour. Recognizing the importance of waterfowl and wetlands to North Americans and the need for international cooperation to help in the recovery of a shared resource, the United States and Canadian Governments developed a strategy to restore waterfowl populations through habitat protection, restoration, and enhancement. Mexico joined the plan in 1994.

The plan is innovative because of its international scope, and its implementation at the regional level. Its success depends on the strength of partnerships, called "joint ventures," involving Federal, State, Provincial, tribal, and local governments; businesses; conservation organizations; and individual citizens.

Joint ventures are regional, self-directed partnerships that carry out science-based conservation through diverse community participation. Joint ventures develop implementation plans focusing on areas of concern identified in the plan.

Intermountain West Joint Venture

The Intermountain West Joint Venture was established in June 1994 and serves as the implementation arm of the "North American Waterfowl Management Plan" (Intermountain West Joint Venture 2005) in the Intermountain West region. It focuses on the conservation of wetlands and associated habitats and is comprised of multilevel partnerships among public and private organizations who share common interests in the conservation, maintenance, and management of key ecosystems in the region.

The Intermountain West Joint Venture works on lands that stretch from the Sierra Nevada and Cascades on the west to just east of the Rocky Mountains and from the Mexican border on the south to the Canadian border on the north. This extensive geographic region encompasses portions of eleven western States and includes an enormous variety of avian habitat.

Intermountain West Regional Shorebird Plan

The six bird conservation regions of the Intermountain West include an array of habitats, from saline sinks to alpine streams (Oring et al. 2010). The Cokeville Meadows Refuge offers important breeding habitat for several shorebird species and is of modest importance to many species of migrants.

Recovery Plans for Federally Listed, Threatened, or Endangered Species

No federally listed species have been documented at Cokeville Meadows Refuge; however, one candidate species, greater sage-grouse, does occur on the refuge. If, during the life of this CCP, listed species are discovered on the refuge, or new species are listed, we will take proper action to insure that the refuge plays the right role in any approved recovery plans, and will conduct an Intra-Service Section 7 Consultation on refuge management activities that might affect listed or candidate species.

To make sure that the conservation of candidate species is adequately considered in this document, we conducted a biological evaluation of the actions in this CCP per section 7 of the Endangered Species Act (ESA).

State Wildlife Action Plan

Congress created the State Wildlife Grants Program and the Tribal Wildlife Grants Program in 2001. These programs provide States, territories, and tribes with Federal dollars to support conservation aimed at preventing wildlife from becoming endangered and in need of protection under the ESA. To take part in the State Wildlife Grants program, each State completed a State Wildlife Action Plan by October 1, 2005.

These plans define integrated approaches to the stewardship of all wildlife species, with added emphasis on species of concern and habitats at risk. The goal is to shift focus from single-species management and highly specialized individual efforts to a geographically based, landscape-oriented, fish and wildlife conservation effort. We approve State Wildlife Action Plans and Tribal Wildlife Grants Programs and administer these programs' monies.

The State Wildlife Action Plan for Wyoming was reviewed and information was used during the development of this CCP. The WGFD State Wildlife Action Plan contains information from the Tribal Wildlife Grants Programs developed by the Wyoming Wind River Indian Reservation and the Confederated Tribes of the Goshute Reservation. Implementation of CCP habitat goals and objectives will support the goals and objectives contained in the WGFD State Wildlife Action Plan.

Responding to Accelerating Climate Change

We believe that a rapid acceleration in climate change could affect the Nation's fish, wildlife, and plant resources in profound ways. While many species would continue to thrive, some may decline and in some instances go extinct. Others would survive in the wild only through direct and continuous intervention by managers.

In 2010, we drafted a strategic plan to address climate change for the next 50 years entitled “Rising to the Challenge—Strategic Plan for Responding to Accelerating Climate Change” (USFWS 2010). The strategic plan employs three key strategies: adaptation, mitigation, and engagement. In addition, the plan acknowledges that no single organization or agency can address climate change without allying itself with others across the Nation and around the world (USFWS 2010). This draft plan is an integral part of the U.S. Department of the Interior’s strategy for addressing climate change as expressed in Secretarial Order 3289 (September 14, 2009).

We will use the following guiding principles from the draft strategic plan (USFWS 2010) in responding to climate change:

- *Priorities setting*—Continually evaluate priorities and approaches, make difficult choices, take calculated risks, and adapt to climate change.
- *Partnership*—Commit to a new spirit of coordination, collaboration, and interdependence with others.
- *Best science*—Reflect scientific excellence, professionalism, and integrity in all of our work.
- *Landscape conservation*—Emphasize the conservation of habitats within sustainable landscapes, applying our strategic habitat conservation framework.
- *Technical capacity*—Assemble and use state-of-the-art technical capacity to meet the climate change challenge.
- *Global approach*—Be a leader in national and international efforts to meet the climate change challenge.

Scientific observations and data suggest that the great northern geographic area in which Cokeville Meadows is located—as defined by Service and U.S. Geological Survey (USGS) experts (see Section 1.5 Landscape-Scale Conservation Strategic Habitat Conservation)—may already be undergoing environmental and ecological changes because of climate change trends. Clear patterns in climate change could affect high-mountain ecotypes and lower-elevation, snow melt-dependent watersheds more acutely than they would affect some other geographic areas.

In consideration of possible climatic changes and the resulting potential ecological changes, the following 12 species are now considered to be focal species for the great northern geographic area: bull trout, pacific lamprey, salmon, steelhead, greater sage-grouse, Lewis’s woodpecker, trumpeter swans, willow flycatcher, Columbia spotted frog, cutthroat trout subspecies, Arctic grayling, and wolverine. To address the effects of a possible climactic change, any proposed management strategies must continue to adapt to a dynamic environment.

1.5 LANDSCAPE-SCALE CONSERVATION

In the face of escalating challenges such as land use conversion, invasive species, water scarcity, and complex issues that have been amplified by accelerating climate change, we have broadened our vision from an ecosystem approach to conservation.

Strategic Habitat Conservation

In the early 21st century, we undertook a cooperative effort with the USGS that culminated in a report by the National Ecological Assessment Team (USGS 2006). The report outlines a unifying adaptive resource management approach—integrating planning, design, delivery and evaluation— for conservation on a landscape scale. This approach is strategic habitat conservation—a structured, science-driven approach for making efficient, transparent decisions about where and how to expend Service resources to conserve species, or groups of species, that are limited by the amount or quality of habitat.

Since 2006, we have taken significant steps to turn this vision into reality. Our and USGS experts have defined a framework of 21 geographic areas used an aggregation of bird conservation regions. Cokeville Meadows Refuge lies in geographic area six—the great northern. This geographic area is unique in social values, natural resources, and managerial challenges.

The great northern geographic area six includes one of the largest surface areas of all the geographic areas in North America and spans more than 447,000 square miles in the United States (57 percent) and Canada (43 percent). Ecologically, this area represents one of the most relatively intact and functional ecosystems in the United States with diverse groups of species and important conservation and restoration opportunities. Habitats support plant and animal species with cultural significance to multiple Native American tribes and important societal and conservation value to the United States, Canada, and the world. Cultural traditions are tied closely to the land's natural resources, as are contemporary ways of life, such as ranching, logging, and recreational and subsistence hunting and fishing. The Nation's largest communities of free-roaming bison, elk, deer and other ungulates, wolves, and bears as well as diverse salmon and trout populations are hallmarks of this geographic area.

Landscape Conservation Cooperatives

We used the framework of geographic areas that were developed under strategic habitat planning as the basis to locate the first generation of landscape conservation cooperatives. These cooperatives are conservation–science partnerships between us and other Federal agencies, States, tribes, nongovernment organizations, universities, and other entities. It has been suggested that the cooperatives might help us carry out the elements of strategic habitat conservation—biological planning, conservation design and delivery, and monitoring and research. The resulting coordinated planning and scientific information will strengthen our strategic response to accelerating climate change, land use conversion, invasive species, water scarcity, and a host of other challenges.

Cokeville Meadows Refuge falls within the jurisdiction of the Great Northern Landscape Conservation Cooperative, which administers within the great northern geographic area six (figure 5).



Figure 5. Location of the Cokeville Meadows National Wildlife Refuge within geographic area six, the great northern, as administered by the Great Northern Landscape Conservation Cooperative.

1.6 THE PLANNING PROCESS

We prepared this draft CCP and EA in compliance with the Improvement Act and Part 602 (National Wildlife Refuge System Planning) of “The Fish and Wildlife Service Manual.” The actions described herein meet the needs of the Council on Environmental Quality regulations that carry out NEPA. Added needs and guidance are contained in the Refuge System’s planning policy, issued in 2000. This policy established needs and guidance for refuge and wetland management district plans, including CCPs and stepdown management plans, to make sure that planning efforts follow the Improvement Act. The planning policy identified several steps of the CCP and environmental analysis process (Figure 6).

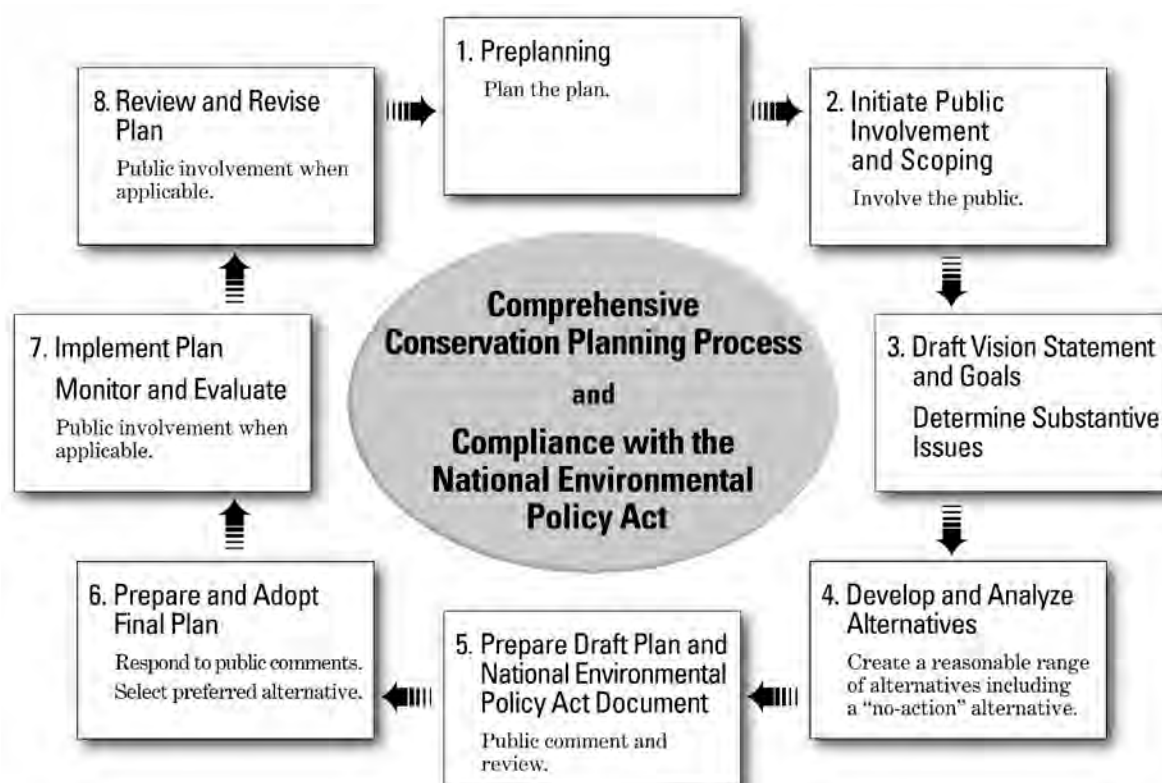


Figure 6. Process steps for comprehensive planning and associated environmental analysis.

We began the preplanning process in August 2009 by establishing a planning team made up primarily of staff from the refuge and the Mountain-Prairie Region 6 of the U.S. Fish and Wildlife Service (Region 6) Division of Refuge Planning. Other teammembers included staff from other Service divisions (Education and Visitor Services, Law Enforcement, Realty, Geographic Information System (GIS), Water Rights, Fire, Fisheries) and WGFD and BLM staff. Later on, the city of Cokeville and Lincoln County, represented by the Lincoln County Planning Department, formally requested to join the planning team and were included through a memorandum of understanding between these local governments and us.

During preplanning, the team developed a mailing list, identified internal issues, and identified the unique qualities of the refuge. (Refer to Section 2.2 Special Values.)

During planning, the team identified and reviewed current programs, compiled and analyzed relevant data, and reviewed establishing authorities to define the purposes of the refuge. An added part of this process was the preparation of a hydrogeomorphic method (HGM) analysis report. This HGM report took almost 2 years to research and prepare and resulted in many sound recommendations for the restoration and future management of the refuge.

Afterwards, a notice of intent to prepare the draft CCP and EA was published in the “Federal Register” on October 30, 2009. Public scoping—the process of obtaining public input to inform the planning process—began soon after in November 2009 and included the mailing of invitation letters, the posted of flyers and press releases and the holding of public scoping meetings. With the publication of this draft CCP and EA and new period of public review begins.

Table 2 lists the specific steps in the planning process to date for the preparation of the Cokeville Meadows National Wildlife Refuge draft CCP and EA.

Table 2. Planning process summary for Cokeville Meadows National Wildlife Refuge, Wyoming.

<i>Date</i>	<i>Event</i>	<i>Outcome</i>
August 13, 2009	Cokeville Meadows Refuge CCP meeting for public officials	Overview of the planning and public participation processes, identification of issues, answer questions from officials, and discussion of economic development
September 25, 2009	Initial meeting with the proposed planning team	CCP overview developed; planning team completed; purposes identified; initial issues and qualities list developed; development of mailing list started
November 16–18, 2009	Kickoff meeting, vision, and goals development.	Issues and qualities list updated; biological and mapping needs identified; public scoping planned
October 30, 2009	Public scoping planning	Scoping meeting schedules and formats completed
November 17, 2009	Public scoping meeting, Cokeville, WY	Public opportunity offered (to learn about the CCP and provide comments)
November 18, 2009	Public scoping meeting, Kemmerer, WY	Public opportunity offered (to learn about the CCP and provide comments)
April 20–21, 2010	Alternatives workshop	Vision statement and goals reviewed; alternatives developed.
February 23–25, 2011	Assessment of environmental impacts	Reviewed range of alternatives and decided on environmental consequences.
April 26–28, 2011	Non-biological objectives and strategies workshop	Objectives and strategies for the proposed action drafted
June 21–23, 2011	Biological objectives and strategies workshop	Objectives and strategies for the proposed action drafted
July–December, 2011	First draft CCP and EA preparation	First draft of the CCP and EA prepared
March–April 2012	planning team review of the first draft CCP and EA	First draft of the CCP and EA reviewed and commented on by planning team
May 2012–May 2013	Internal Service review of and editing of the first draft CCP and EA	Draft CCP and EA reviewed and commented on by our regional office staff, planning team, and others
May 2013	planning team review of the second draft CCP and EA	Second draft of the CCP and EA reviewed and commented on by planning team
June–August 2013	Preparation of public review draft CCP and EA	
September 2013	Public review draft CCP and EA distributed	Draft CCP and EA presented; public comments collected
September 2013	Public meetings	Draft CCP and EA presented; Public comments compiled
October 2013	Public comments analyzed	Possible modification of draft CCP and EA to incorporate public comments
October 2013	Briefing of our regional director	Summary of public comments reviewed and addressed by our Regional Director and Deputy Regional Director in Region 6
October 2013	CCP approval	Final CCP approved by our Regional Director
October–December 2013	Production, distribution of final CCP. Begin CCP implementation	To be completed

Coordination with the Public

A mailing list of more than 83 names was compiled during the planning process and includes private citizens; local, regional, and State government representatives and legislators; other Federal agencies; and interested organizations, as described in appendix C.

In November 2009, we held two public scoping meetings near Cokeville Meadows Refuge. The first meeting was in Cokeville, Wyoming, and the second meeting was in Kemmerer, Wyoming. Fifty-two people attended the two meetings. They were primarily local citizens, including ranchers, sportsmen and women, other recreational users, and wildlife management professionals. Following a presentation about the refuge and an overview of the CCP and NEPA processes, attendees were encouraged to ask questions and offer comments. Verbal comments were recorded, and each attendee was given a comment form by which to submit more thoughts or questions in writing.

Twelve other written comment letters were received during the scoping period that ended on December 31, 2009. The planning team reviewed and considered all substantive comments throughout the planning process. Public input obtained from meetings and correspondence was considered in development of this draft CCP and EA.

State Coordination

In November 2009, our Region 6 Director mailed an invitation letter to take part in the CCP planning process to the director of WGFD. As a result, six representatives from WGFD are part of the CCP planning team, though the refuge staff had already established excellent and ongoing working relationships with local WGFD biologists before starting the CCP process.

WGFD is charged with providing “an adequate and flexible system for the control, management, protection, and regulation of all Wyoming wildlife.” WGFD supports 36 wildlife habitat management areas and 96 public access areas, encompassing 410,000 acres of managed lands for wildlife habitat and public recreation. These lands contain 121 miles of stream easements and about 21,014 surface acres of lakes and reservoirs for public access.

Tribal Coordination

In November 2009, our Region 6 Director mailed invitation letters to take part in the CCP planning process to 12 Native American tribal governments: Northern Arapaho, Crow Creek Sioux Tribe, Lower Brule Sioux, Fort Peck Assiniboine and Sioux Tribes, Cheyenne River Sioux, Oglala Sioux, Standing Rock Sioux, Santee Sioux, Rosebud Sioux, Northern Cheyenne, Eastern Shoshone, and Northwest Band of Shoshone Nation of Utah Tribe. The letters also contained information about the CCP development process.

Although none of the tribal governments chose to take part on the planning team, they remain on the CCP mailing list and will continue to receive CCP-related correspondence.

Results of Scoping

Comments collected from scoping meetings and correspondence, including refuge management recommendations, were used to develop a final list of issues to be addressed in this draft CCP and EA (see chapter 2). The planning team also developed alternatives that best address these issues (see chapter 3).

Selecting an Alternative

Following the public review and comment period for this draft CCP and EA, the planning team will present this document along with a summary of all substantive public comments collected during the public review of the draft to our Regional Director for Region 6, who will then consider the environmental effects of all three alternatives. If the analysis has not identified any significant issues that warrant an environmental impact statement or other added analysis, the Regional Director will select a preferred alternative. The Regional Director's decision will be disclosed in a NEPA decision document—a finding of no significant impact—and will be included in the final CCP.

Once approved, the actions in the preferred alternative will compose the final CCP. After the planning team prepares the final CCP for publication, a notice of availability will be published in the Federal Register and copies of the final CCP will be sent to individuals on the mailing list.

Subsequently, we will carry out the goals, objectives and strategies of the CCP with help from our partner agencies, organizations, and the public. The CCP will provide long-term guidance for management decisions; support achievement of the goals, objectives, and strategies needed to accomplish the purposes of the Cokeville Meadow Refuge; and define our best estimate of future needs.

It is important to note that the CCP will detail program planning levels that may be substantially above budget allocations. These would be used primarily for strategic planning purposes. The CCP does not constitute a commitment for staff increases, operation and maintenance increases, or money for future land acquisitions.

CHAPTER 2—The Refuge

For many years, resource professionals and conservation agencies recognized the unique wetland habitat of the Upper Bear River floodplain near Cokeville, Wyoming, in Lincoln County and its value to migratory birds. In the late 1970s and early 1980s, we and WGFD reviewed the potential for protecting the area’s habitat. In July 1987, we gained conditional support for a refuge proposal from WGFD.

This chapter discusses Cokeville Meadows Refuge’s establishment, management history, purposes, and special values as well as its proposed vision, goals, and planning issues.

2.1 ESTABLISHMENT, ACQUISITION, AND MANAGEMENT HISTORY

We prepared a land protection plan and accompanying environmental impact statement that resulted in a record of decision in 1992 that approved an acquisition boundary for a refuge. The record of decision also authorized us to buy a total of 26,657 acres within the boundary. This led to the creation of Cokeville Meadows Refuge.

Establishment

Cokeville Meadows Refuge was established in 1993 with our first land acquisition.

Creation of the refuge was proposed to preserve and protect wetland-breeding and migration habitat for migratory and resident birds including trumpeter swan, redhead, white-faced ibis, long-billed curlew, sandhill crane, greater sage-grouse, and many other conservation-priority species (USFWS 1990, 1992, 2002; Nicholoff 2003; WGFD 2005).

Acquisition History

The refuge has grown since 1993 (table 3) to consist of 9,259 acres of fee-title and conservation easement lands (6,466 acres in fee title, 1,689 acres in conservation easements, 320 acres of State-leased land, and 784 acres in Farmers Home Administration easements) (figure 7).

Future acquisitions of land for refuge purposes, by easement or fee, will depend on our having the available funds to pay the appraised fair market value and on having willing sellers (figure 8).

Table 3. Land acquisition history of Cokeville Meadows National Wildlife Refuge, Wyoming.

<i>Date of acquisition</i>	<i>Acres acquired</i>	<i>Acquisition authority</i>	<i>Means of acquisition</i>	<i>Percent of acquisition within the refuge boundary</i>
10/12/1993	203	Emergency Wetland Resources Act	Fee title – Land and Water Conservation Fund	0.76%
12/22/1993	625	Emergency Wetland Resources Act	Fee title– Land and Water Conservation Fund	2.34

Table 3. Land acquisition history of Cokeville Meadows National Wildlife Refuge, Wyoming.

<i>Date of acquisition</i>	<i>Acres acquired</i>	<i>Acquisition authority</i>	<i>Means of acquisition</i>	<i>Percent of acquisition within the refuge boundary</i>
03/05/1997	222	Emergency Wetland Resources Act	Fee title– Land and Water Conservation Fund	0.83
08/21/1997	263	Migratory Bird Conservation Act	Fee title–Migratory Bird Conservation Fund	0.99
06/02/1998	2,214	Migratory Bird Conservation Act	Fee title–Migratory Bird Conservation Fund	8.31
06/09/2000	2,264	Migratory Bird Conservation Act	Fee title–Migratory Bird Conservation Fund	8.49
04/15/2003	672	Fish and Wildlife Act	Fee title– Land and Water Conservation Fund	2.52
01/26/1995	1,689	Emergency Wetland Resources Act	Conservation easement– Land and Water Conservation Fund	6.34
Total Percentage within the acquisition boundary acquired to date				30.58

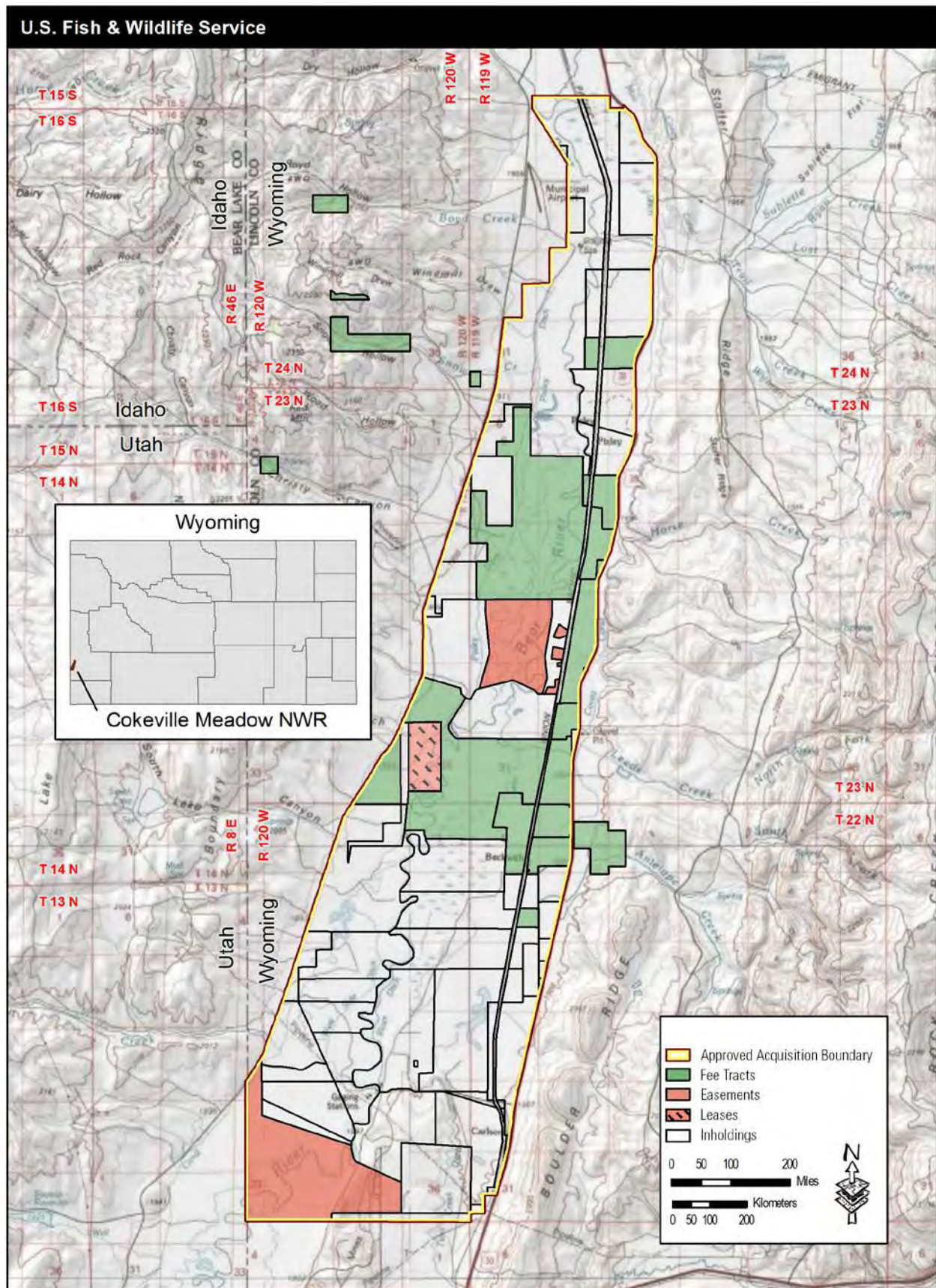


Figure 7. Base map of Cokeville Meadows National Wildlife Refuge (NWR), Wyoming.

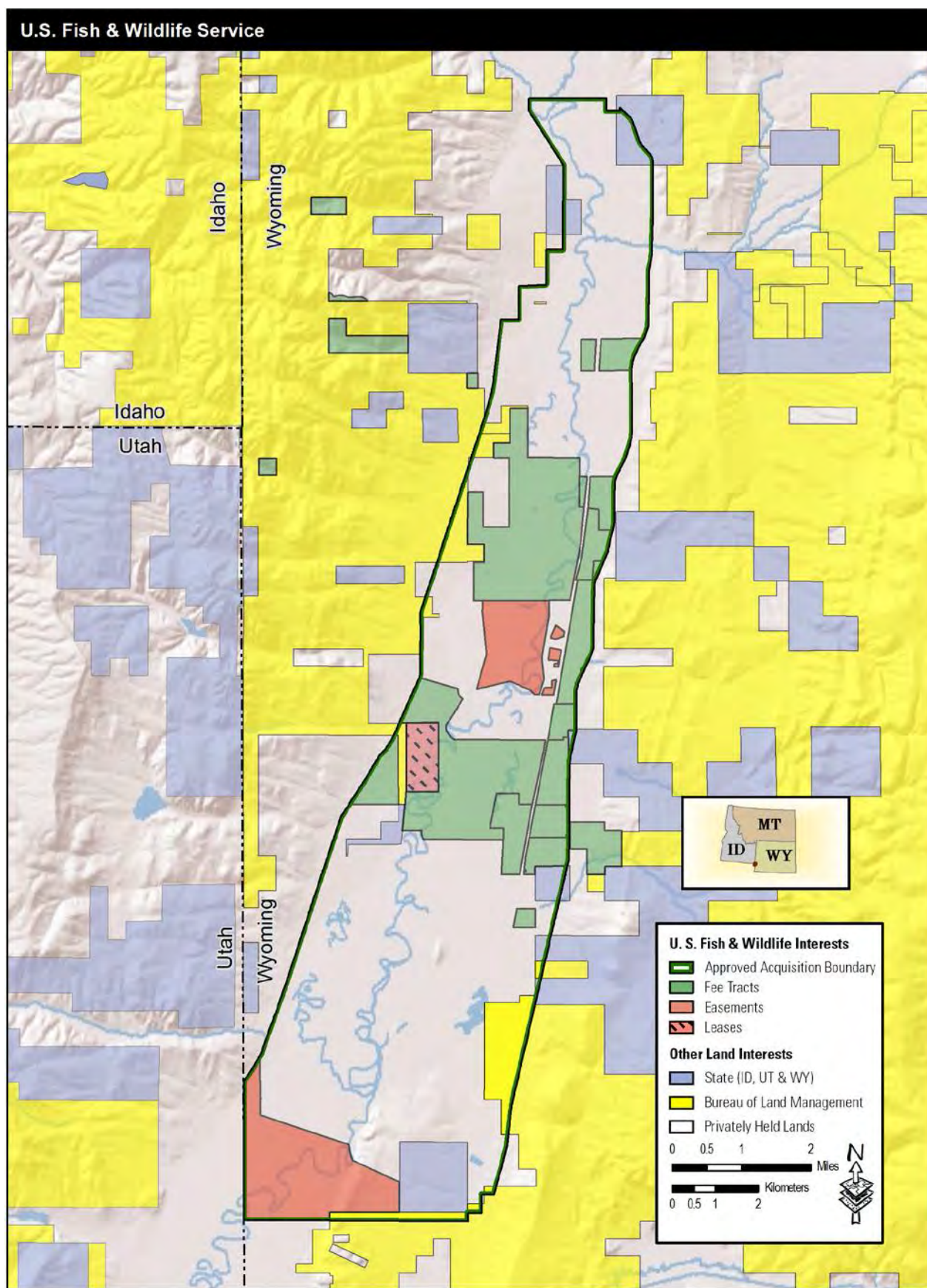


Figure 8. Ownership of Lands near and within Cokeville Meadows National Wildlife Refuge, Wyoming.

Management History

Since 1993, we have managed the refuge primarily for waterfowl nesting and production. By controlling water through using the existing ditches of an irrigation system that was developed by the farmers and ranchers of the valley, our refuge staff improved and enhanced wet meadow habitats along the Bear River. Since 2003, we have improved the irrigation system for wildlife management purposes by adding and replacing pre-existing and deteriorating water control structures.

Grazing and haying are the primary vegetation management tools used to manage wet meadow and upland habitats. Water level manipulation using existing irrigation ditches, irrigation, prescribed fire, mowing, harrowing, and disking are other tools that have been, or might be, used to improve grassland and wetland habitats on the refuge.

Prescribed fire has not been used to manage habitats on the refuge since establishment, primarily because the refuge has not had sufficient staff to prepare the necessary plans and NEPA documentation required for a prescribed fire program.

Except for a visitor contact station consisting of a kiosk and a parking lot, a short walking trail, and the refuge office, the refuge has not been open to public use. Approximately 3,200 visitors a year use these limited facilities for wildlife observation, photography, and interpretation. In December 2012, we issued a draft hunting plan and an associated EA for public comment with the intent to open portions of Cokeville Meadows Refuge to public hunting in 2013.

2.2 PURPOSES

Every refuge has one or more purposes for which it was established. The purpose is the foundation on which to build all refuge programs—from biology and public use to maintenance and facilities. No action that the public or we undertake may conflict with this purpose.

Refuge purposes are found in the statutes, Executive orders, or other documents that authorize the refuge and the acquisition of any parcel of land within the acquisition boundary. An individual refuge may contain lands that have been acquired under a variety of authorities, giving a refuge more than one purpose. The goals, objectives, and strategies identified in the CCP (refer to chapter 6) are intended to support the purposes for which the refuge was established.

The following laws specify the purposes for Cokeville Meadows Refuge:

- “For use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” (Migratory Bird Conservation Act, 16 U.S.C. § 715d)
- “The conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions.” (Emergency Wetlands Resources Act of 1986, 16 U.S.C. § 3901(b))
- “For conservation purposes.” (Consolidated Farm and Rural Development Act of 1961, 7 U.S.C. § 2002)

2.3 VISION

A vision is a concept, including desired conditions for the future, that describes the essence of what we are trying to accomplish at a refuge. The following vision for Cokeville Meadows Refuge is future-oriented and designed to be achieved throughout the life of the CCP and beyond:

For thousands of years, the sandhill cranes have returned each spring to dance on the Cokeville Meadows. Their thunderous majestic calls remind us of our obligation to manage wildlife for generations unborn.

Nestled on the upper reaches of the Bear River in southwest Wyoming, the wet meadows, sage steppe, and riparian habitats of Cokeville Meadows National Wildlife Refuge provide outstanding habitat for a myriad of migratory birds and resident wildlife species.

Spectacular views and clean air add to the visitor's enjoyment of compatible wildlife-oriented recreation. Refuge management and habitat restoration activities are complementary with historical land uses, creating opportunities for conservation partnerships with neighbors and friends.

2.4 GOALS

A goal is a descriptive, broad statement of desired future conditions that conveys a purpose but does not define measurable units. The goals direct efforts toward achieving the vision and purposes of the refuge and outline approaches for managing refuge resources. We developed seven goals for the refuge based on the Improvement Act, the purposes of the refuge, and information developed during planning.

Habitat and Wildlife Management Goals

Three goals were developed for habitat and wildlife management at Cokeville Meadows Refuge.

Wet Meadow Habitat and Wildlife Goal

Using the best scientific practices to manage and preserve critical wet meadow habitat, the refuge will provide quality feeding, loafing, and breeding opportunities for a diversity of migratory birds and resident wildlife.

Upland Habitat and Wildlife Goal

Manage and restore the diversity and composition of grassland and shrub-steppe habitats within the range of historical conditions for sagebrush-dependent species, upland nesting migratory birds, and other resident species.

Riparian and River Habitats and Wildlife Goal

Maintain and, where appropriate, restore the processes necessary to sustain the biological diversity and integrity of riparian vegetation and aquatic habitats for breeding birds, native fishes, reptiles and amphibians.

Wildland Fire Management Goal

Manage wildland fires using a full array of strategic options from suppression to manipulating a fire to achieve benefits. Prescribed fire, manual, and mechanical treatments will be used to: (1) reduce the threat to land and property through

hazardous-fuel reduction treatments, and (2) meet the habitat goals and objectives identified in this CCP.

Visitor Services and Cultural Resources Goal

Provide appropriate public access to refuge lands where visitors can safely enjoy compatible, wildlife-dependent recreation, such as hunting, fishing, wildlife observation, photography, environmental education, and interpretation. The refuge will seek partnerships to help protect onsite cultural resources.

Partnerships Goal

Engage in mutually beneficial partnerships to promote wildlife and habitat conservation, and public enjoyment of wildlife resources in the upper Bear River watershed that are consistent with historic land uses, refuge purposes and goals.

Refuge Development and Operations Goal

Effectively utilize all available resources to develop, enhance, and support refuge facilities and operations for wildlife, habitat, and public use programs. We will pursue easements and other land protection opportunities with willing sellers within the approved refuge acquisition boundary.

2.5 SPECIAL VALUES OF THE REFUGE

Early on, our planning team and the public identified the outstanding qualities of Cokeville Meadows Refuge. Refuge qualities are the characteristics and features that make it special, valuable for wildlife, and worthy of refuge status. It was important to name and describe the special values of the refuge to recognize its worth and to make sure that the special values of the refuge are preserved, protected, and enhanced through the planning process.

Refuge qualities can be unique biological values or something as simple as, “a quiet place to see a variety of birds and enjoy nature.” The following summarizes the qualities that make Cokeville Meadows Refuge unique and valued:

- The refuge lies within an important part of the Pacific flyway and plays an important role as a nesting and foraging area for migratory birds.
- These are public lands where people can take part in wildlife-dependent recreational opportunities: hunting, fishing, wildlife observation, photography, environmental education, and interpretation.
- The refuge lies in the Upper Bear River watershed
- The refuge is a greenbelt within southwest Wyoming’s high desert.

- The refuge has potential for a broad range of partnerships that are integral to every aspect of refuge management.
- The refuge can serve as an outdoor classroom to provide environmental education opportunities for local communities.
- Nearby universities are resources for natural resource studies that can add to the body of scientific literature on a variety of environments within the Bear River watershed and the importance of national wildlife refuges in the western United States.

2.6 PLANNING ISSUES

We identified several key issues during the scoping process and based on a review of refuge law and policy. They are derived from an analysis of comments collected from service staff and the public along with a review of the Improvement Act and the NEPA.

Substantive comments (those that can be addressed within our authority and management capabilities) were considered during the formulation of the alternatives for future management of the refuge. These key issues are summarized below.

Habitat and Wildlife Management

Specific issues were identified for the unique habitats found at Cokeville Meadows refuge along with general issues that apply to the refuge as a whole.

Wet Meadow Habitat

The conservation of wet meadow habitat is one of the primary reasons Cokeville Meadows Refuge was established. Fortunately, the prior economic uses of refuge wet meadows—hay production or grazing—also provided good habitat for migratory birds and other wildlife. Though with some significant improvements to water control facilities, we manage water in these habitats much like their former private owners did.

The recent HGM study conducted on Cokeville Meadows Refuge shows that our management continues to provide good habitat, but the natural hydrologic regime has been altered, which has led to a change in the vegetation communities found in wet meadows. Non-native grasses now dominate many meadows and there has been a proportional decline in some native sedge–rush communities.

To achieve and support quality wet meadow habitat, the refuge needs to improve the monitoring and evaluation of past water management effects on the meadows. This includes evaluating the location and placement of water control structures in relation to historical sloughs and river channels. The refuge will use a variety of tools such as active water level management, haying, grazing, and prescribed fire to encourage native plant communities and to discourage nonnative species.

Upland Habitat

Subdivision encroachment and the conversion of upland habitats are issues that occur within the acquisition boundary and adjacent lands of Cokeville Meadows Refuge.

The conversion of native habitat to cropland took place on refuge lands before acquisition. The refuge would work to restore cropland back to native vegetation to improve habitat for a variety of wildlife species. The refuge would also work to restore degraded or marginal upland habitats to improve plant diversity. In conjunction with the re-establishment of native grassland communities, we would develop a grazing management plan to manage upland

habitats to help a variety of plants and wildlife. Grassland restoration should enhance nesting and brood-rearing habitat for upland nesting birds, including dabbling ducks, passerine birds and sage-grouse.

Many of the former croplands have been idle for years and have developed a weed seed bank that could exacerbate the difficulty of re-establishing native communities. To prepare former croplands for restoration to native vegetation, small grains would be grown for 2 or 3 years, most likely through cooperative farming agreements, to achieve weed control before lands are planted to native vegetation.

The rotation of small grains from site to site would also help combat the depredation of private lands by migratory birds. During this rotational phase, we would work cooperatively with the permittee and the Lincoln County Weed and Pest Department to control invasive plants.

Riparian and River Habitats

As valuable as it is to wildlife, the Bear River and its adjacent riparian habitats are severely degraded. We would work toward restoring the natural processes of the Bear River Valley, as identified in the HGM report. The development of partnerships with WFGD, neighboring landowners and other irrigators, nongovernment organizations, and others would be required to restore native game and nongame fish populations—with emphasis on Bonneville cutthroat trout, a species of concern found in the area—and to improve fish passage in the river, for which the Beckwith and Quin (BQ) and Pixley Dams are concerns.

We would work to manage riparian vegetation to optimize habitat for selected passerine and other migratory birds and to restore the diversity of plant species with a focus on native grasses, sedges, rushes, and woody species like willow and cottonwood. Restoring riparian habitats will also require streambank stabilization projects, including potentially mechanized streambank reconstruction, fencing to exclude livestock from the riparian corridor, and the use adaptive management to decide if haying or grazing would be needed to improve migratory bird habitat. The implementation of a big game hunting program may also reduce the effects of wintering native ungulates.

Haying, Grazing, and Prescribed Fire

Haying and rotational grazing of refuge habitats in the summer and fall of each year have helped to support many of the values of wet meadows needed by migratory birds. Past management and, possibly, herbicide spraying have degraded some key areas and habitat types, particularly woody riparian communities. Those areas need a period of rest from grazing and the elimination of haying.

On some sites, prescribed fire can be used to improve the control of invasive species, increase plant diversity, or set back succession to improve wildlife habitat. Prescribed fire would be a new tool in the habitat management toolbox, not a replacement of other treatment options.

Invasive Species

Cokeville Meadows Refuge occupies part of an agricultural landscape, and refuge lands are intermixed with private farm and ranch lands. As such, concerns have been raised about both plant and animal invasive species.

The refuge would develop an Integrated Pest Management (IPM) plan that would define the proper use of chemical, biological, and mechanical treatment methods for the most effective control of invasive plants. The refuge would also collaborate with the State and other cooperating agencies to address invasive species issues.

The refuge would have to engage and work with the State and other cooperative agencies to address issues and concerns dealing with aquatic invasive species, such as zebra and quagga mussels, throughout the Bear River watershed.

Carp control and management activities on the refuge to improve water quality within the wet meadow habitats would be conducted to reduce sediment and other pollutants. Scoping revealed a desire by some to harvest carp from flooded wet meadow habitats in the spring. While removing carp from the meadows could improve water quality, recreational harvest is unlikely to be an effective control technique, and recreational carp hunting in the meadows

would create unacceptable disturbance to nesting migratory birds. Carp control by public harvest could be allowed in designated areas on portions of the Bear River.

Wildlife Disease, Crop Depredation, and Private Property Damage

Neighboring landowners want us to take action in addressing the potential spread of wildlife diseases to their livestock and crop depredation on their lands. These concerns were raised before and during public scoping for the CCP.

The primary wildlife disease concern is brucella transmission when elk commingle with cattle. The refuge is working with WGFD to keep elk and cattle separate. In some extreme cases, elk are hazed from private and refuge lands. An elk hunting program is proposed for implementation in 2013, and one of its goals is to disperse wintering elk from the refuge.

Depredation involves damage to small grain crops by waterfowl and other migratory birds and is a more difficult issue. However, in recent years, refuge permittees have planted a small grain crop on the refuge to help offset depredation on private land. If upland restoration takes place on the refuge and small grain crops are used for 2–3 years per rotation, this will provide migrating flocks with a food source on the refuge, which may reduce their foraging on private fields. As the refuge acquires more in-holdings, we will continue to work with WGFD to address the depredation issue.

Wildland Fire Management

Native plant communities in the Bear River Basin evolved under a disturbance regime that included grazing animals, fire, and weather events. This periodic disturbance kept the ecosystem diverse and healthy while supporting significant biodiversity for thousands of years. Historically, natural fire, including Native American ignitions, played an important role in most ecosystems by removing fuel accumulations, decreasing the effects of insects and diseases, stimulating regeneration, cycling critical nutrients, and providing a variety of habitats for plant and animal species.

After European settlement, wildfires were suppressed. Today, most local fire departments and area farmers and ranchers still aggressively suppress wildfires. It has also been the our policy on Cokeville Meadows Refuge to aggressively suppress wildfires because it is too small and too close to farm and ranchsteads to use wildfire management as a tool. Thus, all unplanned ignitions will continue to be suppressed in accordance with Federal fire policy.

Before refuge establishment, however, local farmers and ranchers periodically burned agricultural lands within the Bear River Basin on what would become Cokeville Meadows Refuge. Since 1993, the refuge has not used prescribed fire for habitat management or fuel reduction purposes. However, alternatives within this CCP do allow for the use of prescribed fire for specific purposes, contingent on the right plans, funding, and having the qualified staff to conduct a prescribed fire program.

Visitor Services and Cultural Resources

Issues involving visitor services and cultural resources have many facets.

Public Access

The lack of opportunities for people to engage in wildlife-dependent recreation was perhaps the most consistent and widely held issue raised during public scoping. By law, national wildlife refuges are “closed until opened,” and we have not been able to provide staff or fiscal resources to the refuge to perform the planning activities needed to open

hunting and fishing programs. Land acquisition activities at the refuge have also been slow; for many years, the refuge did not have a sufficient land base to support some forms of recreation.

In 2006 the refuge constructed a visitor contact station (VCS), information kiosk, and walking trail at the Netherly Slough along U.S. Highway 30. It became the only area of the refuge open to public access. Environmental education, interpretation, wildlife observation, and photography are compatible uses for this area. Elsewhere, vehicular access to the refuge is by special use permit only and public access to the Bear River has not been authorized due primarily to private land access issues and to safety issues raised by railroad crossings.

The Improvement Act identifies six priority public uses: hunting, fishing, wildlife observation, photography, environmental education, and interpretation. Congress deemed these to be appropriate on refuges and to be facilitated whenever they are compatible with refuge purposes and the Refuge System mission. Providing more opportunities for these uses, particularly hunting, was a significant issue raised during public scoping.

In close consultation with WGFD, we prepared a draft hunting plan and associated EA to open Cokeville Meadows Refuge to the hunting of big game, small game, and migratory birds beginning in 2013. That plan was released for public review and comment in December 2012. If the NEPA analysis results in a finding of no significant impact, we will submit a rule for publication in the Federal Register that will open the refuge to hunting in the fall of 2013.

We will work to provide foot and vehicle access points on both the east and west sides of the refuge. Because of limited staff and finances, however, creating and supporting one refuge access point is a more realistic goal. Additional foot or vehicle access points may depend on added volunteers, partners, and money. Because access to the refuge is required for authorized public use, resolving such issues must be considered in the planning process.

Members of the public also wanted to use the refuge for non-wildlife dependent recreation such as all-terrain vehicle, snowmobile, and horseback riding. These requested uses will be evaluated for appropriateness (603 FW 1) as part of this CCP planning process.

Visitor Safety

Ensuring that the public has safe access to the refuge is a top priority for us. Access from U. S. Highway 30, as it parallels the east side of the refuge, will require crossing an active railroad. Existing crossings are not signaled, so signals and cross arms would need to be added. Coordinating this with the railroad company, funding, and the upkeep of safety equipment are major issues to consider.

Hunting

In close consultation with WGFD, we prepared a draft hunting plan and associated EA to open Cokeville Meadows Refuge to the hunting of big game, small game, and migratory birds beginning in 2013. The plan proposes to allow these licensed hunters to take jackrabbits, fox, skunk, and raccoon during open seasons for game species. Some members of the public also requested access to the refuge to hunt a variety of species classified as predators by the State of Wyoming. Under Wyoming law, predators may be taken without a license year-round. The hunting of wolves and coyotes, however, would not be permitted under this plan.

The plan was released for public review and comment in December 2012. If the NEPA analysis results in a finding of no significant impact, we will submit a rule for publication in the Federal Register that will open the refuge to hunting in the fall of 2013. The hunting program will provide opportunities for the public, including families, to engage in wholesome, wildlife-dependent recreation. The big game hunting program would also help us to discourage the commingling of wild ungulates and livestock by disturbing elk on the refuge during the hunting season.

Fishing

We will seek to open portions of the Bear River to fishing on the refuge and will work directly with WGFD to adopt State fishing regulations. It is anticipated that WGFD staff will help with enforcement and public guidance activities on refuge lands. Where the potential exists and there is enough support, the refuge will engage partners to find sites and develop areas with better fishing opportunities.

Wildlife Observation, Photography, Environmental Education, and Interpretation

In response to scoping, we will seek to open portions of the refuge to wildlife observation and photography and work with partners to find ways to enhance visitor facilities for these activities. Our current visitor contact station, information kiosk, and walking trail at Netherly Slough will be supported, and we will continue to provide limited staff-led environmental education and interpretation per request.

Public Information

As wildlife-dependent recreation expands, we will need to provide more information about it, including regulations. The refuge has not yet produced public information materials. Opening of the refuge to hunting would require us to provide brochures, leaflets, media announcements, and maps.

Cultural Resources

While there are no known National Register-eligible historic properties on refuge lands, we need to do more to inventory and manage the refuge's cultural resources. We will seek partners to help develop projects and programs to provide stewardship and interpretation of significant sites like historic trails.

Law Enforcement

As noted in the scoping comments we collected, hunting and other wildlife-dependent recreational uses will require adequate refuge law enforcement to insure public safety and a high level of compliance with regulations designed to protect wildlife and private property. We expect that there will be sufficient Federal wildlife officers assigned to the Seedskaadee National Wildlife Refuge Complex to provide a reasonable level of law enforcement coverage at the refuge.

Before 2010, the refuge did not have an assigned commissioned Federal wildlife officer. Now there are two officers assigned in the Seedskaadee National Wildlife Refuge Complex, and we will seek to keep that as a minimum level throughout the life of this CCP. We will also continue to cooperate with WGFD, the Lincoln County sheriff, and other law enforcement agencies to provide added law enforcement at Cokeville Meadows Refuge.

Partnerships

"Working with others" is part of our mission statement and is needed to achieve the vision and goals for the refuge. We are unlikely to have the resources necessary to accomplish the actions proposed in this CCP unless we engage partners in our cause. Because of the varied land ownership pattern in the Bear River watershed, we will need to cooperate with several Federal, State and local agencies; nongovernment organizations; and private landowners to address issues on a landscape scale.

Existing partnerships with cooperative farmers and ranchers and with WGFD have been instrumental in our management of the refuge. Throughout the life of this CCP, we will expand cooperative arrangements with WGFD, local governments, nongovernment organizations, and others to fulfill the refuge's purposes and the mission of the Refuge System.

Development of a refuge Friends group is an important strategy. Friends groups are private, independent, and nonprofit organizations that link communities to national wildlife refuges. Friends organizations collaborate with refuges to conduct public events, teach communities about conservation, restore habitat, keep trails, coordinate volunteers, and more.

Refuge Development and Operations

Many issues surround the daily maintenance and long-term development of Cokeville Meadows Refuge.

Staff, Equipment, and Facilities

We are responsible for managing more than 9,000 acres at the refuge, including fee-title lands and conservation easements, yet our staff consists of only one full-time employee, an assistant manager. Additional staff within the Seedskaadee National Wildlife Refuge Complex is available to conduct refuge operation activities at Cokeville Meadows Refuge, but more staff may be needed.

We have limited equipment, and some of it is in poor condition and needs replacement. However, Seedskaadee National Wildlife Refuge has a good fleet of equipment that can be shared among stations. There are no plans to split Cokeville Meadows Refuge off as a “stand-alone” station, so the refuge should be administered as part of the Seedskaadee National Wildlife Refuge Complex throughout the life of the CCP.

We built a new, multi-purpose headquarters building for the refuge in 2009, which has an office, shop, cold storage units, and an apartment. Other facilities, such as signs and fences, are in good-to-moderate condition and are supported or replaced as needed. Water control structures and dikes are in good working condition and receive minor repairs as needed. The most significant facility requiring replacement is the Pixley Dam, which was built in 1903 and is near failure. Operation and maintenance of the Pixley Dam is hazardous. We will work with neighboring landowners, irrigation interests, and others to replace the dam to improve safety, water management, and fish passage.

Junk and Debris Removal

The lands we acquired for the refuge often came with junk, debris, and old infrastructure that we had to remove to restore wildlife habitats. These items, such as rocks, dilapidated fence posts, wire, and culverts, were placed in piles on the refuge for later disposal. They are now a danger to people and have created a safe haven from which some animals depredate migratory bird nests. Our staff has properly disposed of some of the remaining junk and debris, but more needs to be removed.

Water Rights and Resources

Water is the lifeblood of the refuge. This is a floodplain refuge and all wildlife and habitats of the refuge are dependent on adequate quantity and quality fresh water. The refuge will improve and use current facilities and infrastructure to improve habitats and manage its water to support the Federal water rights that have been acquired for the public.

Using the refuge’s HGM report, we will evaluate the placement of facilities and may move, remove, or upgrade them to improve hydrologic processes. We will seek partners to help us develop infrastructure projects. The refuge’s water rights have been identified, and we are working to keep our surface and ground water rights in good standing with the Wyoming State Engineers Office.

With help from our regional division of water resources, we will develop a water management stepdown plan that will quantify the refuge’s water rights in relation to Wyoming water law, the Bear River Compact, and the water rights of neighboring landowners.

Land Protection

Little progress has been made in recent years to acquire more lands within the refuge acquisition boundary. This complex issue depends on finding money and willing sellers. As money becomes available and willing sellers are identified, we will seek to buy more fee-title and conservation easement lands and their associated water rights throughout the life of the CCP.

We will seek to acquire both private and public lands within the refuge acquisition boundary. Prior attempts, beginning in 2004, to withdraw public domain lands have been unsuccessful. We will continue to work with the BLM to achieve the withdrawal of the Federal mineral estate and approximately 500 surface acres of public lands now administered by BLM within the acquisition boundary. We will also work with the State of Wyoming to acquire State lands within the acquisition boundary through land exchanges.

Refuge Mineral Rights and Energy Development

We typically acquire land for the Refuge System subject to any outstanding mineral rights. Most refuges, including Cokeville Meadows Refuge, include lands where we own the surface but the mineral estate is owned by someone else. We also do not want, or have the authority, to prevent a mineral holder from exploiting their property. We may, however, require that the mineral estate owner or lessee comply with NEPA regulations before our issuance of a special use permit for use of the refuge's surface estate for the exploration and extraction of minerals. NEPA protects the public's interest in the refuge and makes sure that mineral exploration and extraction is conducted in a way that reduces effects to the habitat and wildlife values of the refuge.

The geography that lead pioneers and settlers to follow wagon trails through the Bear River Valley during westward expansion of the United States now draws the attention of pipeline and transmission line planners who want to transport the rich energy resources in Wyoming to population centers farther west. The development of energy transmission corridors may significantly affect refuge resources. We will support communications with project proponents and other State and Federal agencies as these projects are being considered, and, for projects affecting neighboring lands, we will work with all parties to reduce or mitigate the negative effects to refuge habitats and wildlife.

Refuge law and regulations do not apply to lands within the acquisition boundary that are not yet acquired. Any new lands acquired will be acquired subject to existing property rights, including rights-of-way (ROW). On lands where we have an existing real property interest, either fee or easement, we would have to issue a right-of-way before any new above- or below-ground transmission infrastructure could be built. The issuance of such rights-of-way would require more NEPA compliance, paid for by the proponent of the project, and would be subject to a compatibility determination, which is a tough requirement of the Improvement Act to meet.

Inventory, Monitoring, and Research

Cokeville Meadows Refuge has never received the staff or money necessary for a scientifically sound inventory and monitoring program. Although more resources may be available during the 15-year life of this CPP, partnerships with others will be necessary to obtain the monitoring data necessary for us to manage refuge habitats adaptively. We would work with WGFD and other partners to inventory and monitor wildlife populations and habitat conditions both on and off refuge lands. This includes monitoring water quality and salt loading in wet meadow habitats.

Monitoring programs to assess water quality, including temperature, dissolved oxygen levels, and sedimentation load, and other baseline information to find issues in the watershed that may affect aquatic species are needed.

Nuisance Animal and Predator Control

The management of nuisance animals like beavers and muskrats that affect private or refuge infrastructure will be handled on a case-by-case basis, in cooperation with WGFD and neighboring landowners. Special use permits may be issued to control nuisance wildlife that damage water control structures, irrigation infrastructure, or other property.

A stepdown trapping plan that includes more NEPA compliance will be developed in cooperation with WGFD to authorize permitted trapping for beaver, mink, muskrat, bobcat, coyote, red fox, badger, weasel, skunk and raccoon on refuge lands in conjunction with an existing WGFD trapping program along the Bear River.

We collected several comments and questions during scoping about how we will manage predators and furbearers on the refuge, such as when coyotes or wolves, for example, depredate livestock on private land from the sanctuary of refuge habitats. In accordance with our regional refuge policy on predator management on Refuge System lands, we will cooperate with, and provide access to, U.S. Department of Agriculture (USDA) Wildlife Services or State of Wyoming Predator Management staff for ground-based (shooting and trapping) predator management actions when

evidence suggests that an individual predator or family group is depredating livestock. We will not, however, authorize prophylactic predator control or aerial gunning on refuge lands.

Volunteers Programs

Volunteers programs are a great way to introduce interested individuals and groups to the Refuge System and to involve them in the management of the refuges. They provide a venue for people who want to help conserve natural resources with hands-on work. These programs are also enormously important to us because they help us to manage refuge resources, especially during times of fiscal uncertainty. Our staff would like to foster and support more volunteer groups at Cokeville Meadows Refuge for help in day-to-day operations.

Chapter 3—Alternatives

The purpose of this chapter is to describe the management alternatives considered for the Cokeville Meadows Refuge as part of the CCP planning process. Alternatives are different approaches to management that are designed to achieve the refuge purposes, vision, and goals; the mission of the Refuge System; and the mission of the U.S. Fish and Wildlife Service. We develop alternatives to address the key issues, concerns, and problems identified by during public scoping and throughout the development of the draft CCP.

Below is described our method for developing alternatives, elements common to all alternatives, and the actions of each alternative. Details on the effects of each alternative may be found in chapter 5, while a summary table that compares both the actions and the effects of each alternative may be found at the end of this chapter.

3.1 ALTERNATIVES DEVELOPMENT

Our planning team assessed the planning issues identified in chapter 2, existing biological conditions on the refuge, and external relationships that affect the refuge to develop a range of alternatives. Each alternative presents different approaches for fulfilling the refuge's purposes and the mission of the Refuge System mission while also incorporating actions intended to achieve refuge goals, as outlined in chapter 2.

3.2 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED

We did not consider any alternatives other than the four that are described in this chapter.

3.3 ELEMENTS COMMON TO ALL ALTERNATIVES

All of the alternatives contain these same, key actions:

- Emphasize priority wildlife species, namely:
 - for wet meadow and wetland habitats:
 - trumpeter swan, Canada goose, redhead, greater sandhill crane, white-faced ibis, Forster's tern, black tern, common yellowthroat, American bittern, and sora rail;
 - for shrub-steppe upland habitats:
 - short-eared owl, mountain plover, horned lark, greater sage-grouse, sage thrasher, Brewer's sparrow, sage sparrow, ferruginous hawk, golden eagle, prairie falcon, mourning dove, western burrowing owl, common nighthawk, and Brewer's blackbird;
 - for riparian and riverine habitats:
 - white-faced ibis, yellow warbler, willow flycatcher, song sparrow, northern leopard frog.
- Comply with all Federal laws and regulations that provide direction for managing units of the Refuge System.
- Develop a comprehensive stepdown IPM plan to handle pests that might affect wildlife habitats or human health, like mosquitoes, in a safe manner. Include monitoring protocols in the IPM and define treatment thresholds for issues or threats to human health and safety. Consider other organisms that could be considered pests but are not threats to human health and safety, like grasshoppers and crickets, in the same IPM. Try to control invasive species with an IPM approach using the right combination of biological, chemical,

and mechanical treatments. Decide if a proposed treatment, like pesticide use, is compatible per our policy and process a pesticide use permit for chemical treatments that are found to be appropriate and compatible for application on the refuge before they are used in the field.

- Improve water quality within the wet meadow habitats through carp control and management. This would include drying temporary and seasonally flooded areas every year. May lower water levels in semipermanently flooded units to prevent carp from overwintering in them.
- Protect endangered species, including candidate species.
- Refrain from affecting adjacent landowners with an activity without first getting their approval.
- Suppress all unplanned fire ignitions on the refuge through agreements with cooperating agencies, including the BLM High Desert District and Lincoln County, which will be supported throughout the life of the CCP. Update the refuge fire management plan (FMP) to reflect the goals and objectives of the CCP.
- If the draft hunt plan and EA released in December 2012 is approved, open the refuge to big game, small game, and migratory bird hunting.
- Do not authorize shed antler hunting because we have found it to be “not appropriate” (see appendix A). Conduct appropriateness and compatibility determinations on other requested recreational activities that are not wildlife dependent as well as on those that are considered to be economic activities (NWRSA, 50 CFR 25.21).
- Protect and manage all cultural resources. Consult with Wyoming State Historic Preservation Office before approving disturbances.
- With help from the WGFD, conduct monitoring programs for several species of wildlife. Cooperate directly with the Lincoln County Weed and Pest Department to monitor weed infestations. Conduct all necessary monitoring programs on refuge lands, using the aid of partners when needed.
- Manage the refuge as an integral part of the Seedskaadee National Wildlife Refuge Complex and make staff, equipment, and money allocated to Seedskaadee National Wildlife Refuge available to Cokeville Meadows Refuge.
- Work with local landowners to support and improve the BQ and Pixley Dams. Seek to buy and replace the Pixley Dam with a safer and more efficient structure that allows for fish passage.
- Make it a high priority to remove junk and debris from the refuge.
- Protect key habitats in the area of the refuge by entering into voluntary agreements with partners and by buying the surface and subsurface rights, where proper and when available within the refuge’s acquisition boundary, to land through fee title or conservation easements.
- Protect refuge infrastructure, habitats, plants and wildlife from mineral and energy development and transportation. Seek to withdraw some of the mineral rights from the public domain from lands within the refuge’s acquisition boundary that are now managed by the BLM.
- Address nuisance animals and predators causing depredations or property damage to neighboring landowners on a case-by-case basis according to our regional policy (see appendix G). Do not authorize prophylactic predator controls in the absence of documented depredation and aerial gunning of predators on the refuge.
- Operate a small volunteers program at the refuge; emphasize increasing the number of volunteer employees involved in wildlife inventory, maintenance, and public use programs.

- Engage in partnerships with local, State, and Federal agencies, nongovernment organizations, local landowners, cooperators, private corporations and others.
- Keep identified water rights in good standing with the Wyoming State Engineers Office. With the help of Region 6's Water Resources Division, develop a management plan that would fully define and quantify refuge water rights and how they relate to Wyoming water law, the Bear River Compact, and the private water rights of adjacent landowners.
- Allow opportunistic and targeted research, when compatible with the purposes for which the refuge was established and the mission of the Refuge System, to meet refuge goals and objectives.

3.4 DESCRIPTION OF ALTERNATIVES

The following summarizes the alternatives considered by the planning team to achieve the vision and goals and to address the planning issues for Cokeville Meadows Refuge. These alternatives include not only current management actions, as described in alternative A, but also our planning team's proposed actions found in alternative D and further described in chapter 6.

Alternative A, No Action

Under this alternative, refuge management programs would not change significantly unless funds and staff also increased. Irrigation, haying, and grazing would continue at, or near, current levels.

Under the no-action alternative, the refuge would remain closed to most public uses, though, because the process to open the refuge to hunting began before the public release of this draft CCP, the refuge may open hunting, pending approval of the hunt plan. However, the refuge would not be opened to fishing, and opportunities for wildlife observation and photography would still be limited to the area around the visitor contact station on U.S. Highway 30 at Netherly Slough.

Additional partnership programs would be developed only if time and money were available at current staff levels.

This alternative might not meet all the CCP goals. It serves, however, as a baseline to which other alternatives may be compared.

Habitat and Wildlife Management

Actions for three specific habitat types are proposed as well as for combatting wildlife diseases, crop depredation, and private property damage.

Wet Meadow Habitat

The high wildlife value of the wet meadows of the Bear River Valley is one of the primary reasons for which Cokeville Meadows Refuge was established. We would continue to support and run irrigation infrastructure and to flood to manage water levels in constructed ponds and natural wet meadow habitats to enhance nesting, brood-rearing, foraging and escape cover for migratory birds and other wildlife. We would also continue to replace failed water control facilities as needed and work closely with neighbors and cooperative farming and grazing permittees to manage wet meadows for wildlife. The current water management regime would continue, which has extended hydroperiods through artificial flooding regimes and allowed creeping meadow foxtail to dominate wet meadows.

The annual haying and grazing of wet meadow habitats would continue. Haying would take place in the fall every year after irrigation water is removed and meadows dry enough to support haying equipment. Because of the high water table, not all meadows would be hayed annually, and cattle grazing would be used to reduce biomass and to support the vigor of wet meadow vegetation.

We would casually observe and note instances where salt crusts or coats soils and plants, which would show that salt loading may be affecting refuge habitats.

Prescribed fire would not be used on wet meadows.

Upland Habitat

Native uplands on Cokeville Meadows Refuge would continue to receive little active management. Many of the upland sage habitats were converted to irrigated croplands before refuge acquisition. Prior plans to restore approximately 660 acres of such cropland back to native grassland vegetation would continue in cooperation with permittees, WGFD and the Wyoming Landscape Conservation Initiative. To prepare these sites for native grass seedings, they would be farmed in small grain for several years. This would reduce the weed seed bank and provide food for waterfowl and cranes, which may reduce the crop depredation of nearby landowners.

Several acres we acquired in the northern part of the acquisition boundary produced alfalfa. We would allow some of these lands to continue to produce alfalfa as part of the Cooperative Farming program. The uplands under an existing center pivot irrigation systems would be converted out of alfalfa and back to native grasslands or shrublands, and portions of the field may be planted to small grain to provide high-energy food for migrating waterfowl.

We would continue to monitor historical sage-grouse lek sites, including a potential, but unconfirmed, lek site on the west side of the refuge next to the Etchevery tract.

Riparian and River Habitats

The vegetative community in riparian and river habitats has changed from a variety of wetland plants to one that is beneficial to domestic livestock and which thrives on irrigation, haying, and grazing practices that have been in place in the valley for decades and which would continue under this alternative. In many places, the riparian zone would continue to be hayed to the edge of the river, which would preclude the reestablishment of willows and cottonwood species. No restoration of native riparian habitat would be anticipated, and no new water quality monitoring programs would be started.

With regard to grazing, no action would be taken on prior discussions with permittees and WGFD to fence cattle out of the riparian corridor, and permittees would continue to graze cattle in the riparian area.

Water would continue to be diverted from the river into floodplain meadows and grasslands through a system of ditches, dikes and water control structures. Dikes built in riparian areas along the river would continue to prevent surface flows from returning to the river in some areas. Water would also be pumped from the river to irrigate crops such as alfalfa and small grains by center pivot irrigation systems. Ground water wells for irrigation would be expected to continue to reduce ground water contributions to instream flows.

Wildlife Disease and Crop Depredation and Damage to Private Property

We would work with WGFD to reduce the comingling of elk and livestock. In rare cases, wintering elk would be hazed from private and refuge lands. We expect that an elk hunting program will be established, perhaps for the 2013 hunting season, and that we would administer the hunt in cooperation with WGFD.

We would work with permittees to plant a small grain crop on the refuge to help offset depredation on nearby private lands.

Invasive Species

We would focus on resources within the refuge acquisition boundary.

Species of Concern

We would conduct opportunistic monitoring of sage-grouse distribution and use in refuge habitats, as well as that of other State and Federal species of concern and would work with conservation partners to develop conservation measures for populations of aquatic and land species of concern.

Wildland Fire Management

There would be no prescribed fire program at Cokeville Meadows Refuge.

Visitor Services and Cultural Resources

Authorized public uses would include environmental education, interpretation, wildlife observation, and photography at a visitor contact station, information kiosk, and walking trail at the Netherly Slough along U.S. Highway 30 and at the refuge headquarters. Vehicle access to the refuge would be by special permit only, and there would be no public access to the Bear River for boating. No efforts would be made to improve roads or railroad crossing safety.

Public information would be available at the refuge office and at the Seedskaadee National Wildlife Refuge office. A refuge brochure with general information would be developed, but some information about the refuge would only be available at Seedskaadee National Wildlife Refuge's Web site by clicking on the Cokeville Meadows Refuge link (<http://www.fws.gov/seedskaadee/cokevillemeadows.htm>).

Partnerships

We will continue to work with our Partners for Fish and Wildlife Program, WGFD, Wyoming Landscape Conservation Initiative, Lincoln County, neighboring landowners, and others to conserve wildlife and wildlife habitat both on and off the refuge. Efforts will be limited, however, by the availability of resources and our lack of refuge staff.

We would continue to work with third-party researchers to allow them to obtain information about wildlife and habitats on the refuge in the name of conservation and conservation research.

We would engage with project proponents, third-party mineral owners, local units of government, and regulatory or permitting agencies about proposed mineral developments and utility and transportation corridor projects that have the potential to affect refuge resources and Federal trust wildlife resources.

Landscape Conservation

With no staff on site, we would focus on habitat and wildlife conservation activities within the refuge boundary and not across the broader landscape of the Bear River watershed.

Refuge Development and Operations

Cokeville Meadows Refuge would continue to be unmanned. Seasonal temporary staff, interns and volunteers may be employed during the summer months to help with biological, maintenance, and public use duties. Administrative support, skilled trades' maintenance work, including heavy equipment operation, and law enforcement would be provided by the staff at Seedskaadee National Wildlife Refuge and our regional business team.

Repairing the nonfunctioning wet meadow irrigation system would continue and would include rebuilding dikes, replacing water control structures, and cleaning water delivery canals as necessary and as money allows. We would also run the water control and irrigation system and record our water usage as necessary to keep the refuge's surface water rights in good standing with the Wyoming State Engineer's Office.

As money allows, we would demolish and remove four old buildings that are of no use to the refuge during the life of the CCP and rehabilitate larger production ground water wells and put them back into use. Small, domestic-type ground water wells associated with former farmsteads would be abandoned per State regulations.

Inventory, Monitoring, and Research

Biological monitoring would be limited and would be provided mostly by cooperators and partners. Limited wildlife population monitoring would continue to be conducted by employees of WGFD. We would cooperate with, and provide access to, WGFD to conduct surveys, including those for fish in the Bear River between the BQ and Pixley Dams, American bittern, colonial-nesting birds, and those supporting herpetology.

No new biological monitoring programs would be started by our refuge staff, including new programs to monitor water quality in the mainstem of the Bear River.

Alternative B, Maximum Restoration

Under this alternative, we would restore habitats as much as possible, even though upstream impoundments on the Bear River, the water rights of other landowners in the valley, and the fact that the refuge shares irrigation infrastructure with its neighbors would make it impossible to restore refuge wet meadows to pre-settlement conditions. We would consider the removal of dikes, water control structures and irrigation infrastructure as per the refuge's HGM report (Heitmeyer, M., Artmann, M., and Fredrickson, L., 2010). Wet meadow irrigation would follow historical flood patterns and come from overbank flooding from the river rather than from irrigation diversions.

Management activities like haying and grazing would be used to keep habitats productive, and nonnative agricultural crops would be limited or used as a tool to establish native habitats. Compatible wildlife-dependent recreation and public access to the refuge would be significantly expanded.

Habitat and Wildlife Management

Actions for three specific habitat types are proposed as well as for combatting wildlife diseases, crop depredation, and private property damage.

Wet Meadow Habitat

We would use the refuge's HGM analysis to find and remove infrastructure, including water control structures, irrigation ditches, dikes, and levees that would not affect our neighbors' water rights. We would restore natural flooding regimes as much as possible. Some portions of the meadows would only receive flooding from natural over-bank flooding from the mainstem of the Bear River during natural flood pulses in years of high runoff.

We expect that by restoring drying cycles to the meadows, sedge, rush, and bulrush communities would be able to compete better with creeping meadow foxtail, resulting in a more diverse habitat mosaic. As native vegetation replaces creeping meadow foxtail, a habitat management plan would be developed based on our best available science and monitoring.

Haying and grazing by refuge cooperative farmers would continue, but they would be more prescriptive than in the past and adaptive management would be used to find out when to apply them to improve habitat for targeted wildlife species.

We would casually observe and note instances where salt incrustations occur on soils and plants as indications that salt loading may be affecting refuge habitats.

Prescribed fire could be used as a habitat management tool.

Upland Habitat

Same as alternative A, except that besides restoring native grasslands we would also restore sagebrush–steppe plant communities on suitable sites. Our center pivot irrigation system would be removed and the lands under the pivot would be restored to a native sagebrush community.

Riparian and River Habitats

We would work toward returning natural processes to the Bear River. To do this, we would engage our partners to help us restore native game and nongame fish populations with an emphasis on Bonneville cutthroat trout, which is a species of concern, and to improve fish passage, which is affected by the BQ and Pixley Dams.

We would manage riparian vegetation to optimize habitat for migratory birds and to restore the diversity of plant species while focusing on native grasses, sedges, rushes, and woody species like willow and cottonwood. The riparian corridor would be fenced off and rested from haying and livestock grazing to promote the regeneration of native woody vegetation.

Wildlife Disease and Crop Depredation and Damage to Private Property

Same as alternative A.

Invasive Species

Same as alternative A.

Species of Concern

Same as alternative A.

Wildland Fire Management

The refuge FMP would be revised to allow the use of prescribed fire as a refuge habitat management tool, as reflected in the goals and objectives of this CCP.

Visitor Services and Cultural Resources

Public uses of and access to the refuge would be significantly expanded from alternative A (figure 9).

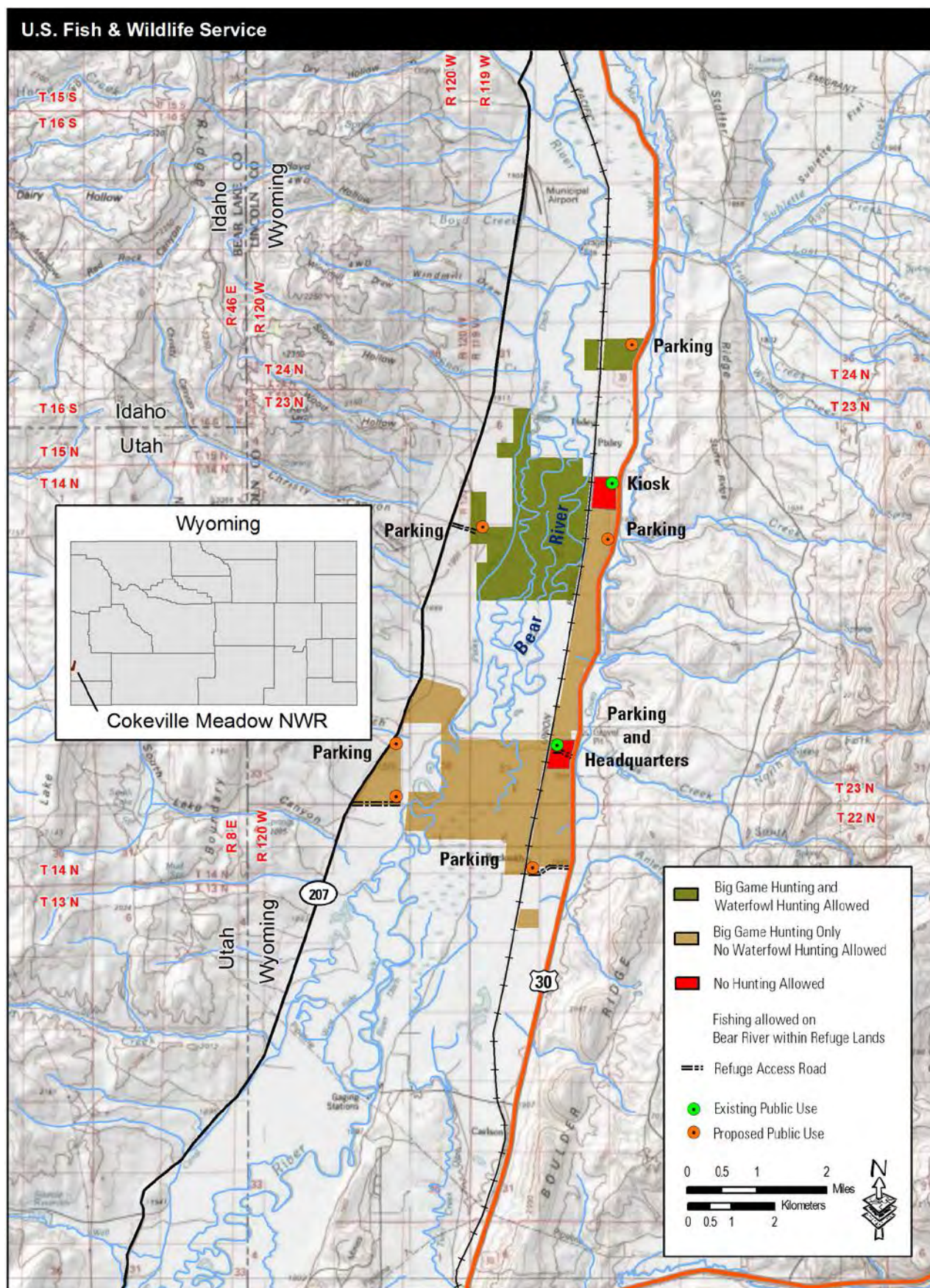


Figure 9. Proposed public uses at Cokeville Meadows National Wildlife Refuge, Wyoming.

Besides opening the refuge to hunting, more areas would be opened for wildlife observation and photography. A fishing plan would be written and a formal rulemaking process would follow to open portions of the Bear River to public sportfishing. Fishing would be generally conducted pursuant to State regulations, but there may be seasonal closures and spatial zoning to reduce or prevent disturbances to migratory birds during the nesting season.

Nonmotorized boating in the refuge portions of the Bear River would be allowed seasonally for fishing and wildlife observation opportunities. Canoe slips would be developed for seasonal, nonmotorized boating to provide fishing, wildlife observation, and photography access on the Bear River. The development of nonmotorized launch and take out sites would be dependent on cooperative agreements with WGFD, local governments, and cooperating landowners.

We would, in cooperation with WGFD and in accordance with State regulations and their calendar, allow a regulated trapping program on the refuge. The refuge would issue one annual trapping permit for the refuge, with the permittee selection process handled by WGFD. State-designated furbearers such as mink, muskrat, beaver, weasel, badgers and bobcats, as well as state-designated predators like coyote, red fox, skunks and raccoons, would be harvested under state regulations.

Increased public use under this alternative would require more infrastructure to provide safe access to newly opened areas. We would develop at least one vehicle access point or parking area on both the east and west sides of the refuge. We would work with the right State and local government agencies and the railroad company to fund and provide a signaled crossing to provide safe access to the east side of the refuge from U.S. Highway 30.

The availability of public information would be expanded from alternative A. We would develop brochures, including a general refuge brochure, and a hunting and fishing regulations leaflet.

Partnerships

Same as alternative A.

Landscape Conservation

Same as alternative A.

Refuge Development and Operations

Additional staff would be required. Besides a wildlife refuge specialist position, one full-time biological technician and one career seasonal (six month) biological technician would be added to the staff to conduct the added biological monitoring and facility maintenance and management that will be required to implement this alternative.

Existing infrastructure would be supported except for the refuge's water delivery system, which would be removed.

At least two safe access points and parking facilities, one on the east and one on the west side of the refuge, would be added for refuge visitors. Canoe slips and launch and take out sites for non-motorized boats would also be added to facilitate compatible, wildlife-dependent uses

Inventory, Monitoring, and Research

Our biological monitoring program at the refuge would be much more extensive than under alternative A. Besides the monitoring of wildlife populations—including big game, American bitterns, colonial nesting birds, sage-grouse, amphibians, and fish—that is carried out by WGFD, we would include the development of a habitat management plan and an inventory and monitoring plan.

The stepdown inventory and monitoring plan, when approved, will include the monitoring of water quality in the Bear River and associated wetlands, of wet meadow and riparian corridor vegetation to help us in making decisions about our haying and grazing activities, and of targeted wildlife species. Monitoring programs for invasive species would be expanded to include both plant and animal aquatic species.

Monitoring programs would also assess water quality, including temperature, dissolved oxygen levels, sedimentation load, and other baseline information to find issues that exist upstream from, and in the area of, the refuge that are potentially affecting aquatic species. Would expand the invasive species monitoring partnership with Lincoln County Weed and Pest Department to include aquatic invasive species.

Alternative C, Resource Enhancement

Under this alternative, we would strive to enhance the productivity of refuge habitats for targeted wildlife species. Restoring natural processes would occur, but this would be of a lower priority than would be maximizing populations of migratory birds, sage-grouse and native fishes and amphibians.

Economic uses on Cokeville Meadows Refuge, such as haying and grazing, would be more prescriptive than they would be under alternative A, and they would be specifically targeted to achieve wildlife population objectives. There would be more wildlife population management actions under this alternative.

As under alternative B, public opportunities for wildlife-dependent recreation and access would be expanded significantly, but there would be more emphasis on developing infrastructure to facilitate public use.

Habitat and Wildlife Management

This alternative proposes actions for three specific habitats and for wildlife diseases, crop depredation, and private property damage.

Wet Meadow Habitat

Management would be similar to that described for alternative B, except it is likely that less water management infrastructure would be removed and there would be more intensive water management to create optimum habitat conditions for specific targeted wildlife. The refuge's HGM analysis would be used to find fewer water control structures, ditches, dikes, and levees for removal. These would be removed only if it would create better habitat for migratory birds. Furthermore, some new water management infrastructure would be installed to provide greater ability to manage water for targeted wildlife.

We would emphasize restoration to presettlement conditions less and restoration to achieve specific wildlife objectives more. Drying cycles to promote native vegetation would be prescriptive, rather than natural, and flooding would occur in years when there would be no overbank flooding from the Bear River. A robust monitoring program would be required to manage a highly manipulated system adaptively without negatively affecting neighboring landowners and their water rights.

Haying and grazing would continue, but would be more prescriptive, designed to achieve a particular habitat and wildlife outcome, than under alternative A. We would expand the use of prescribed fire, when it would provide the greatest enhancement to habitats.

Unlike under alternatives A and B, we would actively manage medium-sized predators during the spring. Refuge staff or cooperators and permittees would actively trap and remove skunks and raccoons in wet meadow habitats from February to April to enhance the nest success of migratory birds.

Upland Habitat

Same as alternative B, except that the center pivot irrigation system would not be removed. Rather, the area under the pivot would continue to be irrigated but managed more intensively to provide small grains to provide high energy foods for migrating cranes and waterfowl and to provide nesting cover for upland nesting waterfowl.

Haying and grazing would be more prescriptive than under alternatives A and B.

Riparian and River Habitats

Same as alternative B, except water control structures, dikes, and irrigation infrastructure, including the BQ and Pixley Dams, would be evaluated for replacement and upgrades to include fish passage to promote native fish diversity. We would also, in partnership with others, actively plant native woody species in the riparian corridor. Fencing the riparian corridor in would be expanded to include exclosures to prevent the browsing of woody vegetation by native wild ungulates and stock fencing to keep livestock out of the riparian area.

Wildlife Disease and Crop Depredation and Private Property Damage

Same as alternative A, except that we would work with cooperative farmers to keep half of the acreage under the center pivot irrigation system in small grain production to provide high energy food on the refuge each year migrating cranes and waterfowl to help reduce depredation on nearby private farms.

Invasive Species

Same as alternative A.

Species of Concern

Same as alternative A, plus we would collaborate with WGFD to increase the monitoring of other State species of greatest conservation need within the refuge.

Wildland Fire Management

Same as alternative B.

Visitor Services and Cultural Resources

Same as alternative B, except that there would be more infrastructure development to facilitate wildlife-dependent recreation. A stepdown visitor services plan would be prepared to evaluate the feasibility and locations for an auto tour route, an interpretive foot trail along the Bear River, a photography blind, and an outdoor classroom facility for elementary and secondary school environmental education. In addition, we would provide some limited staff-lead interpretive and environmental education programming.

Partnerships

Same as alternative A.

Landscape Conservation

Same as alternative A.

Refuge Development and Operations

Same as alternative A, except staff needs would be the same as alternative B and more infrastructure would be added.

Inventory, Monitoring, and Research

Same as alternative B.

Alternative D, Proposed Action: Landscape-level Management

Under this alternative, management would strive to improve refuge resources and development within a greater landscape footprint by using the help of partners to increase wildlife and habitat productivity within, and outside of, the refuge boundary.

Wet meadow and upland habitats would be managed and restored to increase wildlife productivity and diversity. The use of agricultural practices would be specifically geared to enhance refuge habitats for wildlife both on and off refuge lands. Visitor resources, access, and opportunities for wildlife-dependent uses would be developed to encourage a greater understanding and appreciation of the Bear River watershed and its wet meadow, riparian, and stream habitats and wildlife.

Habitat and Wildlife Management

This alternative proposes actions for three specific habitats as well as for combatting wildlife diseases, crop depredation, and private property damage.

Wet Meadow Habitat

Same as alternative C, plus we would seek broad partnerships to improve habitat for wildlife on private and other public lands within the Bear River watershed in Wyoming.

Upland Habitat

Same as alternative C, plus we would seek broad partnerships to improve habitat for wildlife on private and other public lands within the Bear River watershed in Wyoming.

Riparian and River Habitats

Same as alternative C, plus we would seek broad partnerships to improve riparian and river habitats for native fish and wildlife within the Bear River watershed in Wyoming.

Wildlife Disease and Crop Depredation and Private Property Damage

Same as alternative A, plus we would facilitate the increased movement and migration of wildlife between the refuge and other sites throughout the landscape to help ward against crop depredation and property damage.

Invasive Species

Same as alternative A, plus, through partnerships, we would increase monitoring and rapid response for new infestations within the refuge and throughout the Bear River watershed in Wyoming.

Species of Concern

Same as alternative C, plus we would work with existing and new partners and conservation agencies to increase monitoring, and to develop conservation strategies for species of concern throughout the Bear River watershed in Wyoming.

Wildland Fire Management

Same as alternative B plus we would seek to collaborate with the State of Wyoming, other Federal agencies, and partners to accomplish fuels treatment goals in the watershed within Wyoming.

Visitor Services and Cultural Resources

Same as alternative C. In addition, we would develop partnerships with neighbors and cooperators, WGFD, nongovernment organizations, schools, and local governments to facilitate wildlife-dependent recreational opportunities in the Wyoming part of the Bear River watershed.

A significant effort would be made to develop more ecotourism activities in the area around Cokeville Meadows Refuge. These might include a regional interpretive tour route in the Bear River Valley of Wyoming and a regional birding trail. We would work with the town of Cokeville, Lincoln County, and others to move the annual Wyoming State junior duck stamp competition to Cokeville.

Partnerships

Same as alternative A, but expand efforts significantly to focus not only on lands under our ownership or under conservation easements but also on the connectivity of water and wildlife across multiple ownerships and jurisdictions within the valley.

While we cannot put aside our administrative responsibilities at Cokeville Meadows Refuge—those directed by Congress in the Improvement Act—this alternative would forge a more collaborative management regime where neighbors, other Federal agencies, State agencies, and local governments are intimately involved in project planning and where our decisions are made in a collaborative fashion through the continuous involvement of partners.

We would seek partners in the private sector to establish a refuge Friends group that would support landscape conservation on public and private lands.

Landscape Conservation

We would coordinate with local governments and agencies to see if any private land development proposals might affect refuge, and other, habitats of high value for wildlife throughout the Bear River watershed in Wyoming.

We would add a new, on-staff, extension biologist whose responsibilities would be to plan and carry out conservation actions to conserve wildlife across the landscape and to leverage the expertise and resources of all levels of government and the private sector to achieve landscape conservation. This would clearly fit the goals of the Bear River Watershed Conservation Area project.

Refuge Development and Operations

Same as alternative C, except an extension biologist would be added to work with cooperators and partners on projects such as an interpretive tour route and a regional birding trail in the Bear River watershed in Wyoming.

Inventory, Monitoring, and Research

Same as alternative B, except that biological monitoring of water quality issues would be expanded through partnerships to include the entire Bear River watershed in Wyoming.

3.5 COMPARISON OF ALTERNATIVES AND CONSEQUENCES

Table 4 offers an abbreviated comparison of the actions and environmental consequences of the four alternatives.

Table 4. Summary of the alternatives and their environmental consequences for the comprehensive conservation plan for the Cokeville Meadows National Wildlife Refuge, Wyoming

<i>Alternative A</i> (current management, no action)	<i>Alternative B</i> (hydrology and habitat restoration)	<i>Alternative C</i> (resource enhancement)	<i>Alternative D</i> (landscape-level management)
Habitat and Wildlife Management			
Wildlife diseases—actions			
Work with WGFD to reduce comingling of elk and livestock. Haze elk in rare cases. Establish elk hunt plan.	Same as alternative A .	Same as alternative A.	Same as alternative A, plus facilitate increased movement and migration of wildlife between the refuge and other sites throughout the landscape.
Wildlife diseases —environmental consequences			
Minimizing the comingling of elk and livestock will diminish the chances of transmitting wildlife diseases.	Same as alternative A.	Same as alternative A.	Same as alternative A, but risk of transmitting diseases to livestock would be further reduced.
Crop depredation and property damage—actions			
We would continue to plant small grain crops on refuge lands, which are generally consumed by migratory birds and large ungulates, to prepare the cultivated sites to be restored to grasslands.	Same as alternative A.	Same as alternative A, except that we would work with cooperative farmers to keep half of the acreage under the center pivot irrigation system in small grain production.	Same as alternative A, plus facilitate increased movement and migration of wildlife between the refuge and other sites throughout the landscape.
Crop depredation and property damage—environmental consequences			
Waterfowl and large ungulate depredation of private property in lands next to the refuge would be reduced. Restored grasslands would provide required wildlife food sources in enough abundance to reduce crop damage.	Same as alternative A.	Same as alternative A.	Same as alternative A plus wildlife would be able to find adequate food and rest sites, which would further reduce the likelihood of crop depredation and property damage.

Table 4. Summary of the alternatives and their environmental consequences for the comprehensive conservation plan for the Cokeville Meadows National Wildlife Refuge, Wyoming

<i>Alternative A</i> (current management, no action)	<i>Alternative B</i> (hydrology and habitat restoration)	<i>Alternative C</i> (resource enhancement)	<i>Alternative D</i> (landscape-level management)
Invasive species—actions			
Work with county agencies, cooperators, and neighbors to control invasive plant species on refuge lands. Coordinate monitoring actions with WGFD to ascertain if aquatic invasive species are present in the Bear River and support nonnative control programs. Conduct carp control. Develop a stepdown IPM plan.	Same as alternative A.	Same as alternative A.	Same as alternative A, plus, through partnerships, increase monitoring and rapid response for new infestations, within the refuge and throughout the Bear River watershed in Wyoming.
Invasive species—environmental consequences			
Would contain invasive plant species infestations. Could help prevent or slow the establishment of carp, zebra and quagga mussels in Bear River habitats in the refuge and elsewhere.	Same as alternative A.	Same as alternative A.	Same as alternative A.
Species of concern—actions			
Conduct opportunistic monitoring of sage-grouse distribution and use in refuge habitats, as well as that of other State and Federal species of concern. The staff would work with conservation partners to develop conservation measures for populations of aquatic and land species of concern.	Same as alternative A.	Same as alternative A, plus collaborate with WGFD to increase monitoring within the refuge of other State species of greatest conservation need.	Same as alternative C, plus work with existing and new partners, and conservation agencies to increase monitoring, and develop conservation strategies for species of concern throughout the Bear River watershed in Wyoming.
Species of concern—environmental consequences			
Would help prevent Federal listing under the ESA, contribute toward species recoveries, and help the State in their management efforts.	Same as alternative A.	Same as alternative A.	Same as alternative A.

Table 4. Summary of the alternatives and their environmental consequences for the comprehensive conservation plan for the Cokeville Meadows National Wildlife Refuge, Wyoming

<i>Alternative A (current management, no action)</i>	<i>Alternative B (hydrology and habitat restoration)</i>	<i>Alternative C (resource enhancement)</i>	<i>Alternative D (landscape-level management)</i>
Habitat and Wildlife Management: Wet Meadow Habitat and Wildlife Goal —Using the best scientific practices to manage and preserve critical wet meadow habitat, the refuge will provide quality feeding, loafing, and breeding opportunities for a diversity of migratory birds and resident wildlife.			
Wet meadows habitat—actions			
<p>Irrigate and flood wet meadows to support constructed ponds and natural wetlands.</p> <p>Upgrade water control infrastructure to improve habitat hydrologic functions.</p> <p>Rely primarily on grazing and haying as habitat management and invasive plant species control tools.</p> <p>Casually observe and note instances where salt incrustations occur on soils and plants within the refuge boundary.</p>	<p>Remove water control, diversion, and irrigation structures in an attempt to restore, to the greatest extent possible, the natural hydrologic cycle of the wet meadows in the refuge.</p> <p>Grazing, haying, and prescribed fire would be the most likely habitat management actions.</p> <p>Casually observe and note instances of salt incrustations on soils and plants within the refuge boundary.</p>	<p>Same as alternative B, but would update and use the water diversion, control, and irrigation infrastructure to try to mimic some of the natural hydrologic cycle and water flows in a way to provide better habitat conditions for migratory birds, aquatic species, and resident wildlife.</p> <p>Strive to enhance productivity of wet meadows and wetlands for targeted wildlife species.</p> <p>Manage mesopredators.</p>	<p>Same as alternative C, but would expand existing, and seek new, partnerships to improve habitat for wildlife on private and other public lands within the Bear River watershed in Wyoming.</p>
Wet meadows habitat—environmental consequences			
<p>Would support wet meadow and wetland areas conducive to a variety of migratory and resident wildlife.</p> <p>Would support a relatively low vegetative diversity as creeping meadow foxtail will continue outcompeting other native plant species, which in turn will impede a greater variety of wildlife.</p>	<p>Could decrease the extent of wet meadow habitats and their types and availability, which would change the use by, and variety of, aquatic, resident, and migratory bird species.</p> <p>Would change vegetative compositions, most likely increasing the number and variety of native plant species and displacing some introduced species.</p>	<p>Same as alternative A, except haying and grazing effects would be similar to alternative B and there could be greater vegetative communities and species diversity.</p>	<p>Same as alternative A, plus would significantly help a large number of migratory and resident birds, waterfowl, and waterbirds, as well as large ungulates and aquatic species. Would help disperse wildlife.</p>
Habitat and Wildlife Management: Upland Habitat and Wildlife Goal —Manage and restore the diversity and composition of grassland and shrub-steppe habitats within the range of historical conditions for sagebrush-dependent species, upland nesting migratory birds, and other resident species.			
Upland habitats—actions			
<p>Rely primarily on grazing and haying as habitat management tools.</p> <p>Protect sagebrush and grasslands from</p>	<p>Same as alternative A, plus restore sagebrush-steppe plant communities on suitable sites and remove center pivot irrigation</p>	<p>Same as alternative B, plus strive to enhance productivity of upland habitats for targeted wildlife species.</p>	<p>Same as alternative C, plus work with adjacent landowners, State and Federal agencies, and other partners to enhance and protect upland habitats</p>

Table 4. Summary of the alternatives and their environmental consequences for the comprehensive conservation plan for the Cokeville Meadows National Wildlife Refuge, Wyoming

<i>Alternative A (current management, no action)</i>	<i>Alternative B (hydrology and habitat restoration)</i>	<i>Alternative C (resource enhancement)</i>	<i>Alternative D (landscape-level management)</i>
<p>degradation to allow areas to recover.</p> <p>Farm small grains for several years to offset crop depredation and in preparation for restoring native grasslands.</p> <p>Methodically phase out alfalfa fields to allow uplands to revert to native vegetation.</p>	system.	<p>Haying and grazing would be more prescriptive than under alternatives A and B.</p> <p>Unlike under B, the center pivot irrigation system would not be removed.</p>	throughout the Bear River watershed in Wyoming.
Upland habitats—environmental consequences			
<p>Would improve the condition of upland habitats and increase bird habitat.</p> <p>Would increase wintering and nesting habitat for sage-grouse and other grassland and sage-dependent species.</p>	<p>Same as alternative A, plus native species composition would increase and help sage-steppe-obligate species.</p> <p>Would make more acres of native upland habitats available to wildlife.</p>	<p>Same as alternative B, plus would improve habitat for targeted species, which would also help other species that have similar life-cycle needs.</p>	<p>Same as alternative B, plus would cause less fragmentation and create more connectivity throughout the Bear River watershed in Wyoming, which would make better migration corridors for wildlife and decrease wildlife crowding.</p>
Habitat and Wildlife Management: Riparian and River Habitats and Wildlife Goal—Maintain and, where appropriate, restore the processes necessary to sustain the biological diversity and integrity of riparian vegetation and aquatic habitats for breeding birds, native fishes, reptiles and amphibians			
Riparian and river habitats—actions			
<p>Conduct haying and grazing.</p> <p>No restoration of native riparian habitat.</p> <p>Divert river water to irrigate wet meadows.</p> <p>No river water quality monitoring.</p> <p>Ground water wells would reduce ground water contributions to instream flows.</p>	<p>Restore natural processes of Bear River, work with partners to restore native game and nongame fish populations, especially the Bonneville cutthroat trout.</p> <p>Fence off and rest the riparian corridor from haying and grazing to promote regeneration of native woody vegetation.</p> <p>Restore a variety of native plant species and optimize them for migratory birds.</p>	<p>Same as alternative B, plus strive to enhance productivity of riparian and river habitats for all targeted wildlife species.</p> <p>Evaluate, replace, or upgrade water control structures.</p> <p>With partners, plant native woody species in riparian corridor.</p> <p>Expand fencing to exclusions and stock fencing.</p>	<p>Same as alternative C, plus work with State and Federal agencies, and other partners to enhance and protect riparian corridors and river habitats throughout the Bear River watershed in Wyoming.</p>
Riparian and river habitats—environmental consequences			
<p>Would continue the loss of woody plant community structure and change some areas to grass-dominated</p>	<p>Would help recover and restore native vegetation, especially woody species.</p> <p>Would greatly help</p>	Same as alternative B.	<p>Same as alternative B, plus could increase river shading and decrease river temperatures and</p>

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communities, which would perpetuate a low diversity of neotropical migratory birds and remove shade necessary to support optimum river water temperatures. Would keep sediment loads in Bear River water at undesirable levels.	migratory bird populations, especially neotropical species that depend on native riparian vegetation to complete their life cycles. Would likely create greater bird diversity and population numbers. Would better shade the river, decreasing water temperatures and increasing oxygen content to help all forms of aquatic animal species.		sediment loads upstream and downstream of the refuge, allowing the water to hold more dissolved oxygen and helping native trout and other aquatic species. Would decrease fragmentation and help wildlife move and migrate through the watershed, increasing opportunities for wildlife-dependent recreational opportunities.
Wildland Fire Management Goal —Manage wildland fires using a full array of strategic options from suppression to manipulating a fire to achieve benefits. Prescribed fire, manual and mechanical treatments will be used to: (1) reduce the threat to land and property through hazardous-fuel reduction treatments, and (2) meet the habitat goals and objectives identified in this CCP			
Wildland fire management—actions			
Collaborate with State and Federal agencies and others to suppress wildfires on refuge lands. No prescribed fire.	Same as alternative A, plus revise the refuge's FMP to allow prescribed fire.	Same as alternative B.	Same as alternative B, plus seek partnerships with the State and other Federal agencies and partners to accomplish fuels treatments throughout the Bear River watershed in Wyoming.
Wildland fire management—environmental consequences			
Would prevent damage to private and public properties in and around the refuge. Would deny refuge habitats the regenerative help derived from prescribed fires.	Would help prevent damage to private and public properties in and around the refuge. Would reinvigorate and regenerate refuge habitats and provide better opportunities for native vegetation to germinate and compete against nonnative species.	Same as alternative B.	Same as alternative B, plus would help prevent catastrophic wildfire events.

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<i>Alternative A</i> (current management, no action)	<i>Alternative B</i> (hydrology and habitat restoration)	<i>Alternative C</i> (resource enhancement)	<i>Alternative D</i> (landscape-level management)
Visitor Services and Cultural Resources Goal —Provide appropriate public access to refuge lands where visitors can safely enjoy compatible, wildlife-dependent recreation, such as hunting, fishing, wildlife observation, photography, environmental education, and interpretation. The refuge will seek partnerships to help protect onsite cultural resources.			
Public access—actions			
The refuge would be closed to the public except at the visitor contact station, information kiosk, and walking trail at the Netherly Slough.	Expand opportunities for wildlife-dependent recreation. Add vehicle access point or parking lot on both east and west sides of the refuge and open portions of the Bear River with seasonal closures and spatial zoning.	Same as alternative B, but there would be more access points into the refuge than in alternative B. Prepare a stepdown visitor services plan.	Same as alternative C, plus develop more ecotourism activities in the area around the refuge. Work with partners to expand opportunities throughout the Bear River watershed. Work with the town of Cokeville, Lincoln County, and others to move the annual Wyoming State junior duck stamp competition to Cokeville.
Public access—environmental consequences			
Negative public perceptions of the refuge and the Service would continue. Wildlife would benefit from being sheltered from visitors.	Negative public perceptions of the refuge and the Service would be reduced. Wildlife would more often be disturbed.	Same as alternative B, but more wildlife could be disturbed by visitors.	Same as alternative C, though positive environmental effects would extend outside the refuge to the Bear River watershed in Wyoming.
Visitor safety—actions			
Refuge would remain closed to visitors.	Increase staff and partnerships as parts of refuge are opened. Increase infrastructure needed to ensure safety.	Same as alternative B.	Same as alternative B.
Visitor safety— environmental consequences			
Would be little impact.	Would incur greater workload and partner needs. May affect refuge habitats.	Same as alternative B.	Same as alternative B.
River boating—actions			
Boating would not be allowed.	Nonmotorized boating in the refuge portions of the Bear River would be allowed seasonally.	Same as alternative B.	Same as alternative B.

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River boating— environmental consequences			
Would be no impact.	Negative public perceptions of the refuge and the Service would be reduced. Wildlife would more often be disturbed.	Same as alternative B.	Same as alternative B.
Hunting—actions			
Hunting would not be allowed.	If the draft hunt plan and EA released in December 2012 is approved, would open the refuge to big game, small game, and migratory bird hunting.	Same as alternative B, plus more infrastructure development.	Same as alternative C.
Hunting—environmental consequences			
Would prolong negative attitudes toward the refuge and Service and deny any possible economic benefits. Would prolong the comingling issue between large ungulates and cattle, which could result in wildlife diseases passing on to cattle and result in economic loss for our neighbors.	If hunting is allowed, it would attract new visitors, reduce negative attitudes toward the refuge and the Service, improve local and State economies, and reduce comingling the and possible transmission of wildlife diseases to cattle.	Same as alternative B.	Same as alternative B, however the positive environmental effects would extend outside the refuge boundaries to the Bear River watershed in Wyoming.
Fishing—actions			
The refuge would be closed to fishing.	Develop a fishing plan and open some areas of the refuge to fishing in accordance with State regulations and calendar. Portions of the Bear River would be open seasonally to the use of non-motorized boats.	Same as alternative B, plus more infrastructure development.	Same as alternative C.
Fishing—environmental consequences			
Would prolong negative attitudes toward the refuge and Service and deny any possible economic benefits.	Would attract new visitors, reduce negative attitudes toward the refuge and the Service, and improve local and State economies.	Same as alternative B.	Same as alternative B.

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Trapping—actions			
Trapping would not be allowed, but would be evaluated and may be allowed later.	Limited opportunities might exist for the recreational harvest of furbearing animals on the refuge under the right conditions and given management needs.	Same as alternative B.	Same as alternative B.
Trapping—environmental consequences			
Would perpetuate an unfavorable image of the Service and the refuge.	Would minimally affect wildlife populations and refuge habitats, but would greatly alleviate negative perceptions of the refuge and the Service.	Same as alternative B.	Same as alternative B.
Wildlife observation and photography—actions			
Limit to the short walking trail at Netherly Slough.	Open more areas.	Same as alternative B, plus more infrastructure development.	Same as alternative C.
Wildlife observation and photography—environmental consequences			
Would prolong negative attitudes toward the refuge and Service and deny any possible economic benefits. Wildlife would be sheltered from most disturbances.	Would attract new visitors, reduce negative attitudes toward the refuge and the Service, and improve local and State economies.	Same as alternative B.	Same as alternative B.
Environmental education and interpretation—actions			
Provide occasional, opportunistic environmental education as staff duties allow. Limit interpretation to existing kiosk near Netherly Slough.	Same as alternative A, plus: The staff would develop and make available to the public a general refuge brochure and a species list.	Same as alternative B, plus more infrastructure development.	Same as alternative C, plus environmental education and interpretation would be presented with a focus on the ecology of the Bear River watershed.
Environmental education and interpretation—environmental consequences			
Would deny local schools and visitors opportunities to learn about the Service's and the Refuge System's missions and the natural environment at the refuge, which could reduce opportunities for volunteerism or student	Would reduce negative attitudes toward the refuge and the Service and increase support for our mission and that of the Refuge System, the goals of this CCP, and the purposes of the refuge. Interest in natural	Same as alternative B.	Same as alternative B, but with expanded opportunities for the public and enhanced support for the conservation of natural resources throughout southwest Wyoming.

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interest in conservation efforts and in biological careers. Would limit wildlife disturbance.	resources, conservation efforts, and related careers among refuge visitors would increase.		
Public information—actions			
Make available at the refuge office and at the Seedskaadee National Wildlife Refuge office. Produce a general information brochure. Provide more information at Seedskaadee National Wildlife Refuge's Web site	Same as alternative A, plus produce leaflets with hunting, fishing, boating, wildlife observation, photography information and a species list.	Same as alternative B.	Same as alternative B, plus work with partners to provide visitors with information on public hunting, fishing, boating, wildlife observation, photography opportunities throughout the Bear River watershed in Wyoming.
Public information—environmental consequences			
Would limit opportunities to inform and educate visitors.	Same as alternative A, but would create a more inviting atmosphere for visitors and increase public awareness and interest in wildlife and habitat needs, which may result in increased revenues for local and State economies.	Same as alternative B.	Same as alternative B.
Cultural resources—actions			
Identify and protect cultural resources through the right surveys and consult with the Wyoming State Historic Preservation Office before disturbing the ground.	Same as alternative A	Same as alternative A.	Same as alternative A.
Cultural resources—environmental consequences			
Would be protected from unintended disturbance, destruction, vandalism and theft.	Same as alternative A.	Same as alternative A.	Same as alternative A.

Table 4. Summary of the alternatives and their environmental consequences for the comprehensive conservation plan for the Cokeville Meadows National Wildlife Refuge, Wyoming

<i>Alternative A</i> (current management, no action)	<i>Alternative B</i> (hydrology and habitat restoration)	<i>Alternative C</i> (resource enhancement)	<i>Alternative D</i> (landscape-level management)
Partnerships Goal —Engage in mutually beneficial partnerships to promote wildlife and habitat conservation, and public enjoyment of wildlife resources in the upper Bear River watershed that are consistent with historic land uses, refuge purposes and goals.			
Partnerships—actions			
<p>Work with our Partners for Fish and Wildlife Program, WGFD, Wyoming Landscape Conservation Initiative, Lincoln County, neighboring landowners, and others to conserve wildlife and wildlife habitat both on and off the refuge—limited, however, by the availability of resources and our lack of refuge staff.</p> <p>Work with third-party researchers to allow them to obtain information about wildlife and habitats on the refuge.</p> <p>Engage with project proponents, third-party mineral owners, local units of government, and regulatory or permitting agencies about proposed mineral developments and utility and transportation corridor projects.</p>	Same as alternative A.	Same as alternative A.	<p>Same as alternative A, plus work with State and Federal agencies and other partners to strengthen existing, and to develop new, partnerships to carry out objectives throughout the Bear River watershed in Wyoming.</p> <p>Seek partners in the private sector to establish a refuge Friends group.</p>
Partnerships—environmental consequences			
<p>Would provide resources to contain invasive species infestations and damage to property from wildfire, which would provide better conditions for habitats and wildlife.</p> <p>Would help us find wildlife use, population trends, and habitat conditions, which would allow us to manage refuge resources better.</p>	Same as alternative A.	Same as alternative A.	Same as alternative A, but expand to areas throughout the Bear River watershed in Wyoming.

Table 4. Summary of the alternatives and their environmental consequences for the comprehensive conservation plan for the Cokeville Meadows National Wildlife Refuge, Wyoming

<i>Alternative A (current management, no action)</i>	<i>Alternative B (hydrology and habitat restoration)</i>	<i>Alternative C (resource enhancement)</i>	<i>Alternative D (landscape-level management)</i>
Landscape conservation—actions			
We would not be able to take part in landscape conservation efforts. We would concentrate on habitat and wildlife conservation activities within the refuge boundary.	Same as alternative A.	Same as alternative A.	Expand existing partnerships and find new partners to support land enhancement and protection projects on and off the refuge. Coordinate with local governments and agencies to see if any private land development proposals that might affect refuge and other habitats of high value for wildlife throughout the Bear River watershed in Wyoming. Use new extension biologist to plan and carry out conservation actions to conserve wildlife across the landscape.
Landscape conservation—environmental consequences			
Would limit our ability to work with partners to keep habitat connectivity outside of the refuge.	Same as alternative A.	Same as alternative A.	More resources would be available for habitat enhancement and protection that would help wildlife and wildlife-related recreation. Enhancing and preserving wildlife migration corridors would increase the genetic exchange between wildlife populations and their access to adequate food sources, which would improve their reproductive success and survival.
Refuge Development and Operations Goal—Effectively utilize all available resources to develop, enhance, and support refuge facilities and operations for wildlife, habitat, and public use programs. We will pursue easements and other land protection opportunities with willing sellers within the approved refuge acquisition boundary.			
Staff—actions			
Refuge would be unmanned. Seedskadee Refuge Complex staff would travel to the refuge to carry out all necessary	Add one full-time, on site, wildlife refuge specialist, one full-time biological technician, one career seasonal (six month)	Same as alternative B.	Same as alternative B, plus add a full-time extension biologist.

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habitat management actions and support all infrastructure.	biological technician.		
Staff—environmental consequences			
Would not be sufficient to conduct the refuge programs and achieve its goals. Would need to rely on partners and cooperators to accomplish refuge management activities.	Would increase management capabilities within the refuge boundary.	Same as alternative B.	Same as alternative B, plus would increase management capabilities throughout the Bear River watershed in Wyoming.
Facilities—actions			
Support key operational and visitor services infrastructure.	Same as alternative A, plus create at least two safe access points and parking facilities (one on the east and one on the west side of the refuge) for refuge visitors and canoe slips and launch and take out sites for non-motorized boats. Remove most or all the refuge's water delivery system infrastructure.	Same as alternative A, plus: The staff would upgrade and support the water delivery infrastructure to better manage and optimize all refuge habitats for target species. The staff would increase the number of access points and other infrastructure (from those in alternative B) necessary to provide the public with compatible, wildlife-dependent recreational opportunities, such as: <ul style="list-style-type: none"> • A new auto tour route. • A walking trail along the Bear River. • A wildlife-observation and photography blind. • An outdoor classroom. 	Same as alternative C, plus: The staff would seek partners to work with in the design and development of an interpretive tour route and a regional birding trail in the Bear River Valley of Wyoming.
Facilities—environmental consequences			
Supported water delivery system infrastructure allows the staff to manage the wet meadows and wetlands by providing the necessary water to create conditions conducive for migratory birds and resident wildlife.	Removal of the refuge's water delivery infrastructure would subject wet meadow and wetland habitats to more cyclical water regimes mimicking those found at the refuge before the area was settled. This could potentially help native	Same as alternative A, but focusing the management actions on the needs of targeted species would allow the staff to optimize refuge habitats to help a greater variety of wildlife and plant species. Increasing the number,	Same as alternative C, but visitors to the refuge would be afforded sufficient resources and information to allow them to expand their outdoor recreational and educational opportunities to the refuge and many sites throughout the Bear River watershed in

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<i>Alternative A (current management, no action)</i>	<i>Alternative B (hydrology and habitat restoration)</i>	<i>Alternative C (resource enhancement)</i>	<i>Alternative D (landscape-level management)</i>
Maintenance of the kiosk, wildlife observation trail, headquarters, and parking lots provide means for the visitors to enjoy the refuge and obtain information and services at refuge facilities.	vegetation better compete against nonnatives. Access points and boat and canoe launch sites would increase the possibility for public enjoyment and of wildlife disturbance.	variety, and distribution of infrastructure and access points into the refuge would expand the range of possibilities for the public to enjoy the refuge's habitats and wildlife.	Wyoming.
Water rights—actions			
Assess the full breath of our water rights in coordination with our regional hydrologists and the Wyoming State Engineers Office. Divert and use, in accordance with the our adjudicated water rights and applicable laws and compacts, all the water to which we are entitled.	Same as alternative A.	Same as alternative A.	Same as alternative A.
Water rights—environmental consequences			
Incomplete understanding of the refuge's water rights may curtail our ability to manage refuge habitats more comprehensively. A full understanding and assessment of our water rights could help the refuge provide better habitats.	Same as alternative A.	Same as alternative A.	Same as alternative A.
Water management—actions			
Support habitats and protect refuge water rights. Improve delivery systems.	Reduce water management through the removal of dikes and structures.	Improve water delivery systems.	Same as alternative C, but may use refuge water rights to help in the restoration of habitats for wildlife watershed wide in Wyoming.
Water management—environmental consequences			
Improve annual maintenance and operations.	Shift work to other activities such as public use. Reduce the level of water management required on the refuge. May put water rights in jeopardy, a change of use	Would better achieve habitat management targets with greater accuracy and success, creating better habitat conditions for native plants and wildlife.	Same as alternative C, plus positive environmental effects may extend outside the refuge boundaries to the Bear River watershed in Wyoming.

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	for refuge water rights might be needed. Cyclical water regimes may help native vegetation better compete against nonnatives.	Improved habitat and wildlife would lead to better outdoor recreational experiences and greater visitation, resulting in greater expenditures on outdoor recreation gear and services as a boost to local and State economies.	
Land protection—actions			
Protect wildlife habitats within the refuge's approved acquisition boundary and buy lands in fee title or pursue conservation easements on private property from willing landowners as money and opportunities arise.	Same as alternative A.	Same as alternative A.	Same as alternative A, plus work with partners to encourage ways to protect lands and habitats of high value for wildlife, fishes, reptiles, amphibians, insects throughout the Bear River watershed in Wyoming.
Land protection—environmental consequences			
As more lands came under Service management: <ul style="list-style-type: none"> • Fragmentation of wildlife habitat would decrease, increasing wildlife habitat connectivity. • The staff could improve management efficiency. • There would be more land for the public to enjoy wildlife-dependent recreational opportunities once the refuge was opened. 	Same as alternative A.	Same as alternative A.	Same as alternative A.
Inventory, monitoring, and research—actions			
Rely on partners and other agencies to conduct limited wildlife monitoring. Gather population data on federally listed and candidate species and State species of concern on the	The biological monitoring program would be much more extensive than under alternative A. Develop a habitat management plan and an inventory and monitoring	Same as alternative B.	Same as alternative B, plus work with State and Federal agencies and other partners to find ways to extend the research and monitoring of river water quality and of wildlife and

Table 4. Summary of the alternatives and their environmental consequences for the comprehensive conservation plan for the Cokeville Meadows National Wildlife Refuge, Wyoming

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refuge as opportunities arise.	plan. Expand the invasive species monitoring partnership with Lincoln County Weed and Pest Department to include aquatic invasive species.		their habitats throughout the Bear River watershed in Wyoming.
Inventory, monitoring, and research—environmental consequences			
Lack of a more methodical and broad monitoring activities would negate the staff the most correct and timely information to help avoid adverse effects to or better address the needs of species of concern.	Development of these plans and implementation of a methodical research and monitoring program would allow the staff and its partners the possibility for better management of the refuge habitats and wildlife, and the means to better respond to and control the spread of invasive species.	Same as alternative B.	Same as alternative B, plus more data would be available about the refuge and its surrounding wildlife habitats throughout the Bear River watershed in Wyoming.
Nuisance animals and predator control—actions			
Controlling predators and nuisance animals on refuge lands in accordance with our regional guidance.	Identify nuisance animals and take steps to reduce the damage or allow others to do it, such as an agency like Animal and Plant Health Inspection Services (APHIS).	Same as alternative B.	Same as alternative B.
Nuisance animals and predator control—environmental consequences			
No adverse effect on the environment. Should help alleviate the negative perception of some in the local community have about the Service and the refuge.	Same as alternative A.	Same as alternative A.	Same as alternative A.
Socioeconomics—environmental consequences			
Visitor contributions to the local and State economies would be small, and a negative image of the refuge and the Service may continue.	Visitation and local and State revenues would increase, especially because of outdoor recreational opportunities.	Same as alternative B.	Similar to alternative B, but increased to affect the entire Bear River watershed in Wyoming.

Chapter 4—Affected Environment

This chapter describes the overall characteristics and resources of Cokeville Meadows Refuge in Wyoming, which consisting of 9,259 fee-title and conservation easement acres in the Bear River watershed.

4.1 PHYSICAL ENVIRONMENT

Cokeville Meadow Refuge is located in western Wyoming, in Lincoln County, near the Utah and Idaho borders. Cokeville Meadows Refuge is just south of the town of Cokeville, so named for nearby coal deposits. The refuge is within the Bear River watershed, which has a drainage area of about 4.8 million acres in Wyoming, Utah, and Idaho.

Climate

The climate of the Cokeville Meadows region is semiarid, midcontinental (USFWS 1992). Most precipitation that falls in the region is of Pacific origin; average annual precipitation is about 12 inches, with ranges from 9 to 18 inches annually. The area is dry most of the year. About 38 percent of precipitation occurs as rainfall from April to June. In winter, gusty winds can produce blizzards and drifting snow. The frost-free season is only 60–70 days.

Days generally are clear and sunny (about 250 days per year) and evaporation rates are high in the summer. Monthly average relative humidity ranges from 35 percent in July to about 75 percent in December. Mean monthly pan evaporation rates have a seasonal total of 31.3 inches, which is nearly three times that of annual precipitation. Temperatures are often below 0 °F in winter and can exceed 90 °F in midsummer. Annual mean temperature is 38 °F.

The combination of low precipitation, high evaporation, and high summer temperatures leads to scant free-standing surface water from summer through winter.

Climate Change

The Secretary of the Interior issued an order in January 2010 requiring U.S. Department of the Interior agencies with land management responsibilities to consider potential climate change effects as part of their long-range planning endeavors. The Department of Energy's report, "Carbon Sequestration Research and Development," concluded that ecosystem protection is important to carbon sequestration and may reduce, or prevent, the loss of carbon now stored in the terrestrial biosphere.

The increase of carbon dioxide (CO²) within the earth's atmosphere has been linked to the gradual rise in surface temperature commonly referred to as "climate change." In relation to comprehensive conservation planning for Refuge System units, carbon sequestration constitutes the primary climate-related effect to be considered in planning.

Vegetated land is a tremendous factor in carbon sequestration. Large, naturally occurring communities of green plants that occupy major habitats—grasslands, forests, wetlands, and tundra—are effective both in preventing carbon emission and in acting as biological "scrubbers" of atmospheric carbon dioxide.

One of our activities in particular—prescribed fire—releases carbon dioxide directly into the atmosphere from the biomass consumed during combustion. However, there is no net loss of carbon because new vegetation quickly germinates and sprouts to replace the burned biomass. This vegetation sequesters an approximately equal amount of carbon as was lost to the air (Dai et al. 2006).

Several other effects of climate change may need to be considered in the future, including:

- Habitat available in lakes and streams for cold-water fish such as trout and salmon could be reduced.

- Forests may change, with some plant species shifting their range northward or dying out and other plant species moving in to take their place.
- Ducks and other waterfowl could lose breeding habitat because of stronger and more frequent droughts.
- Changes in the phenology of migration and nesting could put some birds out of synchronization with the life cycles of their prey.

Land Features (topography, geology)

Cokeville Meadows Refuge is located in the Bear River Valley in southwestern Wyoming on a 20-mile stretch of the Bear River, which flows into the Great Salt Lake and is the largest river in the Western Hemisphere that flows into an inland sea. The headwaters of the Bear River are in the Uinta Mountains in northern Utah (Laabs et al. 2007). The river flows northward into southwestern Wyoming and passes near Evanston before looping back into Utah. As the river continues northward, it flows back into Wyoming just north of U.S. Highway 30 southwest of the town of Cokeville. The southern edge of the Cokeville Meadows Refuge acquisition boundary is near the site where the Bear River enters Wyoming. After leaving the northern Cokeville Meadows Refuge acquisition boundary, the river loops into Idaho and then descends southward into Utah, and flows generally south and westward near Logan, Utah, and eventually enters Bear River Migratory Bird Refuge and the Great Salt Lake west of Brigham City, Utah.

The longitudinal profile of the river is steep near its headwaters but flattens quickly as it reaches the Wyoming border near Evanston. At Cokeville Meadows Refuge, the river gradient is about 2 feet per mile. The uplands to the east of the Bear River Valley constitute the divide between the Great Salt Lake and the Green River and Colorado River watershed. The uplands to the west of the Bear River Valley form the divide between the circuitous drainage of the Bear River and the direct drainage into the Great Salt Lake.

The Bear River Valley reaches its greatest width (about 3 miles) just north of the south border of Wyoming. Then the valley narrows to less than one-quarter-mile wide at Myers Narrows, about nine miles south of Evanston, and then to less than 100 yards wide at the narrows, north of Evanston. The Bear River Valley widens again to about 2 miles at Cokeville Meadows Refuge and then narrows again just north of the town of Cokeville, Wyoming, where it is less than one-quarter-mile wide.

Southwestern Wyoming, west of the Green River Basin, is characterized by north-trending mountain ranges, ridges, and valleys that represent diverse geological formations (Veatch 1907). Collectively, the area under Cokeville Meadows Refuge includes complex folded and eastward-thrust rocks of Paleozoic, Mesozoic, and early Tertiary age overlain by slightly deformed later Tertiary and Quaternary sediments. The north-south belt of mountains and overthrust faults is known as the "Overthrust Belt" Geologic Province of western Wyoming, southeastern Idaho, and northeastern Utah (Blackstone 1977). The Overthrust Belt is part of an extensive area of folding and faulting that runs north-south from Canada to Mexico, also known as the Cordilleran Fold Belt (Ver Ploeg and DeBruin 1982). Additional detailed information on the geology of the refuge vicinity can be found in other sources such as in Lines and Glass (1975), Rubey et al. (1980), Bradley (1936), Laabs et al. (2009), Reheis (2005), Reheis et al. (2009).

The contemporary geomorphologic surfaces at Cokeville Meadows Refuge (Reheis 2005) are primarily one- to two-mile-wide Holocene alluvial deposits from the Bear River flanked by younger-age alluvial fans and low terraces. The alluvial fill exceeds 185 feet in thickness in some areas of the Bear River Valley near Cokeville Meadows (Robinove et al. 1963). Alluvial fan deposits, which extend about two-thirds up the Bear River Valley in the Cokeville Meadows region, reach a thickness of 75 feet locally. Natural levees occur next to larger perennial tributary streams and some older, partly buried or scoured, natural levees exist next to former abandoned channels of the Bear River. Other important geomorphic surfaces include active alluvial fans on the west side of the valley, older Pleistocene terraces and glacial outwash on the southeast side of the valley, Pleistocene sediment deposits, alluvium of side slopes and small intermittent streams, and older terraces and alluvial fans. Drainage within the area is through many streams and creeks that flow directly into the Bear River or by infiltration into alluvial fans and terrace deposits next to the river floodplain.

Elevations on Cokeville Meadows Refuge range from about 6,500 feet above mean sea level on the bluffs at the south end, to about 6,170 feet on the north end where the Bear River exits the refuge. Topographic heterogeneity on the refuge is related to historical Bear River channel and tributary channel migrations, minor within-floodplain channels, floodplain scouring, and alluvial deposition. Significant topographic features include the many abandoned channels of the Bear River, old alluvial and glacial terraces, and alluvial fans.

Subsurface Minerals within the Refuge Boundary

The subsurface minerals that can be found within the approved acquisition boundary of the refuge include coal, phosphate, potash, sodium, oil and gas.

Soils

Soil mapping for the Cokeville Meadows region of Lincoln County, Wyoming, is incomplete, and contemporary detailed soil maps for the refuge are not available. Soil maps from the Bear River Valley immediately upstream of Cokeville Meadows Refuge in Rich County, Utah, and a preliminary interim soil map prepared by USDA Natural Resources Conservation Service (NRCS) for the Bear River Valley in Lincoln County, Wyoming, provide general descriptions of soil types and their distribution. Clearly, about 12 major soil types or groups are present on, or next to, Cokeville Meadows Refuge. The arrangement of soils on the refuge is complex and reflects the many channel migration events across this floodplain, introduction of mixed-erosion sediments from surrounding Quaternary and Tertiary terraces, and alluvial deposition of Bear River Valley parent materials.

Most soils on the refuge are shallow, with thin veneers of loam, silt, and clay overlying deeper sands and gravels and can generally be categorized by three broad groups. The largest geomorphic soil group occupies floodplains and low terraces and is of the Calciaquoll-Cryaquoll-Riverwash Association. This group is characterized by nearly level to strongly sloping (from 0- to 15-percent slopes) soils that are generally deep, variable in texture, and derived from alluvium. Test borings and wells show that the greatest thickness of the alluvium, including thin veneers of silt loams and underlying alluvial sands and gravel, is about 150 feet thick (Robinove et al. 1963). Silts that overlay gravel typically are less than 6 feet below the surface. Wader loam is made up of most soils immediately next to the active Bear River channel and Dogiecreek sandy loam occupies natural levees along the Bear River channel. Floodplain soils that overlie former meander belts of the Bear River include Bear Lake silt loam, and Berenicteon silt loam. Abandoned channels and other meander belt depressions in the Bear River floodplain have clay or silt-clay soils overlying sands and gravels of former river channel bottoms.

The second soil group at Cokeville Meadows Refuge occurs on alluvial fans and high terraces on the edges of the Bear River floodplain. These soils are found on nearly level to moderately steep slopes (from 0- to 30-percent slopes) and are generally well drained gravelly and cobble silty and sandy loams such as Nevka loam, and Duckree gravelly loams. Alluvial fan deposits may reach a thickness of 75 feet locally.

The third group is present on the foothills of the Overthrust Belt and is of the Calciorthrid-Haploxeroll-Torriothent Association. Geologic overthrusting and the resulting mixed parent materials have produced variable soil textures and complex soil or landform relationships.

Water Resources

Described below are Cokeville Meadows Refuge's hydrology, water quality, and water rights.

Hydrology

Waterflow into the Bear River comes from regional precipitation, snowmelt, and ground water discharge. Major tributaries to the Bear River near Cokeville Meadows Refuge are the Smith's Fork River and Sublette, Twin, Spring, Brunner, Muddy, and Coral Creeks. Water in the Bear River is fresh, but shallow depressions and larger lakes in the system can be highly saline. The Bear River at Cokeville Meadows Refuge has little gradient, or fall, with the channel slope being approximately 1.5–2 feet per mile. The flat relief and low stream gradient have caused the Bear River to alter its course across the floodplain often to create many abandoned river channels and entrenched meanders. Most of the refuge acquisition boundary is within the 100-year floodplain (figures 10 and 11).

Historically, the Bear River had a strongly unimodal discharge, or river stage pattern, with peak discharges above 400 cubic feet per second (cfs) in June and relatively sustained low discharges near 100 cfs from August through February. Water from the Bear River begins to enter many off-channel oxbows and depressions at about 300 cfs, and much of the floodplain is inundated at discharges of greater than 1,000 cfs. Consequently, historical flow data suggest overbank and backwater flooding from the Bear River into the Cokeville Meadows floodplain ecosystem has typically occurred for only short time periods in late May through mid-June in most years. While of short duration, these seasonal floods recharge floodplain wetlands to their highest levels in spring. Thereafter wetlands gradually dry from evapotranspiration to low maintenance levels in the winter.

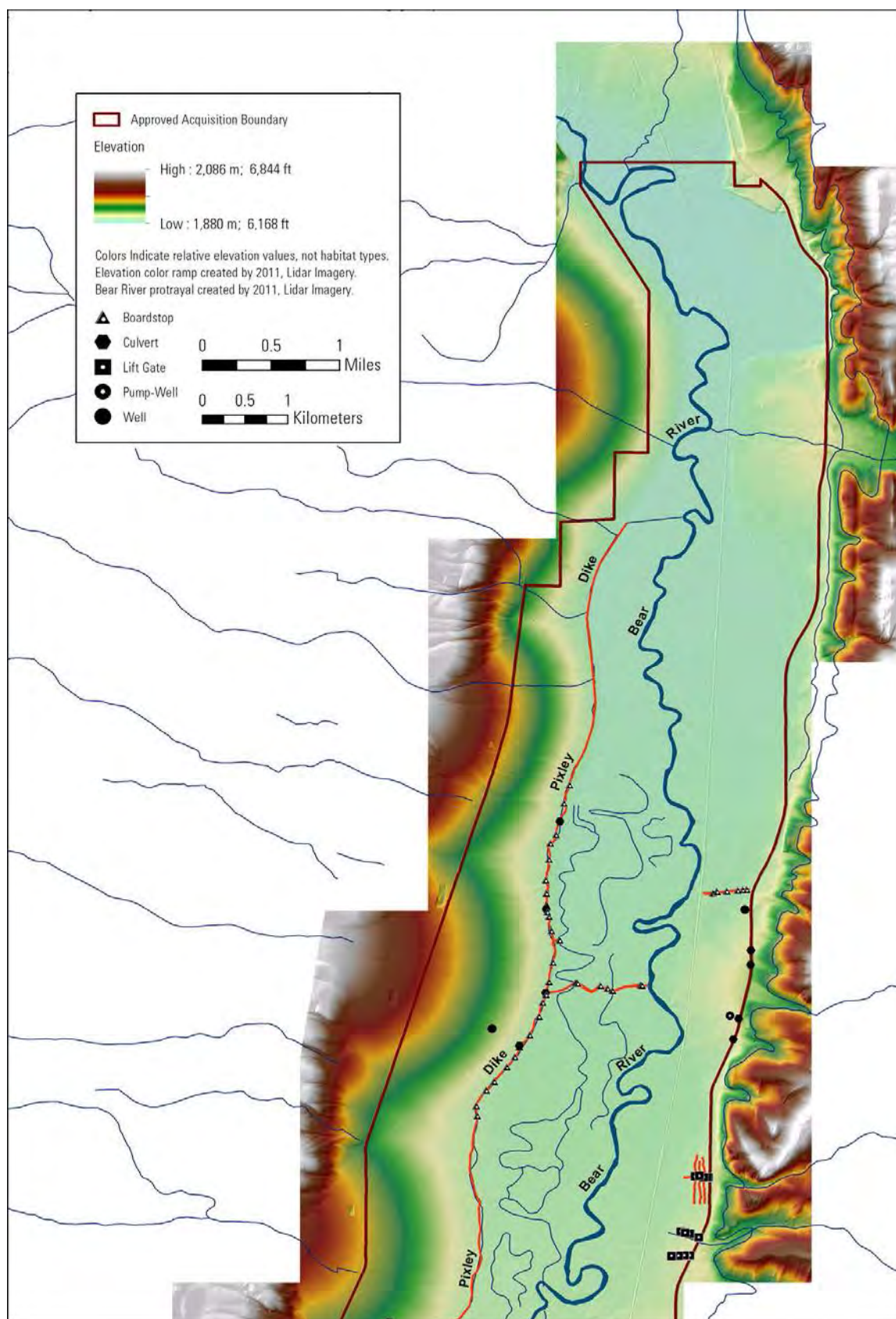


Figure 10. Light detection and ranging-generated (LIDAR) topography—with hydrology and water control structures—of the Cokeville Meadows National Wildlife Refuge, Wyoming (North).

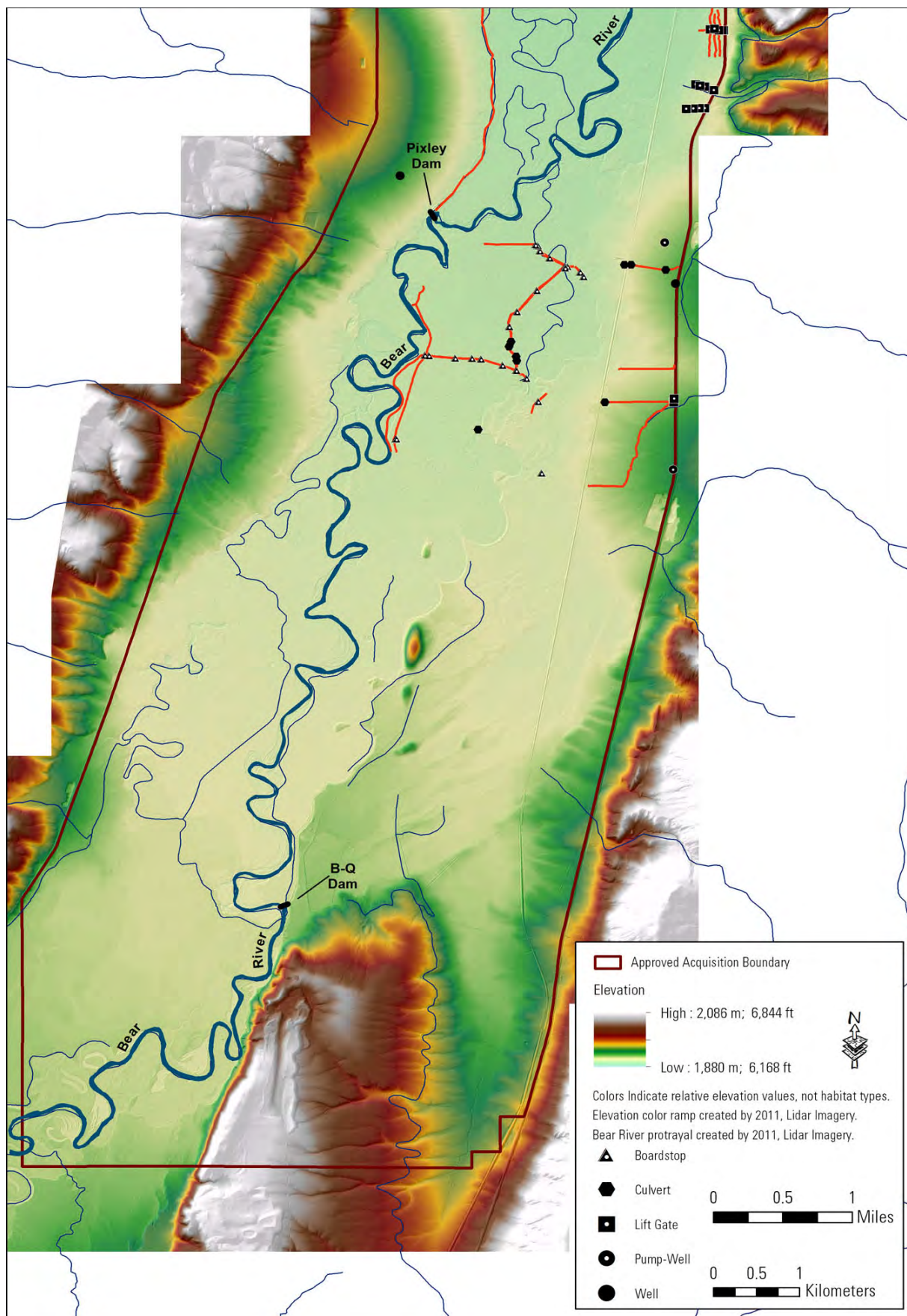


Figure 11. Light detection and ranging-generated (LIDAR) topography—with hydrology and water control structures—of the Cokeville Meadows National Wildlife Refuge, Wyoming (South).

Besides the strong seasonal pattern of river discharge, stage data from the Bear River below Pixley Dam, near Cokeville, Wyoming, show a long-term pattern of peak discharges about every 12–15 years when the river exceeds 1,500 cfs. In contrast, intervening dry years did not have river discharges greater than 500 cfs. During the 60-year period of record below Pixley Dam, the Bear River exceeded 1,500 cfs for 9 years and was below 500 cfs for 15 years. This long-term pattern of river discharge suggests a highly dynamic flooding environment for floodplain wetlands in the Cokeville region, with periodic years and extensive overbank flooding punctuating more regular moderate flows and frequent dry years (Wyoming Water Development Commission 2001).

The central division of the Bear River in Wyoming, including Cokeville Meadows Refuge, has about 500,000 acre-feet of waterflow in wet years, about 190,000 acre-feet in average years and essentially no flow in extremely dry years. In average and wet years, available waterflow occurs during the nonirrigation season (August–March) on both the Smith's Fork and Bear River mainstem channels. The long-term, alternating wet–dry pattern of waterflow into the Bear River and the related, variable annual recharge of floodplain wetlands probably caused long-term, regularly fluctuating patterns of wetness and dryness in these wetlands at about 10- to 15-year intervals.

Ground water in the refuge area is present in the Bear River Valley alluvium, alluvial fan deposits, and older geologic formations that underlie the area. The alluvial aquifer underlying the refuge is bounded laterally and vertically by relatively impermeable shale (Glover 1990). This shale layer effectively prevents ground water movement between the alluvial aquifer and other, deeper formations. The potentiometric surface of the alluvial aquifer, a hypothetical surface representing the level to which ground water would rise if not trapped in a confined aquifer, shows that water enters the aquifer as underflow from the Bear River at the upstream part of refuge and then this water discharges downstream into the Bear River (Berry 1955). A second source of water recharge into the alluvium is leakage from tributary streams. Generally, ground water levels in the alluvium mirror seasonal precipitation and Bear River discharge patterns.

Alluvial fan deposits also yield large quantities of water where they overlie the alluvium, but the amount of ground water gradually decreases away from the Bear River as the saturated thickness decreases (Berry 1955). The recharge for alluvial fans is derived mainly from infiltrations of surface runoff. Several older geologic formations that underlie the area, including the Madison limestone, Amsden Formation, Tensleep sandstone, Bear River Formation, and the Wasatch Formation, also yield moderate quantities of ground water to wells. Water from these formations is generally under artesian head and often moves to the land surface as low elevations dip from the outcrop areas of these formations. Up to 100 gallons of water per minute occur in artesian wells derived from the Madison limestone and Tensleep sandstone outcrops.

Transpiration, primarily from willows, persistent emergent wetland plants, and wet meadow grasses and sedges or rushes that obtain water directly from the water table, is a significant type of ground water discharge during the summer (Glover 1990). The amount of water that discharges as transpiration depends on the consumptive needs of various plant species and the depth to water. Transpiration is higher when the water table is high and at the land surface (such as in wetter years) and decreases as depth to water increases.

Ground water from the northern part of the Bear River Valley, including the Cokeville Meadows area, is of a calcium bicarbonate type, but constituents vary by geological source (Robinove et al. 1963). Total mineral content of alluvial ground water is 285–510 parts per million dissolved solids. Ground water seepage from the Smith's Fork River influences local ground water quality and clearly reduces local sodium and chloride levels. Generally, wells tapping alluvium up gradient and away from return flow into the Bear River have water that is lower in dissolved solids and with lower sodium and chloride content than sites close to the river channel. Terrace deposits and alluvial fans contain magnesium-calcium bicarbonate-type ground water with moderate amounts of sulfate. Deeper artesian ground water contains mixed-type water, predominantly sodium-calcium sulfate and bicarbonate types.

Water Quality

Surface water quality in the Bear River and floodplain wetlands is affected by the water's source and drainage in the area, which is underlain by Precambrian metamorphic rocks on the north slopes of the Uinta Mountains of northeastern Utah and underlain by Tertiary formations and lined by Tertiary and Cretaceous rocks in Wyoming.

Seasonal fluctuations in the discharge of the Bear River are accompanied by relatively minor changes in the total mineral content of the water; the effects of high flows in spring include mainly the dilution of major constituents.

Bear River water generally has a progressive increase in mineral content as it approaches the BQ Dam and then decreases in mineral content as it flows downstream from the BQ Dam to Cokeville, Wyoming. Part of this latter decrease in mineral content clearly is because of the dilution effect of lower mineral water entering the Bear River from the Smith's Fork River (Robinove et al. 1963).

The quality of surface waters throughout the Bear River watershed varies because of human activities and natural processes. In the central watershed, water quality is changed by excess suspended sediments, high levels of nutrients, and high water temperatures along some reaches (Bear River Watershed Information System 2007).

Nutrient and sediment loads of the Bear River progressively decrease through the central region until the river reaches the confluence with Smith's Fork (Bear River Watershed Information System 2007). Inflow from Smith's Fork increases nutrient and sediment loads in the Bear River, especially during the summer.

The upper part of the Smith's Fork has relatively good water quality. However, as this tributary travels through lower-gradient land, water quality decreases because of a variety of sources. At the confluence of Smith's Fork with the Bear River, water quality is changed by sediments. Bank erosion caused by stream widening from past channel straightening and willow removal are the main identified contributors. WFGD established the Smith's Fork Steering Committee in 2004 to attempt to reduce high sediment loads, increase bank stability, and improve wildlife habitat through best management practices, changing grazing practices, and controlling seasonal burns.

Agrichemicals pose another water quality issue. Elevated levels of phosphorus and nitrogen degrade water quality, but this issue occurs primarily downstream of the refuge and is beyond the scope of this CCP. Now, sediments are the greatest concern on the refuge and for adjacent upstream and downstream reaches of the Bear River. Sediment loads increase because of construction, grazing, and natural instream erosion. Irrigation return flows to the Bear River may also contribute to water quality issues, including nitrogen concentrations from animal wastes. Streambank stabilization and keeping livestock at controlled watering points may address the larger issues (Krueger 1994; Winward 1994).

Water Rights

The Bear River Commission was formed by compact in 1958 to allocate water use throughout the watershed. Major water uses in the Bear River watershed include agriculture, irrigation, power generation, recreation, and municipal and industrial needs. The Bear River's average annual inflow to the Great Salt Lake is nearly 1.2 million acre feet, and, with this plentiful water supply, the Bear River Basin is one of the few areas remaining in the State of Utah with a substantial amount of developable water. Water rights for the Bear River are fully allocated, but not fully developed (table 5).

Table 5. Water rights summary for Cokeville Meadows National Wildlife Refuge, Wyoming.

<i>Permit number, proof number</i>	<i>Priority date</i>	<i>Volume rate, cubic feet per second</i>	<i>Volume, gallons per minute (gpm)</i>	<i>Use</i>	<i>Irrigation acres</i>	<i>Source</i>
Permit #12453 Proof 16322	6/1/1914	1.22		Irrigation	80	Ellen Reservoir
Permit #195333 Beckwith No. 1 Enl. and Replacement	12/22/2010		2000	Irrigation	290.67	Ground water (Pending 2,000 gpm)
Permit #195332 Thornock Bros No. 1 Replacement Well	12/22/2010		2000	Irrigation	284.16	Ground water (Pending 2,000 gpm)
U.W. 42138 Cornia No. 3 Well	4/8/1977		1300	Irrigation	347.76	Ground water
Permit 9120 Proof 23297 (44A)	6/9/1909	4.97		Domestic, Irrigation	348	Smith's Fork Irrigation District
Permit 9120 Proof 20756 (15, a)	6/9/1909	0.29		Irrigation	39.76	Smith's Fork Irrigation District
Permit 9120 Proof 15155 (15, A)	6/9/1909	0.69		Irrigation, Stock	48.6	Smith's Fork Irrigation District
U.W. 15162 Corina No. 2 Well	8/14/1972		25	Domestic or Stock		Ground water
Permit 295E Proof 9993 (41, a)	5/31/1897	7.34		Domestic, Stock		Smith's Fork Irrigation District
Permit 9120 Proof 23411	6/9/1909	2.2		Irrigation, Domestic	514.66	Smith's Fork Irrigation District
Proof 4451E Tanner Supply Ditch Enl.	4/18/1925	0.38		Irrigation	27.1	Antelope Creek
U.W. 74218 Buckly No. 4 Enl. Well	11/9/1984		450	Irrigation*		Ground water (450 gallons per minute Supplemental Supply to lands under U.W. 60699)

Table 5. Water rights summary for Cokeville Meadows National Wildlife Refuge, Wyoming.

<i>Permit number, proof number</i>	<i>Priority date</i>	<i>Volume rate, cubic feet per second</i>	<i>Volume, gallons per minute (gpm)</i>	<i>Use</i>	<i>Irrigation acres</i>	<i>Source</i>
U.W. 59625 Buckly No. 3 Well	7/1/1982		25	Domestic, Stock		Ground water
						Ground water
U.W. 60689 Buckly No. 4 Well	2/8/1982		1000	Irrigation*	158.62	(Supplemental supply under 9120 and 4451E 1000GPM)
Permit 9120 Proof 23297 (Etchevery Sheep CO)	6/9/1909	0.4		Irrigation, Domestic	27.55	Smith's Fork Irrigation District
						Smith's Fork Irrigation District
Permit 9120 Proof 23412 (20A, 30)	6/9/1909	0.93		Irrigation*	65.21	(36.67 Acres irrigated by supplemental supply through Pixley)
Permit 9120 Proof 15155 (20a, 30)	6/9/1909		0.75	Irrigation, Stock	52.6	Smith's Fork Irrigation District
Permit 9120 Proof 20756 (20A, 30)	6/9/1909	1.14		Irrigation	80.45	Smith's Fork Irrigation District
Territorial Permit Proof 8617 (19, a-c)	5/31/1878	1.6		Irrigation	787	Bear River
Territorial Permit Proof 8619	12/31/1879	2.29		Irrigation	160	Bear River (Service has part of total permit)
Territorial Permit 8621 (19, a-c)	12/31/1880	0.43		Irrigation	30	Bear River (Service has part of total permit)
terr 8634 (19, a-c)	12/31/1881	2.37		Irrigation	166	Bear River (Service has part of total permit)
U.W. 57459 Thornock No. 3 Well	4/14/1981		1200	Irrigation, Stock	212.6	Ground water

Table 5. Water rights summary for Cokeville Meadows National Wildlife Refuge, Wyoming.

<i>Permit number, proof number</i>	<i>Priority date</i>	<i>Volume rate, cubic feet per second</i>	<i>Volume, gallons per minute (gpm)</i>	<i>Use</i>	<i>Irrigation acres</i>	<i>Source</i>
U.W. 73966 Thornock No. 3 Enl. Well	6/9/1982		200	Irrigation	158.62	Ground water
Permit 3264 Proof 8722	6/12/1901	1.14		Irrigation	80	Bear River
Territorial Permit Proof 8883	12/31/1881	0.28		Irrigation	20	North Lake Spring Creek
Permit 9120 Proof 16241	6/9/1909	5.49		Irrigation	384	Smith's Fork Irrigation District
Permit 9120 Proof 23412	6/9/1909	0.08		Irrigation*	5.98	Smith's Fork Irrigation District (Supplemental supply under Terr through Pixley Ditch)
Territorial Permit Proof 8918	12/18/1908	Not quantified		Stock*, Domestic*, Irrigation*		Tributary of Bear River (supplemental supply for BQ Dam East Use: S, D, I)
Territorial Permit Proof #8617	5/31/1878	0.68		Irrigation	48	Bear River (Plus Sucker Springs)
Territorial Permit Proof #8634 (44A)	12/31/1881	0.29		Irrigation	20	Bear River
U.W. 41237 Bartek No. 1 Well	7/20/1977		718	Irrigation	352	Ground water
Permit 9120 Proof #23297 (20A, 30)	6/9/1909	0.01		Irrigation*	6.91	Smith's Fork Irrigation District (Supplemental supply under Leeds Ditch 1888 Priority and 1301 Enl.
Permit 9120 Proof #20756 (44A)	6/9/1909	3.38		Irrigation, Domestic	236	Smith's Fork Irrigation District
permit 1761E Proof 8782	8/3/1907	0.08		Irrigation	6	Bear River

Table 5. Water rights summary for Cokeville Meadows National Wildlife Refuge, Wyoming.

<i>Permit number, proof number</i>	<i>Priority date</i>	<i>Volume rate, cubic feet per second</i>	<i>Volume, gallons per minute (gpm)</i>	<i>Use</i>	<i>Irrigation acres</i>	<i>Source</i>
Territorial Permit Proof #8621 (Etcheverry Sheep CO)	12/31/1880	2.35		Irrigation	165	Bear River
Territorial Permit Proof #8634 (Etcheverry Sheep CO)	12/31/1881	0.58		Irrigation	41	Bear River
Territorial Permit Proof #8622	12/31/1880	11		Irrigation	766	Bear River
U.W. 308 Etch No. 1 Well	7/24/1959		1440	Irrigation	154.25	Ground water
Permit 295E Proof 9993 (Etcheverry Sheep CO)	5/31/1887	0.37		Stock, Domestic		Smith's Fork Irrigation District
Permit 2066E Proof #14118	3/8/1909	0.4		Irrigation	28	Pine Creek
Permit 9120 Proof #23410	6/9/1909	0.01		Irrigation, Domestic	0.75	Smith's Fork Irrigation District
Permit 2065E Proof #14114	3/6/1909	0.4		Irrigation	28	Smith's Fork Irrigation District

**Title 41-3-113 Wyoming Statute for Supplemental Supply Water Rights: A supplemental supply water right is defined as a permit or certificate of appropriation for the diversion, from a stream, of water from a new source of supply for application to lands for which an appropriation of water from a primary source already exists. Such supplemental supply permits or certificates of appropriation may be allowed by the State engineer or the State board of control under such regulations or conditions as he or it may prescribe. The use and administration of presently existing rights for supplemental supply appropriations or rights for supplemental supply appropriations hereafter acquired shall hereafter be made upon the express condition that the total amount of water to be diverted at any one (1) time both under a primary appropriation of water and a supplemental supply appropriation shall not be in excess of one (1) cubic foot of water per second of time for each seventy (70) acre tract so irrigated, except that when the right to divert water under the provisions of W.S. 41-4-317 through 41-4-324, is permitted the total amount of surplus water to be diverted at any one (1) time both under a primary appropriation of water and a supplemental supply appropriation shall not be in excess of one (1) cubic foot of water per second for each seventy (70) acre tract so irrigated. Nothing herein shall be construed to apply to water stored under a reservoir permit. (Wyoming Legislative Services Office. [No date]).*

Air Quality

Air quality problems in Wyoming are usually related to urban areas in mountain valleys or to river valleys that are sensitive to temperature inversions. Particulate matter and carbon monoxide have the greatest adverse change in

Wyoming's air quality. Particulate matter is a measure of tiny liquid or solid particles in the air that may be breathed into the lungs. In the area of the refuge, carbon from automobiles, including all-terrain vehicles and snowmobiles, and diesel engines; soot from slash burning, forest fires, fireplaces, and wood stoves; and dust associated with windblown sand and dirt from roadways and fields may all contribute to particulate matter. The major sources of particulate matter are dust from vehicles traveling on unpaved roads and forest fire smoke.

The refuge is in a designated Class I air quality area as defined under the Clean Air Act of 1977. Air quality here is considered good, with no nearby manufacturing sites or major air pollution sources. Throughout the year, occasional widespread regional smoke from large-scale forest fires located to the west and annual agricultural burning that occurs in Idaho reduce visibility at the refuge. The small particles and aerosols resulting from these fires are carried long distances in the air and cause haze.

4.2 BIOLOGICAL RESOURCES

The wide range of altitudes in the Bear River watershed allows for diverse habitats. Grasslands and shrublands dominate the flats and lowlands, while pinion-juniper woodlands and pine forests are found on higher slopes. Big sagebrush is common on much of the landscape, although other shrubs, such as rabbitbrush, saltbush, and greasewood, may dominate some areas. Lower elevations are mostly private land, with most of the pasturelands in the wide valleys used for agriculture and grazing. Bear River water is used extensively to irrigate alfalfa, pastureland, and small grain crops.

The Bear River provides important wildlife corridors for species migration in the western United States. The small, pristine mountain streams in the forested headwaters are ideal breeding habitat for the Bonneville cutthroat trout and leatherside chub, important native species. Many species, such as elk, black bear, pika, and marmots use these high-elevation forests and snow-covered mountain slopes.

In the course of its 500-mile journey, the Bear River passes through three national wildlife refuges: Cokeville Meadows Refuge, Bear Lake Refuge, and Bear River Migratory Bird Refuge. The primary routes of migratory birds following the Pacific and central flyways combine in the Bear River watershed. The refuges and adjacent areas provide essential habitat for many species of waterfowl and wading, shore, and upland birds that migrate through on their way to and from Canadian and Alaskan interior and coastal wetlands.

More than 200 bird species have been documented within the watershed, with half of them closely associated with wetlands. Many marsh and shorebirds, including white-faced ibis, snowy egret, long-billed curlew, black tern, great blue heron, American bittern, black-crowned night-heron, trumpeter swan, and sandhill crane, along with upland birds, such as the greater sage-grouse and Columbian sharp-tailed grouse, can be found throughout the watershed.

Besides bird species, several mammals are dependent on the blocks of intact habitat and the key migration linkages between these areas. Elk, mule deer, moose, and pronghorn depend on key wintering areas and migration corridors throughout the watershed.

This section describes the specific wet meadows, uplands, riparian and river habitats (figure 12) and wildlife found on the refuge.

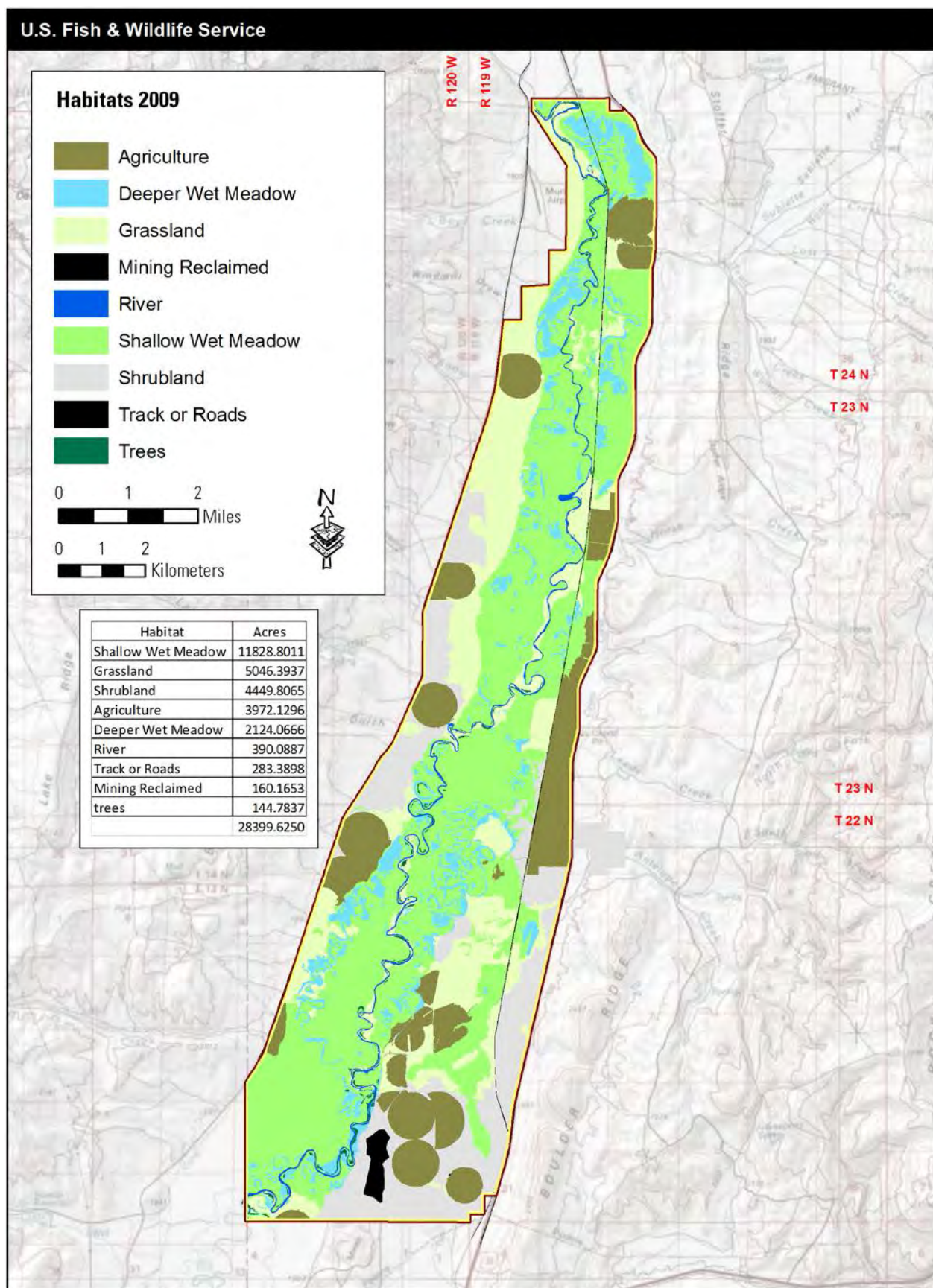


Figure 12. Existing habitats within the approved acquisition boundary of the Cokeville Meadows National Wildlife Refuge, Wyoming.

Wet Meadow Habitat

Wet meadows include a variety of wetlands, which are defined as lands where soil is saturated by water at least periodically or is covered by water (Cowardin et al. 1979). The degree of saturation decides the types of plants and animals that may live in the soil or on the surface. Furthermore, wetlands may be considered to be transitional areas between aquatic habitats and dry upland habitats.

Several types of wetlands occur on Cokeville Meadows Refuge: (1) saline meadow; (2) wet meadow, consisting of native or tame grasses; (3) tall emergent wetland; and (4) open water, including managed impoundments that have shallow standing water for most of the growing season, small stock ponds, and irrigation canals.

Saline Meadow

Because of the geologic origins of some soils, when they are saturated with water salts tend to percolate to the surface. Only salt-tolerant plants may survive in saturated saline or alkali soils. Saline meadows are dominated by salt grass, greasewood, alkali sacaton, alkali cordgrass, and other salt-tolerant species.

Wet Meadow

Wet meadows may have shallow standing water of less than 6 inches dominated by meadow foxtail (Garrison grass is a cultivar), wire rush, and sedges.

Tall Emergent Wetland

Tall emergent wetlands occur during the primary growing season from late spring through summer and always have shallow standing water of less than 12 inches dominated by hardstem bulrush and cattails.

Open Water

Open water plant communities include rooted, submerged aquatic plants such as pondweed and floating plants such as duckweed.

Typically, wetlands support hydrophytes (water-loving plants) and hydric soils and hold water for most of the growing season (Cowardin et al. 1979). In predominantly arid southwestern Wyoming, water is a limiting factor for many species, and is highly attractive for most species. For many species, both plant and animal, the availability of unbound water is essential. Below are listed the obligate emergent wetland and wet meadow bird species.

Obligate emergent wetland bird species:

- trumpeter swan
- Canada goose
- redhead
- greater sandhill crane
- white-faced ibis
- Forster's tern
- black tern
- common yellowthroat (warbler)

Obligate wet meadow bird species:

- American bittern
- sora (rail)

White-tailed deer, elk, striped skunks, deer mice, meadow voles, muskrats, northern leopard frogs, and wandering garter snakes are among the more common nonbird wildlife species found on the refuge's wet meadow and wetland habitats.

Results of the refuge's HGM study show that human-caused changes in the local hydrology have altered the nature of the wet meadow habitats of the refuge. Since refuge establishment, we have continued to flood wet meadows every year in a way similar to that used by the pioneer farmers and ranchers who developed the valley's irrigation system in the early 20th century. Thus, the natural pulses of flooding and drying and drought cycles have been removed from the wet meadows for over 100 years. Our irrigation practices and those of earlier landowners resulted in extended hydroperiods. The meadows are flooded longer and deeper than they were under the natural conditions.

While the economic use of these lands for haying and grazing has resulted in excellent habitat for a variety of migratory birds and other wildlife, it has also resulted in negative changes, including loss of native vegetation types and habitat diversity. Much of the meadows are covered with a near monoculture of creeping meadow foxtail (*Alopecurus arundinaceus*). As a result, native sedge, rush, and bulrush communities have declined.

Upland Habitat

Sagebrush-dominated habitats form one of the largest ecosystems in North America (Gleason and Cronquist 1964; Trimble 1999). Sagebrush or shrub-steppe habitats are bounded on the west by the Sierra Nevada and the Cascade Range and on the east by the Rocky Mountains and the Colorado Plateau. These habitats run as far north as the Okanagan Valley, British Columbia, and south to almost the Grand Canyon and the Colorado River. These habitats are dominant in Utah, Nevada, western Colorado, southwestern Wyoming, southern Idaho, eastern California, Oregon, and Washington.

Three major characteristics generally describe shrub-steppe habitats: (1) the great expanse in area occupied contiguously by a single plant or structural type; (2) the sharpness of the boundary, or ecotone, between adjacent habitat types; and (3) the occurrence of a single dominant species, like sagebrush, or, alternatively, the occurrence of few codominant species (Gleason and Cronquist 1964; Trimble 1999).

In the western States, shrub-steppe has been seriously degraded or completely removed through agricultural conversion, overgrazing by domestic livestock, invasion by exotic plants, expansion of pinion-juniper (*Pinus* spp.–*Juniperus* spp.), uncharacteristic wildfires, and habitat fragmentation. In fact, the changes that occurred since the advent of Euro-Americans in the early 1800s were so rapid that little is known of the original landscape.

Wildlife associated with shrub-steppe habitats may also be characterized by a limited number of species (Paige and Ritter 1999; Nicholoff 2003) and some of these are experiencing population declines. The sagebrush-obligate greater sage-grouse is of significant conservation concern throughout its range. The species is a candidate for listing under the Endangered Species Act and efforts to restore shrub-steppe habitat and grouse numbers are now the focus of multiple Federal and State agencies throughout the western States and Provinces. Other obligate birds of shrub-steppe habitats, including many long-distance migrants, (Rich et al. 2005) have also shown significant population declines in recent years, including the sage thrasher, Brewer's sparrow, and sage sparrow.

Other species are considered shrub-steppe obligates part of the time, as they are found in habitats such as grasslands. Many of these species are also declining in population, including the short-eared owl and the vesper sparrow. Even the widely distributed Western meadowlark has shown declines in recent years. Below are listed the obligate and semiobligate grassland and shrub-steppe nesting bird species occurring at Cokeville Meadows Refuge.

Obligate grassland community bird species:

- short-eared owl
- mountain plover
- horned lark
- western meadowlark

Obligate sagebrush–steppe (Sagebrush-dominated) community bird species:

- greater sage-grouse
- sage thrasher
- Brewer’s sparrow
- sage sparrow

Semiobligate sagebrush–steppe (Sagebrush-dominated) community bird species:

- ferruginous hawk
- golden eagle
- prairie falcon
- mourning dove
- western burrowing owl
- common nighthawk
- Brewer’s blackbird

Pronghorn, mule deer, western jumping mice, Wyoming ground squirrels, black-tailed jackrabbit, desert cottontails, coyotes, northern sagebrush lizards, and Great Basin gopher snakes are among the more common nonbird wildlife species found on the refuge’s uplands habitat.

Riparian and River Habitats

Riparian habitats compose less than 1 percent of the total area of the Wyoming Basin (14,552,900 ha), and are important to regional biological diversity. Riparian zones can vary considerably in size and plant composition because of the many combinations that can be created between water resources and the physical characteristics of a site. Such characteristics include gradient, aspect, topography, soil types, water quality, timing and period of water availability, elevation, and plant community.

Riparian Corridors

Several characteristics set the Bear River riparian corridor apart from its surrounding shrub–steppe habitat: (1) well-defined moist-soil or wet habitat type boundary, typically linear and parallel with the river; (2) small size relative to the overall valley; (3) greater productivity in terms of biomass, both plant and wildlife, than the surrounding uplands; and (4) production of an essential source of biodiversity within the surrounding uplands. Riparian habitats are essential for many native wildlife species, especially migratory birds (Nicholoff 2003).

Riparian habitats are generally less resistant to human disturbances than other habitat types. They are also sensitive to channel incision (Germanoski and Miller 2004). Below are listed the obligate riparian corridor bird species occurring at Cokeville Meadows Refuge.

Obligate riparian corridor bird species:

- western wood peewee
- yellow warbler
- common yellowthroat
- willow flycatcher
- song sparrow

Semiobligate riparian corridor bird species:

- yellow-billed cuckoo
- MacGillivray's warbler
- black-billed cuckoo

Raccoons, red foxes, moose, long-tailed weasels, North American porcupines, American beavers, Valley garter snakes, and tiger salamanders are among the more common non-bird wildlife species found on the refuge's riparian habitat.

Wetland Conditions

Wetland acreages in Wyoming have declined in recent years because of agricultural conversion and urbanization (figure 13). Agricultural diversions, initially developed to remove soil salts and increase hay meadow production, have enhanced some wetlands along the central Bear River Basin. The Bear River wetlands are one of the most productive and diverse bird habitats in Wyoming (USGS 1996).

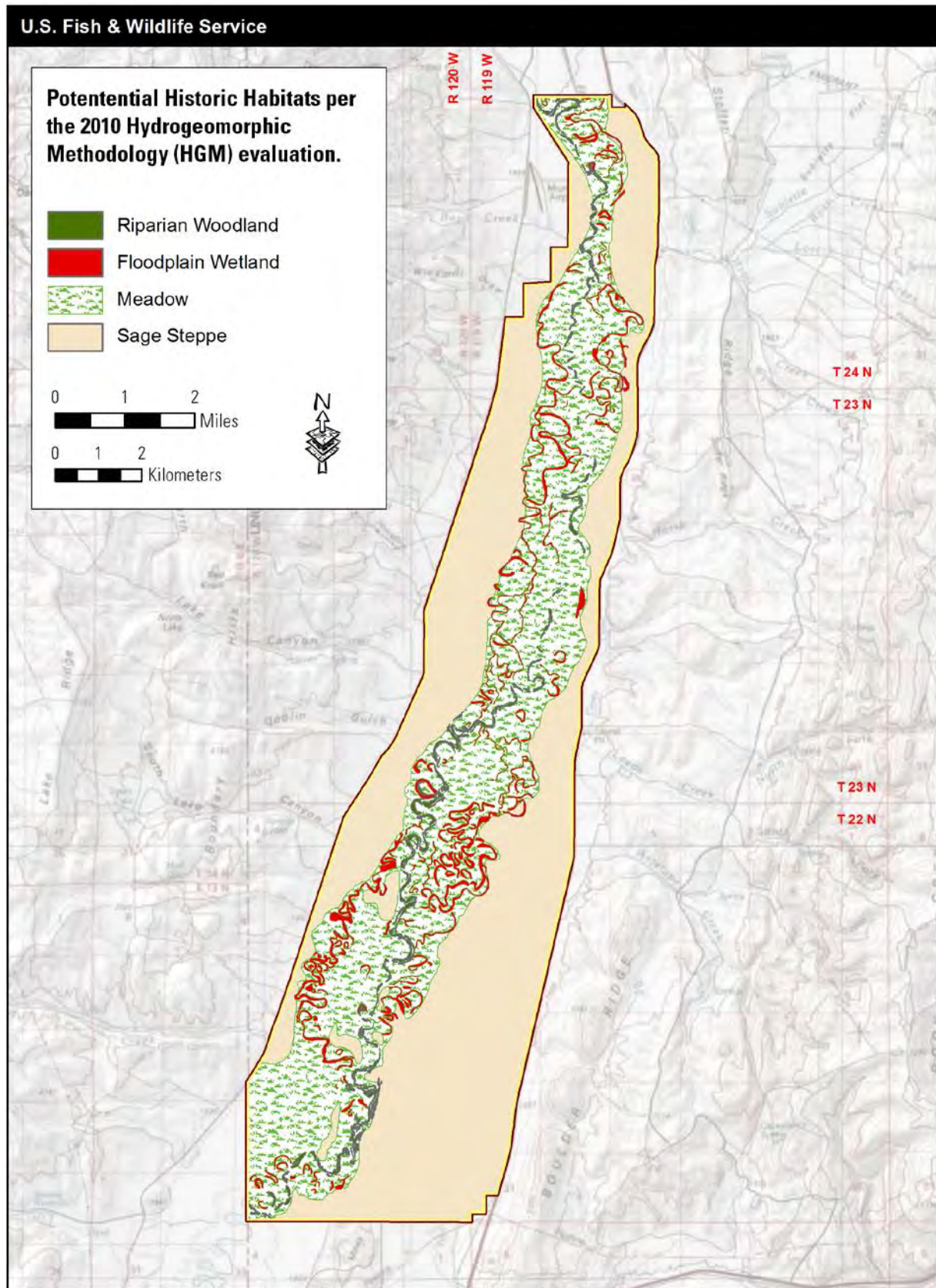


Figure 13. Potential historical habitats per the 2010 hydrogeomorphic method evaluation of the Cokeville Meadows National Wildlife Refuge, Wyoming.

However, since the establishment of Cokeville Meadows Refuge in 1993, subtle changes in land use have occurred. There has been a shift from gravity flow flood irrigation of fields to mechanical pump-driven sprinklers, which has dropped the water table in the Bear River floodplain. A lack of proactive wildlife management actions has affected vegetation types, and conveyance systems deteriorated, which affected wildlife use of the area. The initial refuge focal species, particularly Canada geese, redhead, canvasback, white-faced ibis, American bittern, and terns now range farther and nest in more favorable habitats. Field studies are ongoing, but preliminary results show that American bittern and cinnamon teal numbers have increased substantially since 1993. Nesting pairs of Canada goose, redhead, white-faced ibis, and terns have declined on the refuge, but they nest on adjacent lands and into Utah.

The Thomas Fork and Smith's Fork, tributaries to the Bear River, and the Bear River reach between these provides ideal habitat for the Bonneville cutthroat trout (Behnke 1992, Baxter and Stone 1995). The most genetically pure strain of Bonneville cutthroat trout within its ranges is found here. The Bear River links these tributary populations, resulting in what is likely the last connected large river habitat available to Bonneville cutthroat trout. Habitat loss, migration barriers, and proposed reservoir development on Smith's Fork threaten the native Bonneville cutthroat populations in the central watershed of the Bear River Basin.

Trout Unlimited is involved in supporting and restoring migration corridors for the fish in Thomas Fork and Smith's Fork, and WGFD completed fishery habitat improvements on the headwaters of Thomas Fork as part of the Bonneville Cutthroat Trout Conservation Strategy (Bear Lake Regional Commission 2000, Trout Unlimited 2005).

Besides Bonneville cutthroat trout, several native nongame fish of conservation concern also inhabit the Bear River and its tributaries. These include bluehead sucker, western silvery minnow, and the finescale dace.

There are a large number of carp in the river. When water is diverted into the wet meadows, carp make their way there as well. Carp can swim in the meadows where there is as little as 3 to 4 inches of water. Carp affect native species of fish and are not desirable on the refuge; however, there are not any well-known ways to control this population. Requests to allow a limited number of people to harvest carp with archery equipment have been made. Some feel it would be a good recreational opportunity on the refuge. The only concern about this method of carp removal is that may disturb nesting birds in the spring. By limiting this activity to designated areas on the river and following WGFD fishing regulations for nongame fish species, it would be allowed under the refuge fishing program.

Haying, Grazing, and Prescribed Fire

Haying and rotational grazing of refuge habitats is conducted in the summer and fall of every year. Past management techniques and, possibly, herbicide spraying, have degraded some key areas and habitat types, particularly woody riparian communities.

Prescribed fire has not yet been used on the refuge. If it were allowed, however, it would be a new tool in the habitat management toolbox and not a replacement of other treatment options.

Threatened and Endangered Species

No federally listed threatened or endangered species are known to occur at Cokeville Meadows Refuge. However, one listed plant may occur in the area and several candidate species occur, or may occur, that warrant our attention.

Ute Ladies'-tresses Orchid

Ute ladies'-tresses orchid is federally listed as a threatened species under the ESA.

Cokeville Meadows Refuge lies within the range of the Ute ladies'-tresses orchid. This is a perennial orchid, 8- to 20-inches tall, with white or ivory flowers clustered into a spike arrangement at the top of the stem. This orchid normally blooms from late July through August. However, it may bloom in early July or still be in flower as late as early October, depending on climatic conditions. It is endemic to moist soils near wetland meadows, springs, lakes, and perennial streams where it colonizes early successional point bars or sandy edges. The elevation range of known occurrences is 4,200 to 7,000 feet, although no known populations in Wyoming occur above 5,500 feet. Soils in which this orchid has been found typically range from fine silt or sand to gravels and cobbles, as well as highly organic and peaty soil types. It is not found in heavy or tight clay soils or in extremely saline or alkaline soils. Ute ladies'-tresses typically occurs in small, scattered groups found primarily in areas where vegetation is relatively open.

Because this orchid species appears to take 5 to 10 years to reach reproductive maturity and reproductively mature plants do not flower every year and because the refuge has not been specifically surveyed for its presence, it is unknown if this species exists within the boundary of the refuge.

Yellow-billed Cuckoo

Yellow-billed Cuckoo is a candidate for Federal listing.

The distinct population segment of the yellow-billed cuckoo west of the Continental Divide is a candidate for listing under the Act (66 FR 143, 25 July 2001). In Wyoming, the yellow-billed cuckoo is dependent on large areas of woody, riparian vegetation that combine a dense shrubby understory for nesting and a cottonwood overstory for foraging. Destruction, degradation, and fragmentation of wooded, riparian habitats are continuing threats to yellow-billed cuckoos in Wyoming. Additionally, project actions to control outbreaks of caterpillars, cicadas, or grasshoppers and the general use of insecticides in, or next to, riparian areas may negatively affect yellow-billed cuckoos. Surveys to find the presence of yellow-billed cuckoos are difficult because of the secretive nature of the species and the variability in the timing of nesting.

No birds have been sighted or documented to date on the refuge.

Greater Sage-grouse

Greater Sage-grouse is a candidate for Federal listing.

Greater sage-grouse are dependent on sagebrush habitats year-round. Habitat loss and degradation, as well as the loss of population connectivity have been identified as important factors contributing to the decline of greater sage-grouse populations across its range.

This species has been documented in upland sites next to the refuge's boundary, and there are historical records of this species using lands within the refuge's acquisition boundary.

The State of Wyoming has adopted a "Greater Sage-grouse Core Area Protection" strategy to enhance conservation of the greater sage-grouse. The recommendations of the State Sage-grouse Implementation Team and State of Wyoming's Core Area Protection strategy state that development of any type in the identified core areas can be done only when it can be proved that there will be no decline to the species.

Gray Wolf

Gray wolf is a species of concern in Wyoming and is federally listed under the ESA in other states.

In Wyoming, gray wolves are no longer included on the Federal List of Endangered and Threatened Wildlife (50 CFR 17.11) and are no longer listed as a nonessential experimental population under the Act (77 FR 55530; September 10, 2012). The gray wolf in Wyoming is now managed by the State under the Wyoming Gray Wolf Management plan. This management plan strives to support a gray wolf population in Wyoming of at least 150 individual wolves and 15 breeding pairs (at least 100 individuals and 10 breeding pairs outside of Yellowstone National Park and the Wind River Indian Reservation).

Section 4(g)(1) of the ESA requires us to monitor for at least 5 years, in cooperation with the States, the status of all recovered species that have subsequently been removed from the Federal List of Endangered and Threatened Wildlife. The primary goal of post-delisting monitoring is to make sure that the status of the recovered species does not deteriorate. If an unanticipated decline were detected, measures would be taken to halt it to avoid the need to relist the species as threatened or endangered.

Gray wolves follow the seasonal movements of big game populations and may occur in large ungulate migration, wintering, or birthing areas. While some project activities can affect gray wolves directly, changes to big game populations or herd movements can also affect the distribution, abundance, and survival of gray wolves.

Pygmy Rabbit

Pygmy rabbit is a species of concern.

The pygmy rabbit is the smallest member of the rabbit family, and it occurs in portions of many western states, including southwestern Wyoming. Pygmy rabbits are sagebrush-obligate species that are primarily found in areas with deep soils that support dense big sagebrush communities, often where other species of sagebrush and forbs also occur. The conversion of sagebrush grasslands, habitat fragmentation, fire, invasive plants, and overgrazing are considered potential threats to pygmy rabbits.

Planning measures that keep large tracts of suitable habitat and corridors to adjacent habitat will aid in the conservation of this species. In January of 2008, we started a status review to find out whether this species warrants listing under the ESA.

Mountain Plover

Mountain plover is a species of concern.

The mountain plover is a migratory, terrestrial shorebird averaging 8 inches (21 centimeters) in body length. Mountain plovers are light brown above and white below, but lack the contrasting band characteristic of other plovers. They feed on invertebrates, primarily beetles, crickets, and ants. These plovers arrive at their breeding grounds in the western Great Plains and Rocky Mountain States in the spring. Southbound migration is prolonged, starting in late June and continuing through October.

Suitable habitat for nesting mountain plovers includes grasslands, mixed-grassland areas and short-grass prairie, shrub-steppe, plains, alkali flats, agricultural lands, cultivated lands, sod farms, and prairie dog towns.

White-tailed Prairie Dog

The white-tailed prairie dog is approximately 13- to 15-inches long and weighs 1 to 3 pounds. It is a small, stout rodent within the squirrel family. White-tailed prairie dogs have a short, white-tipped tail, large eyes, a blackish-brown cheek patch above and below each eye, and a tan-brown pelt. They typically inhabit moderately sloped grasslands, desert grasslands, and shrublands at altitudes ranging from 5,500 to 9,800 feet. While this rodent occurs over much of its historical range, colonies are more widely dispersed and population sizes have declined. This species inhabits areas across western and central Wyoming, northwest Colorado, northeastern Utah, and a small area in south-central Montana. Wyoming holds most of its range.

Prairie dogs serve as the primary prey species for the black-footed ferret and several raptors, including the golden eagle and ferruginous hawk. Prairie dog colonies and burrows also provide shelter or nest sites for species like the mountain plover and the burrowing owl. In May of 2008, we started a status review to find out whether this species warrants listing under the ESA.

Species of Concern

Besides species that are federally listed for protection under the Endangered Species Act, there are others that are of special concern because of the threats they face and because they may fit one of the following categories:

- They are now or have recently been under review to find out whether they may warrant listing under the Endangered Species Act in the future.
- They were recently delisted and there is still need for some protection to ensure the species continued recovery.
- They are protected under Federal laws and warrant more attention.

They are species that are considered likely to become candidates or proposed for listing in the near future and for which we have entered into conservation agreements.

- Effective planning now can help ensure the long-term conservation of these species and remove threats that may contribute to the future need for listing under the Endangered Species Act.

The WGFD's wildlife action plan entitled "A Comprehensive Wildlife Conservation Strategy for Wyoming" provides a long-range conservation plan to conserve Wyoming's "Species of Greatest Conservation Need". The following are Species of Greatest Conservation Need for the area of Cokeville Meadows Refuge:

- Bonneville cutthroat trout
- bluehead sucker
- leatherside chub
- mountain sucker

All of these species are identified as endemic aquatic species of the Bear River watershed in Wyoming. Among the threats faced by these four aquatic species are changes in the quantity and quality of the river waters in which they dwell because of pollution and increased sedimentation and temperatures; diseases like whirling disease; stream channel modifications such as dredging, impoundments, channelization, erosion, tree and shade removal; competition from aggressive, nonnative species; and hybridization with nonnative species, which makes them less resilient.

Invasive Species

Invasive plants found on the refuge include creeping meadow foxtail. Invasive aquatic species include zebra and quagga mussels and carp.

Wildlife Disease, Crop Depredation, and Private Property Damage

The primary wildlife disease concern on the refuge involves the potential for brucella transmission to cattle when they commingle with elk. Depredation concerns relate to damage to small grain crops by waterfowl and other

migratory birds. In recent years, we have worked with permittees to plant a small grain crop on the refuge to help offset depredation and damage on nearby private lands.

4.3 VISITOR SERVICES, HUMAN HISTORY, AND CULTURAL RESOURCES

This section details the various services provided to visitors at Cokeville Meadows Refuge and describes its human history and cultural resources.

Public Access

Since establishment, Cokeville Meadows Refuge has been closed to public access. In 2006, the refuge constructed a visitor contact station, an information kiosk, and a walking trail at the Netherly Slough along U.S. Highway 30 for public use. Environmental education, interpretation, wildlife observation, and photography are compatible uses that are allowed at this site on the refuge. No other public uses are authorized without a special use permit.

Private land issues affect access, which is allowed by vehicle only with a special use permit and which is not allowed via river boat.

Over the years, there has been considerable pressure to allow greater public use; however, because of the lack of money, staff and the ability to manage public use activities, the refuge has remained closed.

Visitor Safety

The refuge acquisition boundary is bisected from north to south by the Union Pacific Railroad. Several tracts owned by the refuge are within this area. Thus, access to portions of the refuge requires crossing the railroad, which poses a danger.

Because access is limited, there have been minimal concerns about visitor safety.

River Boating

River boating is not now allowed on the Bear River within the refuge acquisition boundary.

Hunting

We completed a hunting plan and EA in January 2012 to open designated portions of Cokeville Meadows Refuge to big game, upland game, and migratory bird hunting. The hunt plan package was submitted to our headquarters, and we anticipate the refuge will be open to hunting for the first time in the fall of 2013.

Shed Antler Hunting

Shed antler collecting is not considered a wildlife-dependent recreational activity. Rather, it is considered an economic activity. All economic activities that take place on national wildlife refuges must pass an appropriateness test to be allowed on a national wildlife refuge and then must be found compatible. In addition, before an economic use can be allowed on a refuge, it must be found that the use contributes to the achievement of refuge purposes, or the mission of the Refuge System. We have conducted an appropriateness test (appendix G) for shed antler hunting and found it to be inappropriate at the Cokeville Meadows Refuge.

The State of Wyoming has adopted shed antler hunting regulations that prohibit the hunting or collection of shed antlers between January 1 and April 30. This regulation allows shed antler hunting to start at the beginning of the migratory bird nesting season. Since Cokeville Meadows Refuge was established for the protection of migratory birds and their habitats, allowing antler collectors on the refuge to conduct this activity would pose unwanted disturbance to the migratory birds. By the time most elk and deer have shed their antlers, they have moved off the refuge to the east and onto BLM lands. There is more opportunity on those lands to collect antlers than on the refuge. Thus, shed antler collecting is not an appropriate use of Cokeville Meadows Refuge, and it is not compatible with the refuge's purposes or with the Refuge System mission.

Fishing

Cokeville Meadows Refuge has not yet been opened to the public for recreational fishing, though it may be opened for fishing in the future. A stepdown Fishing Plan will be prepared to open portions of the Bear River to fishing opportunities, in accordance with WGFD fishing regulations. It is anticipated that WGFD staff will help to enforce activities and guide the public on refuge lands. Where the potential exists and when there is enough support, the refuge will engage partners to find sites and to develop adequate public access for sportfishing.

Trapping

Cokeville Meadows Refuge does not have an authorized trapping program. Limited furbearer trapping may be authorized in the future in conjunction with the WGFD-coordinated trapping permit program. Any trapping program will be by special permit only. Furbearers and predator species available for regulated taking by trapping would be beaver, mink, muskrat, bobcat, red fox, badger, weasel, skunk and raccoon.

Wildlife Observation and Photography

Wildlife observation and photography are only allowed at the public use facilities located at the Netherly Slough, though we may seek to open more of the refuge to these uses in the future. We will also work with partners to seek out areas where facilities and opportunities can be enhanced to improve these activities on the refuge.

Environmental Education and Interpretation

Environmental education and guided interpretation are provided by refuge staff, volunteers, or partners on request and when resources allow. Staff-lead programs are limited. We would like to add self-guided interpretive opportunities.

Public Information

Public information is available at the refuge office and at the Seedskaadee National Wildlife Refuge Complex headquarters and Web site, by way of the Cokeville Meadows Refuge link. The refuge does not now have a general information brochure. We would like to expand the public information program at Cokeville Meadows Refuge to include the development of brochures and leaflets.

Human History and Cultural Resources

This section describes the human history and cultural resources found at Cokeville Meadows Refuge.

Prehistoric Era

Current archaeological evidence shows that the earliest human inhabitants of the area, referred to as paleo-Indians, migrated to the region near the close of the last ice age approximately 12,000 years ago. These people had a highly mobile lifestyle that depended on the hunting of large animals, including mammoths and huge, now-extinct bison species. The hallmarks of most paleo-Indian sites are the beautiful, but deadly, spear points that are recovered from animal kill and butchering sites, small temporary camps, or isolated occurrences.

There was a gradual, but definite, shift in the pattern of human use of the region beginning about 8,500 years ago that continued until approximately 1,800 years ago. The changes during this period, referred to as the Archaic Period, were the result of a combination of a growing population, technological innovation, and regional influences. Regional climatic changes also had a strong influence.

It is clear that the environmental conditions of early portions of the Archaic Period were affected by an Altithermal Climatic Period, characterized by a hotter, dryer climate that negatively affected human populations (James Enterprises, Incorporated 2003). The Altithermal was supplanted by the cool and wet Neoglacial Climatic Period during later portions of the Archaic Period (Johnson and Pastor 2003). As these environmental changes affected floral and faunal communities, cultures adjusted settlement and subsistence strategies accordingly (James Enterprises, Incorporated 2003).

The Archaic Period is better represented in the archaeological record than the preceding Paleo-Indian Period with a greater variety of tools and the evidence of a larger variety of plant and animal use found on many of the sites from that time. Houses built in shallow depressions (pit houses), generally smaller spear points, ground stone that reflects food processing, a wide variety of animal remains, a diverse tool assemblage, and multiple fire features are all often found on Archaic Period sites.

The Late Prehistoric Period began approximately 1,800 years ago and ended 250–300 years ago when European influences began to alter Native American cultures. The development of the bow and arrow, advancements in ceramic production, influences from neighboring regions, and a variety of features are hallmarks of sites dating to this period. Although population increases during this time are reflected in the increased number of sites, people continued to move about the landscape in small groups between periods of more sedentary lifestyles.

Between Anno Domini 1700 and 1750, the beginning of the Protohistoric Period, Europeans and their material culture began to have a significant influence on the native populations. By the early 1700s, horses were introduced to the region, and, over the next several decades, trade and settlement increased at a steady and sometimes accelerated rate. The Shoshone were the dominant Late Prehistoric Period and Protohistoric Period Native Americans in the region. Other Native American tribes, including the Crow, Ute, Comanche, Salish, Arapahoe, Cheyenne, Sioux, and the Gros Ventre, also inhabited, or passed through, southwestern Wyoming (Backer 2001, Thompson and Pastor 1995). By the beginning of the Historic Era, the Eastern Shoshone Tribe and the closely allied Northern Shoshone-Bannock Tribe inhabited the area, at which time it was less frequently used by the Ute, Arapahoe and Cheyenne tribes.

Historic Era

The Historic Era of the Cokeville Meadows Refuge region began in the early 1800s and continued through World War II. Some of the first people of European descent in the region were the diverse and independent early trappers and explores often referred to as mountain men. The height of mountain men activity in southwestern Wyoming encompasses the years from about 1810 to 1840 and was closely aligned with the rise and fall of the beaver skin trade networks. Several of their rendezvous—large gatherings of Mountain Men and Native Americans for beaver skin trade and exchange of various other goods—were held in the area, and many of the transportation routes used in later decades were explored and charted during this time.

Many transportation corridors crossed through the Cokeville Meadows Refuge area. Four major trail systems, the Oregon trail, the Mormon trail, the Overland trail, and the Emigrant trail, carried hundreds of thousands of people as they traveled west seeking new homes or fortunes. Each trail consisted of a system of primary routes and many cutoffs and side routes that often overlapped with other trails in the area. Beginning in the early to mid-1830s and continuing until 1869, these trails brought people, goods, and mail to much of the Rocky Mountain West. The completion of the transcontinental railroad in 1869 provided a quicker and easier way to travel west, and traffic along trails quickly slowed to a trickle.

The construction of the Lincoln Highway, starting in 1913, running just south of the refuge, allowed automobile traffic through the area.

The historical military presence in the refuge area was closely associated with the early trails and the need to move goods across the frontier. Fort Bridger, located approximately 40 miles to the south-southeast of the refuge, was a vital trading and military post from the early 1840s to 1890 and served as a resupply point for many of the wagon trains as they continued west. Confrontations with Native Americans occurred during the early years and increased as settlers poured into the region. The Fort Laramie Treaties of 1851 and 1868 were attempts to quell the increasing conflicts but yielded limited results. By the 1860s, the hostilities worsened, and many battles and skirmishes ensued. By 1890, the tribes had been moved off their lands and relocated to reservations.

The Homestead Acts of 1862 and 1909, along with many other acts that encouraged settlement and industry, started a boom and bust cycle that, to some extent, continues to the present. Industries, including charcoal production, coal mining, railroad tie manufacture, and oil exploration, in addition to cattle and sheep ranching, spurred the fast establishment of many settlements and small towns, many, of which, faded as quickly as they appeared.

Cokeville, Wyoming, is situated at the confluence of the Bear River and Smith's Fork valleys. Between 1812 and 1828, these valleys were the domain of Native Americans, fur trappers, and traders; during the 1830s and 1840s they became a well-traveled pathway of emigrant trains traveling to Oregon and California. Known as "Smith's Fork on the Bear River" to fur trappers and pioneers, Cokeville acquired its permanent name after the discovery of nearby coal deposits that produced coke, an intense burning, and virtually smokeless product.

The Mormon Church sent the first permanent settlers to the area in 1874 to found a community. Sylvanus Collett and Robert Gee arrived with their families at the Smith's Fork River, soon to be followed by the John Bourne family. The men trapped, hunted, and traded hides, furs, and extra meat for supplies in Evanston, Wyoming, about 70 miles south. The trip to Evanston was arduous; winter journeys were sometimes made on the frozen Bear River. The launching of the Oregon Short Line in 1881 made travel easier. The railroad stimulated trade, changing the center of the main settlement to the vicinity of the tracks.

Before 1906, Cokeville consisted of two saloons, a hotel, a general store, and boarding houses. In the next nine years it incorporated and added a state bank, a newspaper, a water system, and electric lighting. In 1922, Cokeville made national headlines when Ethel Stoner became mayor and two other females won seats on the town council. The women ran on a law enforcement ticket, although, once in office, they found local police disinclined to enforce Prohibition laws that were then in force. After U.S. Highway 30 was commissioned through the town in 1926, then surfaced with oil in 1935, Cokeville found itself on a major cross-country route. The highway continues to play an important role in the town's economy (BLM 2004).

Identified Cultural Resources of the Refuge

Although many cultural resource sites have been recorded near Cokeville, Wyoming, few have actually been documented on the Cokeville Meadows Refuge, itself. This lack of information reflects the relatively low potential for resources on most of the refuge because of its extensive wetlands and the lack of cultural resource surveys. Four resources, all historic, have been recorded; and their eligibility for the National Register of Historic Places has been decided:

- Depot or Thornock Property (site 48LN3936). Consensus: not eligible as of June 10, 2002.
- Etcheverry Property or Bear River Ranch (site 48LN4119). Consensus: not eligible as of October 25, 2004.
- Antelope Property (site 48LN4120). Field not eligible as of June 15, 2004.
- Beckwith and Quin Canal (site 48LN2711). Consensus: not eligible as of June 1, 2009.

Based on the USGS topographic map, several unrecorded ditches, water control structures, transportation-related features, and ranch structures are located on the refuge. Prehistoric sites, if present, are likely located in the upland areas of the refuge.

We will seek to develop a program that will find and interpret significant cultural resources in the area such as historic trails. Portions of the Oregon-California Trail System exist within the refuge acquisition boundary, but we do not now own them.

Law Enforcement

Law enforcement on the refuge is provided by a full-time Federal wildlife officer and a dual-function Federal wildlife officer, both stationed at Seedskaadee National Wildlife Refuge. We seek and support cooperative law enforcement help from WGFD and the Lincoln County Sheriff's Department.

4.4 PARTNERSHIPS

Cokeville Meadows Refuge is highly involved in expanding multiple partnerships. We see that partnerships, both on and off the refuge, are important ways to accomplish wildlife-dependent goals. These partnerships include coordination with WGFD to conduct wildlife disease control, surveys and monitoring, and habitat improvement projects both on and off the refuge. The refuge also engages in partnerships with local, State, and Federal agencies, nongovernment organizations, local landowners, cooperators, private corporations, and others.

Our Partners for Fish and Wildlife Program is active the refuge area providing technical help and cost-share projects to help landowners improve wildlife habitat on private land. When possible, our refuge staff works closely with the Partners biologist on projects that can help wildlife on both private and refuge lands.

The refuge does not now have, but would like to develop, a Friends group.

Landscape Conservation

We coordinate with Bear River Watershed Conservation Area partners to enhance and preserve wildlife habitat connectivity, and we would like to strengthen these efforts. However, because the refuge is not staffed, we are often limited to habitat and wildlife conservation activities within the refuge boundary.

4.5 SOCIOECONOMIC ENVIRONMENT

Cokeville Meadows Refuge is located in Lincoln County, in the southwest corner of Wyoming, which neighbors both Idaho and Utah.

Current Land Types and Uses

Lincoln County lies in the region known as the Upper Bear River area, where the land cover is made up primarily of grasslands and shrublands. It is estimated that about 75 percent of the land in this region is used for grazing (Utah Water Research Laboratory 2011). As of 2006, about 63 percent of the land in the Upper Bear River area counties was in Federal ownership, mostly under the BLM and USDA Forest Service. About 24 percent of the land is privately owned, 4 percent is owned by the States of Utah or Wyoming, and 7 percent is owned by Native American tribes (Conservation Biology Institute 2006).

County Population

Since the year 2000, Wyoming's population has increased by approximately 14 percent (U.S. Census Bureau, 2010). Lincoln County has grown by 24 percent since 2000 with an estimated total population of 17,961 persons in 2012 (U.S. Census Bureau 2013). From 2000 to 2010, Lincoln was the fastest growing Wyoming county in the Bear River watershed. It is estimated that approximately 200 new homes are being built within Lincoln County each year (Royster and Gearino, 2006). While the total population and population density of this county is relatively sparse (table 6), the population of this area of the country is expected to continue growing apace with the Cache Valley area of Wyoming (U.S. Census Bureau 2010).

Ethnicity and Education

In 2010, only 2 percent of Lincoln County's population identified themselves as Hispanic or Latino, while the rest of the population in the county identified themselves as white (U.S. Census Bureau 2010). The rate of individuals possessing degrees in higher education in this county is 23 percent.

Economy, Employment, Income, Recreation and Industries

Wyoming's poverty rate in 2009 stood at 10.2 percent. By contrast, Lincoln County had a poverty rate in 2009 lower than the statewide average (8 percent) and a median household income level (\$59,160), which is higher than the statewide average (U.S. Census Bureau 2010).

Table 6. Population, income, education, unemployment, and poverty rate statistics for Lincoln County, Wyoming.

Residents (2010) ²	18,106
Persons per Square Mile ⁴	4.4
Percentage Population change since 2000 ⁴	+24
Median household income (2009) ⁴	\$59,160
Percentage of the population with a bachelor's degree or higher ³	17
Percentage unemployed in 2008 ¹	3.6
Percentage unemployed in 2011	6.6
Percentage of individuals below poverty (2009) ⁴	8.0

Sources: ¹(Bureau of Labor Statistics 2008), ²(Bureau of Labor Statistics 2011a), ³(Bureau of Labor Statistics 2011b), ⁴(U.S. Census Bureau 2009)

Forestry, fishing, hunting, agriculture, and mining accounted for roughly 19 percent of total jobs in Lincoln County (U.S. Census Bureau 2011). Employment in timber is a small fraction of total employment and has decreased since 1999 (U.S. Department of Commerce 2010).

Following the national trend, wildlife viewing has become increasingly popular, while hunting and fishing have decreased or remained stable in popularity in and around Lincoln County. Statewide, for residents 16 years of age and older, 84 percent of individuals surveyed watched wildlife, 39 percent fished, and 19 percent hunted in Wyoming. (USFWS 2008)

4.6 REFUGE DEVELOPMENT AND OPERATIONS

Refuge development and operations at Cokeville Meadows Refuge were limited from 1992 until 2002. A small operating budget was allocated in 2002, and a dedicated assistant manager was hired in 2004 but has since departed the refuge. Other staff or resources to support refuge operations and maintenance have come from the headquarters at Seedsdakee National Wildlife Refuge Complex. In 2008 funding was provided for a new building at the refuge and for the demolition of existing, dilapidated structures. The new building was completed in December 2009.

The following is a description of what constructed items exist on the refuge today and what is needed for the refuge to develop and operate. Topics include staff, equipment, facilities, railroad facilities, junk and debris, refuge mineral rights and energy development, and volunteers programs.

Staff

Cokeville Meadows Refuge is not staffed. From 1993 to present, our staff headquartered at the Seedskadee National Wildlife Refuge Complex in Sweetwater County, Wyoming, has managed Cokeville Meadows Refuge. The Seedskadee National Wildlife Refuge Complex staff of five full-time equivalent positions and two to three seasonal employees are responsible for management activities at Seedskadee National Wildlife Refuge as well for Cokeville Meadows Refuge. The two refuges total 36,489 acres. Staff from Seedskadee National Wildlife Refuge Complex travel approximately 83 miles to conduct work at Cokeville Meadows Refuge.

In addition, Refuge System administrative staff supports the Seedskadee National Wildlife Refuge Complex as part of a business team concept. Remotely stationed in Utah, Wyoming, Montana, and Colorado, they provide assistance with contracting, budget tracking, travel, and payroll.

Table 7 illustrates staff needs at Seedskadee National Wildlife Refuge Complex.

Table 7. Staff needs at Seedskadee National Wildlife Refuge Complex, Wyoming.

<i>Official Title</i>	<i>Working Title</i>	<i>Series, Grade</i>	<i>Full-time equivalent position</i>	<i>Assignment</i>	<i>Stationed At</i>
<i>Permanent Staff</i>					
Wildlife Refuge Manager	Complex Manager	GS-0485-13	1.0	Seedskadee Refuge Complex	Seedskadee Refuge
Wildlife Refuge Specialist	Wildlife Refuge Specialist	GS-0485-07	1.0	Seedskadee Refuge	Seedskadee Refuge
Maintenance Mechanic	Maintenance Worker	WG-4749-09	1.0	Seedskadee Refuge	Seedskadee Refuge
Maintenance Worker	Maintenance Worker	WG-4749-08	1.0	Seedskadee Refuge	Seedskadee Refuge
Federal Wildlife Officer	Federal Wildlife Officer	GL-1801-07	1.0	Seedskadee Refuge Complex	Seedskadee Refuge
<i>Temporary, Term, and Seasonal Staff (as money allows)</i>					
Biological Science Tech (Temp)	Biological Science Tech (Temp)	GS-0404-05	0.5	Seedskadee Refuge Complex	Seedskadee Refuge
Biological Science Tech (Temp)	Biological Science Tech (Temp)	GS-0404-03	0.5	Cokeville Meadows Refuge	Cokeville Meadows Refuge

Equipment

The refuge has limited equipment to conduct refuge and maintenance operations. Some of the equipment is in poor condition and needs replacement. However, Seedskadee National Wildlife Refuge has a good fleet of equipment, and the two refuges share these resources.

Facilities

Cokeville Meadows Refuge has one multipurpose building, which includes the refuge office, maintenance shop, cold storage, and a two-bedroom apartment. Our other facilities include many dikes and water control structures, stock fences, gates, two-track service roads, the Pixley Dam (of which we own about half), multiple wells and pumps, a center pivot irrigation system, and four old buildings that are in need of demolition and removal.

There are two diversion dams on the Bear River within the refuge's acquisition boundary. Upstream, the BQ Dam provides water to several thousand acres of wet meadow and wetland habitats on both sides of the river via the BQ East and BQ West canals. The Pixley Dam is located in the center of the refuge boundary and provides irrigation water to several thousand more acres of wet meadow and wetland habitats along the Bear River via the Pixley East and Pixley West canals. Both dams are in bad condition, and the Pixley Dam needs to be replaced.

Public use facilities on the refuge consist of a parking lot, information kiosk, and short nature trail located near Netherly Slough, along Highway 30, on the east side of the refuge.

Railroad Facilities

The Union Pacific Railroad bisects the Cokeville Meadows Refuge acquisition boundary from north to south and their facilities are present in the area.

Junk and Debris

There remain junk piles and unwanted property that pose risks to human safety and health on the refuge.

Land Protection

The refuge is working with partners and local governments to prevent development by attempting to acquire lands in fee title or conservation easements to reduce the threat of urban encroachment.

Private lands outside the refuge acquisition boundary are being developed and turned into housing projects. It is anticipated that, in the short term, some private land within the acquisition boundary will also start to be developed.

Refuge Mineral Rights and Energy Development

There is no active extraction of subsurface minerals being conducted within the refuge boundary at this time. However, oil and gas was extracted from lands surrounding the refuge boundary in the past. To protect wildlife habitats from undue effects from human activities we are seeking the withdrawal of subsurface mineral rights from lands within the refuge boundary that are now under the administration of the BLM.

Pipeline and transmission line corridors have not been designated within the refuge boundary.

Inventory, Monitoring, and Research

Cokeville Meadows Refuge has never received the staff or money necessary for a scientifically sound inventory and monitoring program.

Nuisance Species and Predators

Nuisance species, whether terrestrial or aquatic, may include animals and invasive plants that could occur in some of the refuge's habitats and which threaten either the variety or abundance of native species; the stability of the ecosystem; the infrastructure of the refuge; and the commercial, agricultural, aquacultural or recreational activities that are dependent on the refuge's habitats. An animal or plant that is considered a nuisance species in a refuge because of the effects that its population size or behavioral patterns have on the refuge's habitats or infrastructure may not be considered a nuisance species on another refuge. Examples of species that at times have been considered a nuisance at Cokeville Meadows Refuge are muskrat and beaver.

The refuge also lies within the historical range of some species considered predators, such as the gray wolf, coyote, red fox, weasel, and others. Predators are an integral part of, and carry out important functions in, a healthy ecosystem. Sometimes predators that make use of refuge habitats may pose a danger to humans or cause damage to private livestock or property near a refuge. Under certain circumstances we allow these animals to be captured or lethally controlled on refuge lands (appendix H).

Volunteers Programs

The refuge operates a small volunteers program.

Chapter 5—Environmental Consequences

This chapter provides an analysis of the potential effects from carrying out the actions of each alternative on the physical, biological, socioeconomic, and cultural resources of Cokeville Meadows Refuge.

Management actions are prescribed in the alternatives as a means for achieving the vision and goals for the refuge, while responding to issues raised by our managers, the public, and our government partners. Because management would differ for each alternative, the environmental and social effects resulting from implementation would likely also differ.

5.1 EFFECTS COMMON TO ALL ALTERNATIVES

The effects related to the issues described below would be the same for all alternatives.

Environmental Justice

None of the alternatives considered would have a disproportionately high or adverse environmental effect on minority or low-income populations.

Public Health and Safety

Based on the nature of each alternative, the location of the refuge, and current land use, all alternatives are anticipated to have no significant negative effects on the quality of the human environment, including public health and safety.

Economic Benefits to Local and State Governments

We offer economic benefits to the local community in the form of agricultural activities like haying, grazing, and farming that are permitted on the refuge. If more access to the refuge is provided, the economic benefits from resultant recreational uses could increase, bringing in more money for local businesses and governments.

We will strive to maintain water control structures and ditches properly to restore natural hydrologic processes, which will allow economic benefits to continue. Restoration of recreational fisheries and riparian habitat, combined with wildlife-dependent and compatible public uses and compatible agricultural practices, should provide economic benefits.

Climate Change

The primary climate-related effect to be considered in this CCP process is carbon sequestration. Overall, there should be little or no net change in the amount of carbon sequestered at Cokeville Meadows Refuge.

The refuge would be managed to provide predominately native habitat conditions or to restore native vegetation and, to the extent possible, natural ecological functions. Native plant communities and natural ecological processes provide the most resilient habitats that are anticipated to provide the best possible conditions for plants and animals to adapt to stresses related to climate change.

Soils

Soil formation processes on refuge lands would see positive effects. Some disturbances to surface soils and topography would occur at those locations selected for (1) administrative, maintenance, and visitor facilities; (2) introduced and invasive species removal and eradication; and (3) restoration of native habitat.

Water Quality, Wetlands, and Floodplains

Water quality would be positively affected by anticipated ground water recharge protection, runoff prevention, sediment retention, and nonpoint source pollution minimization. There are no anticipated adverse effects on the area's wetlands and floodplains, pursuant to Executive Order 11990 and Executive Order 11988.

Pollution, temperature, and sedimentation are important issues that may potentially pose a threat to refuge resources. However, we have not had enough staff and resources to find out if this is the case and to what extent they may adversely affect them. We will try to find out if these threats exist and then seek partnerships to address them.

Air Quality

We do not check air quality but are concerned with air quality changes caused by other, outside sources such as the development of gas and oil in the area. We will work closely with groups and others that have the potential to affect air quality. We would seek to obtain baseline data, and adaptive management activities would be conducted when necessary.

Prescribed fires would have short-term effects on air quality. Prescribed fire operations are planned to reduce how ignitions will affect neighbors by moving smoke up and out of the vicinity quickly. Rapid mop up would be completed to reduce overnight effects on neighbors.

Sage-grouse Habitats

We have recently started to help WGFD watch sage-grouse leks. We are interested in improving habitat for sage-grouse and will look to incorporate habitat improvement actions when upland work is conducted. As more upland

habitat on the refuge is restored to native vegetation, the amount of healthy habitat that is available to sage-grouse and could increase and possibly increase this species' use of refuge habitats. We are interested in partnering with groups and individuals to improve habitat for this species across the greater landscape.

Species of Concern

Our staff, in cooperation with other conservation partners, would actively find the distribution, key habitat areas, and special needs of Bonneville cutthroat trout, bluehead sucker, leatherside chub, mountain sucker, and sage-grouse to develop management plans and conservation measures to enhance their populations. We will cooperate with WGFD and other conservation partners to restore, reintroduce, augment, or reestablish special status species and their habitats within the refuge and around the Bear River watershed.

Restoring the habitats of, and working on reestablishment activities for, special status species would likely contribute to the restoration of self-sustaining populations. Increasing the number and distribution of self-sustaining populations of special status species would contribute to their overall health throughout their ranges and could allow for their recovery without the need to list them under the ESA and similar designations under State natural resources conservation laws.

Invasive Species

Aggressive control activities using approved and proven treatments has vastly reduced invasive plant species on refuge lands. The continual monitoring and treatment of invasive plants will be important to keep habitats healthy and productive in the future. Restoring natural hydrology could also reduce the amount of creeping meadow foxtail and allow native grasses, rushes, and sedges to become more abundant and, thus, increase vegetative diversity.

Aquatic invasive species such as zebra and quagga mussels and carp are a concern just like other invasive species that threaten refuge habitats. We are taking steps to check for invasive species in aquatic habitats, but more work, partnerships, and protocols need to be developed. We will work with WGFD to address issues and concerns dealing with aquatic invasive species throughout the Bear River watershed and will support nonnative control programs. Carrying out this cooperative work with partners will improve the detection of new aquatic invasive species along the Bear River watershed and quicken contingency plans and actions to end or contain their spread, which will make it more likely that native aquatic resources can be protected.

Integrated Pest Management

The refuge does not have an IPM plan, but we will develop one sometime soon after the CCP is completed. An IPM plan will help guide the refuge on issues about grasshopper, cricket, and mosquito control. The plan should include thresholds and guidance on what types of treatments are feasible.

We issued a draft policy on dealing with mosquito abatement and control and will need to work with local and county officials to develop monitoring protocols and to set thresholds that will trigger treatments on the refuge and to decide what the proper treatments will be.

An overabundance of grasshoppers, crickets, and mosquitoes can become a hazard to human and animal health and may be detrimental to commercial crops and to public or private property. Effective control of these insects would protect human beings and animals from diseases and public and private property from damage.

Law Enforcement

Law enforcement to protect refuge resources and to provide for public safety is the most basic activity we conduct on the units of the Refuge System. In the recent past, Cokeville Meadows Refuge had an assistant manager who was trained as a law enforcement officer with the ability to enforce all the laws associated with the Refuge System, the Migratory Bird Treaty Act and many other laws associated with the protection of natural resources. There is another full-time law enforcement officer located at Seedskaadee National Wildlife Refuge Complex who will now assume these duties at Cokeville Meadows Refuge until the refuge employs someone in that position.

This law enforcement presence on both refuges will help to make sure that Seedskaadee National Wildlife Refuge Complex's resources and wildlife are protected and that the visiting public will have safe and enjoyable experiences. Without the presence of adequate and proper law enforcement officers on the refuge, it would not be possible to allow certain public uses on refuge lands, such as hunting and fishing.

Equipment

Cokeville Meadows Refuge relies on Seedskaadee National Wildlife Refuge to provide equipment and fleet support for operations. Our refuge staff has some equipment on hand, but do not always have what they need to complete priority projects. There is no need to have an overabundance; however, the refuge needs access to maintenance equipment to conduct its day-to-day activities. Without that access, habitat quality and wildlife diversity would suffer.

Pixley and BQ Dams

The Pixley and BQ Dams are instream diversion dams that divert water from the river into meadow areas. These dams are old and in need of repairs and upgrades. The Pixley Dam is in need of replacement, and we are working with local landowners who have water rights associated with it to get it replaced. The dam, constructed in 1903, is near the end of its ability to divert water effectively. Fish passage on both of these dams is a major issue, as they do not allow for upstream or downstream fish movement. The most recent fish survey by WGFD found that the area between the two dams was low in native species diversity and overrun by carp.

If these dams are not repaired and upgraded with fish-passage structures or replaced, fish diversity and habitats will not improve and the restoration of aquatic species of concern will not be achieved. Furthermore, not repairing or replacing these dams could lead to dam failure, which would end our ability to divert water that provides sustenance to many of the wet meadows and wetlands on refuge lands. If we are unable to irrigate existing wet meadows, it could lead to changes in the hydrology and vegetative cover of these habitats and, consequently, to a change in wildlife diversity and use.

Junk and Debris Removal

Our refuge staff has spent several years cleaning up junk and debris piles, and removing unwanted property that posed risks to human and wildlife safety and health. Removal of junk and debris piles also improved the aesthetics along highway areas where people could view the refuge. There is a need for more staff and money to finish cleaning up the refuge. The presence of junk and debris piles will continue to pose a hazard to people and wildlife until the piles have been properly removed.

Water Rights

The refuge has several surface and ground water rights that are used to support and improve habitats for wildlife. We will continue to exercise these rights and keep them in good standing with the State Engineer's Office. We are interested in working with the State Engineer's Office to find new ways to use water rights for us and our partners to restore and protect vital habitats for at-risk wildlife species within the watershed. Our proper use and maintenance of existing water rights will support refuge habitats that depend on Bear River water as well as migratory birds and resident wildlife.

Bear River Watershed Conservation Efforts

There are some efforts to protect important wildlife habitat within the Bear River watershed. The recently approved Bear River Watershed Conservation Area involves conservation easements that would seek to protect wildlife habitat and keep ranches and ranching on the ground. We will seek to coordinate with the BLM on local projects. The continuation and expansion of these conservation efforts throughout the Bear River watershed should protect the rural way of life of residents within the watershed as well as habitats that sustain the life cycles of migratory and resident wildlife within and, possibly, downstream from the Bear River watershed in Wyoming.

Urban Encroachment

We view urban encroachment as a real threat to refuge resource protection. Private lands outside of the refuge acquisition boundary are being developed into housing projects. It is anticipated that, in the short term, some private land within the acquisition boundary will also start to be developed.

We are working with partners and local governments to prevent this development by attempting to acquire lands in fee title or conservation easements to reduce the threat of urban encroachment. We believe that there are opportunities to help landowners with conservation efforts that will allow them run their ranches as they always have while also keeping essential wildlife habitat intact.

If we at Cokeville Meadows Refuge, our neighbors, and our partners are able to maintain lands within, or immediately surrounding, the approved acquisition boundary of the refuge from undergoing urban development, the water, wildlife, and natural habitats and resources of the Bear River watershed should be protected and enjoyed by many generations of Americans to come. Conversely, the urbanization of indigenous natural habitats in this region could allow pollutants to affect refuge habitats; fragment natural landscapes, which would dramatically change the viewshed of the landscape; impede normal wildlife migrations; change the existing wildlife composition by favoring species that benefit from edge effect and displacing species that require large, contiguous tracts; and make it impossible to provide certain wildlife-dependent public uses, such as hunting, on portions of the refuge bordering urbanized areas.

Refuge Mineral Rights and Energy Development

We do not own the mineral estate of the lands we hold in fee title at Cokeville Meadows Refuge. Some mineral development is taking place within the approved acquisition boundary and some is taking place next to the refuge.

Mineral development poses threats to refuge lands and habitat within the Bear River watershed both on and off the refuge. Where proper, we will attempt to secure the subsurface mineral estate of bought lands when the opportunity arises, and we will work to reduce or mitigate changes brought on by such development.

Where we are successful in securing subsurface mineral rights, wildlife and the habitats on which they depend will be protected for the enjoyment of future generations. Where we are unable to secure subsurface mineral rights, wildlife and their habitats will be at risk of adverse effects, both temporary and permanent, from mineral development and transportation.

Requests for rights-of-way and surface disturbance would be considered on a case-by-case basis. First the use must be considered appropriate and then the proposed use would have to be found compatible.

Volunteers Programs and Friends Group

We are interested in developing and supporting volunteers programs, as this would help accomplish needed projects and other maintenance priorities, and we would like to form a Friends group at some point in the future to help us accomplish important goals for the refuge. Volunteers from the local community help us improve our relations with our neighbors and local governments because volunteers become advocates for the refuge and help to promote refuge values and ideas.

The successful creation of one or more volunteers programs and a Friends group would beneficially affect the refuge's reputation, habitats, wildlife, and other natural resources as many ongoing and proposed tasks and objectives would have a greater chance of being accomplished by persons other than the staff now based at Seedskaadee National Wildlife Refuge Complex. Our inability to create and sustain effective volunteers programs and a Friends group would mean that many ongoing and future tasks and objectives will take longer to complete; our reputation and that of the refuge will improve at a slower pace; and refuge infrastructure, habitats, and associated wildlife could be solely dependent on the availability of the Seedskaadee National Wildlife Refuge Complex staff for management and maintenance.

5.2 DESCRIPTION OF CONSEQUENCES BY ALTERNATIVE

Alternative A, No Action

Alternative A proposes no new management activities and serves as a baseline comparison for the other alternatives.

Habitat and Wildlife Management

This section describes the environmental consequences that affect proposed actions to control wildlife diseases, crop depredation, and private property damage as well as to enhance wet meadow, upland, and riparian and river habitats and their associated wildlife.

Wet Meadow Habitat

Actions for this habitat would affect a range of elements. It would support wet meadow and wetland areas conducive to a variety of migratory and resident wildlife but would keep relatively low vegetative and wildlife diversities, as creeping meadow foxtail would continue to outcompete other native plant species.

Water Management and Control Structures

Water management and the replacement of poorly functioning infrastructure to improve hydrologic functions within the wet meadow habitats would continue to take place and would help to improve wildlife habitats. However, with improvements and increased numbers of water control structures, there would be a greater demand on staff time to manage the movement of water throughout the refuge. It is expected that with improved water control, wet meadow habitats would become more productive requiring more active habitat management by staff and permittees to keep them healthy for wildlife.

Vegetative Community and Species Diversity

Flood irrigation practices favor particular species in the wet meadows at Cokeville Meadows Refuge. One particular species that is directly, though unintentionally, helped by these practices is creeping meadow foxtail grass. It can be found in all wet meadow areas of the refuge and tends to outcompete other native species. It does not appear to affect any wildlife species adversely, and it provides good cover for nesting birds. However, it might limit wildlife diversity on wet meadow habitats. A more desirable condition might be to promote a variety of vegetative species to encourage broader use by more wildlife species.

Haying and Grazing and Other Economic Uses

Economic uses such as haying and grazing have proven to be useful tools to support healthy habitats on the refuge. Haying and grazing are primarily instead of prescribed fire. Haying and grazing on the refuge has also been a major factor in controlling invasive plants on the refuge. It has been found that spring grazing changes refuge habitats in a negative way when the practice is used multiple years in a row, and we are working to phase out spring grazing, except in cases where a spring treatment would be beneficial to remove a vegetative overburden to improve management activities such as irrigation.

Nesting and Brood-rearing Habitat

With improved water management on the refuge, it appears that more nesting and rearing of broods is taking place. Improved habitat quality seems to be promoting species diversity.

Water Quality for Amphibians

The refuge is host to many species of amphibians, thus water quality is a concern. Although we do not conduct water quality studies, we work with partners to conduct surveys and watch populations. If such surveys and observations point to a decline in aquatic species populations or diversity then our staff will need to find ways to carry out water quality studies. Now it appears that water quality is not a limiting factor for amphibians and other aquatic species.

Salt Loads

Salt loads on the refuge have not been exactly figured out. Only casual observation has been made of areas where salt has precipitated from the soil or up the stalks of vegetation in the wet meadows. We are concerned that salt loads might be a problem, but we do not have the ability to verify the problem at this time. As a result, we might be fostering a situation that could limit plant and animal species diversity and population numbers. Without correct information about how salt loads are affecting the refuge's habitats and wildlife, we would be unable, if and when necessary, to seek corrective actions to safeguard and promote refuge resources.

Brood Rearing, Irrigation Timing, and the Flooding of Nests

We would irrigate the wet meadows in the same manner as adjacent private landowners. Refuge ownership is either at the end of the system, or in between different users who want water at the same time because of their agricultural practices. Water is diverted from the river between mid-March and mid-May. We are bound by a memorandum of understanding with the State Engineer's Office that states water use must follow historical practices

and laws on the refuge when lands are acquired. In many cases, water is diverted into the meadows after early nesters have already built nests and laid eggs. This causes nests to flood out, and renesting occurs. At the end of the irrigation season in mid-July, water is shut off and a draining of the meadows begins to prepare for haying activities. In this case, broods are stranded without water in some areas.

The refuge may not be able to address this until more land is acquired and the timing of irrigation can be modified to prevent nest loss and the stranding of broods. Persistence of this management regime on wet meadows will continue to affect migratory bird nesting attempts and success adversely and keep some migratory bird species populations from increasing.

Upland Habitat

Actions for this habitat would affect a range of elements. It would improve the condition of upland habitats, increase bird habitat, and increase wintering and nesting habitat for sage-grouse and other grassland and sage-dependent species.

Haying and Grazing and Other Economic Uses

Economic uses such as haying and grazing have proven to be useful tools to support healthy habitats on the refuge. Haying and grazing are primarily used instead of prescribed fire. Haying and grazing on the refuge have also been major factors in controlling invasive plants on the refuge. It has been found that spring grazing changes refuge habitats in a negative way when the practice is used multiple years in a row, and the refuge is working to phase out spring grazing, except in cases where a spring treatment would be beneficial to remove a vegetative overburden to improve management activities like irrigation.

Irrigated Croplands Conversion to Native Upland Habitats

The refuge has several areas that were converted to alfalfa from sagebrush habitat before we acquired them. These fields remain in alfalfa. We do not want to allow the conversion of more upland habitat and would prefer to start the process of reverting current alfalfa fields back to native vegetation. There are now 660 acres of alfalfa on the refuge that are being prepared for conversion to native vegetation. Conversion of alfalfa fields to native vegetation on refuge lands will restore their use by migratory and resident wildlife and decrease the need for irrigation once native habitat restoration has been fully accomplished.

Nesting and Brood-Rearing Habitat

We have not focused on upland habitats for nesting or brood rearing, but we recognize that such consideration will be needed. Our persistent lack of focus on upland nesting and brood-rearing habitat will likely perpetuate the current low production of upland-dependent migratory and resident birds as well as that of mammals and reptiles.

Riparian and River Habitats

Actions for this habitat would affect a range of elements. They would continue the loss of woody plant community structure and change some areas to grass-dominated communities, which would perpetuate a low diversity of neotropical migratory birds and remove shade necessary to support optimum river water temperatures. They would also keep sediment loads in Bear River water at undesirable levels.

Fisheries and Fish Habitat

We would continue to coordinate with WGFD to conduct aquatic species surveys and to make recommendations on which fisheries to study. We are not doing anything to improve the fishery within the refuge. The persistent lack of emphasis on improving fishery resources will likely perpetuate low fishery diversity and impede the restoration of fish species endemic to the Bear River watershed, including species of concern such as the Bonneville cutthroat trout, and diminish the experience of fishing, were it to be approved on the refuge.

Riparian Corridor Vegetation Condition and Diversity

The refuge's riparian corridor has low vegetative diversity, and its vegetation is not excluded from haying or grazing. Woody species are in decline and in great need of restoration. Streambanks are cut and vertical in most places because of the nature of stream flows and the lack of necessary root systems to keep soils in place. The lack of exclusion from herbivory is an overall problem throughout the refuge's riparian corridor. In general, the riparian habitat is in poor condition. Lack of attention would continue to perpetuate or even exacerbate the problem. Our coordination with WGFD and partners would improve riparian health.

Vegetation and Streambank Changes

Riparian vegetation and streambanks receive little to no rest from herbivory, haying, grazing, and trampling. Thus, there is no time for recovery from vegetation and streambank changes. Fencing would be needed to exclude activities such as grazing, and limits would need to be placed on haying to reduce changes and improve vegetative diversity within the riparian zone. Without these, the condition of the streambank and its associated vegetation will continue to be poor, or it is conceivable that these could deteriorate further and continue to affect the river's water quality and its aquatic species.

Streambank Stabilization

Projects to stabilize the streambank are necessary, but they would not be planned under this alternative. We see the value in such projects, but lack the resources required to attempt them. This situation, as described above, will perpetuate or even exacerbate the precarious conditions of the streambank, riparian vegetation, river water quality, and the fisheries and other aquatic organisms.

Streamflow Regime

Our refuge staff and neighboring landowners divert water using dams and dikes to irrigate wet meadows during the growing season. Dikes in the riparian areas prevent surface return flows to the river. In addition, ground water wells used for irrigation on and off the refuge are expected to reduce ground water contributions to the streamflows. We recognize that instream flow is needed to restore and support healthy river habitats and fisheries. However, we would not actively manage to support instream flows. We are coordinating with WGFD to figure out river health and diversity, but work has only just started. Many other issues about streamflow regime exist. This situation will continue to support degraded, poor fisheries resources.

Wildlife Diseases

In the absence of any regional or national disease monitoring program, such as for avian influenza surveillance, sponsored by us or WGFD, our refuge staff monitors for wildlife disease outbreaks as an adjunct activity to field work on the refuge. Sick or freshly dead wildlife are inspected, and specimens that did not obviously die as the result of predation or trauma, such as road kill, may be shipped to the USGS National Wildlife Health Laboratory in Madison, Wisconsin, for diagnosis. When there are several sick or dead bodies, the Region 6 Wildlife Health Office in Bozeman, Montana, is consulted for advice and a response. However, the lack of full-time refuge employees based at Cokeville Meadows Refuge could potentially cause a delay in noticing and reporting a wildlife disease outbreak, which would, in turn, cause a greater adverse effect to refuge and State wildlife resources.

The most significant public issue is the threat of transmission of brucellosis as a result of comingling wintering elk and cattle on neighboring ranches. We would continue to work closely with WGFD to aid efforts by the State to reduce the comingling of elk and cattle. Opening the refuge to elk hunting would allow hunters access to the refuge during the elk wintering period and would reduce the potential for it to serve as an elk sanctuary. The dispersal of elk by hunters will reduce the potential for comingling. Following the hunting season, we would cooperate with WGFD and allow the hazing of elk from the refuge by State employees or agents, as requested by WGFD.

Crop Depredation and Private Property Damage

The refuge would continue to work with private landowners and WGFD to reduce crop damage by migratory birds and large ungulates. Occasionally, small grain crops may be grown on the refuge to reduce damage by waterfowl on privately held lands, but we would not commit to this practice as an annual, long-term management option. We would plant small grain crops for several years to prepare sites for grassland restoration. Several years of small grain production would reduce the weed seed bank in restoration areas before the planting of native grass seed mixes. This should help with private crop damage issues, but it would only be a temporary fix.

National wildlife refuges, in general, have started to get away from planting bait crops to reduce depredation on private land and have started to focus on improving refuge habitats to provide required food sources that are abundant enough to reduce crop damage.

Wildland Fire Management

In the Bear River watershed, vegetation has evolved under periodic disturbance and defoliation from grazing animals, fire, and minor weather events. This kept the ecosystem diverse and healthy while supporting significant biodiversity for thousands of years. Historically, natural fire, including Native American ignitions, has played an important disturbance role in many ecosystems by removing fuel accumulations, decreasing the effects of insects and diseases, stimulating regeneration, cycling essential nutrients, and providing a variety of habitats for plant and animal species.

The continued prevention, suppression, and containment of wildfires to prevent damage to private and refuge property, coupled with a lack of fire management program, would deny refuge habitats and their associated wildlife the regenerative and biodiversity benefits derived from prescribed fires.

Visitor Services and Cultural Resources

This section describes the environmental consequences that affect visitor services and cultural resources.

Public Access

Access to the refuge is limited to the Netherly Slough visitor contact point and trail and the refuge headquarters. Access to the refuge has been an issue for many years. This has generated a negative attitude in the local community toward the refuge and the Service. In some cases, the lack of access and recreational opportunities has prevented the refuge from growing. Management of the refuge, however, would not change. So, most of the refuge would continue to be closed to most public access, which would perpetuate the negative public attitude, while wildlife would continue to benefit from being sheltered from visitors.

Visitor Safety

Public access to the refuge would continue to be limited to the existing visitor contact sites, where it can occur in a safe manner. Therefore, there would be little effect on visitor safety.

River Boating

River boating is not allowed, so there would be no negative effects to the environment. However, this situation will perpetuate a negative image of the Service and the refuge because the public is not able to enjoy this outdoor recreation activity on refuge lands.

Hunting

Hunting on the refuge would not be allowed. With limited staff, it would be difficult to manage hunting activities. This situation will perpetuate a negative image of the Service and the refuge because the public is not able to enjoy this outdoor recreation activity on refuge lands and will deny any possible local and State economic benefits.

By not allowing hunting, we would prolong the comingling issue between large ungulates and cattle, which could result in wildlife diseases passing on to cattle and result in economic loss for our neighbors.

Fishing

Fishing would not be allowed. The local community would like the opportunity to fish and to have greater access on the refuge. With a shortage of staff and lack of law enforcement, we would not be able to carry this out on the refuge. This situation will not negatively affect the environment, but it will help perpetuate an unfavorable image of the Service and the refuge because the public would not be able to enjoy this outdoor recreation activity on refuge lands and will deny any possible local and State economic benefits.

Trapping

Trapping for recreation or fur harvesting on the refuge would not be allowed, though requests to conduct this activity have been submitted by several people in the local area. Trapping represents a historical and current practice and is a recreational opportunity. This would be evaluated to decide if it could be allowed on a limited basis on the refuge. Until that happens, however, not allowing trapping would help perpetuate an unfavorable image of the Service and the refuge because the public is not able to enjoy this popular outdoor recreational activity on refuge lands.

Wildlife Observation and Photography

Wildlife observation and photography would be allowed on a limited basis at the Netherly Slough visitor contact point and trail. The local community would like to have greater access to the refuge to increase their opportunities to view a greater variety of wildlife and to photograph refuge resources; keeping the status quo is likely to preserve a level of dissatisfaction among visitors and neighbors and deny any possible local and State economic benefits.

Keeping current conditions, however, would also limit wildlife disturbance.

Environmental Education and Interpretation

Environmental education and interpretation would be allowed on a limited basis at the Netherly Slough visitor contact point and trail. The local community would like to see more widespread environmental education and interpretation activities and facilities; keeping the status quo would limit the benefits of these activities. It could also reduce volunteerism and opportunities to foster an appreciation for the natural environment, the work that we do in favor of our natural heritage, and experiences that could lead young Americans to choose careers in conservation.

Keeping current conditions, however, would also limit wildlife disturbance.

Public Information

Public information would be limited, but the local community would like more. We do not have an informational brochure about the refuge, but there is information at the visitor contact point and some can be found on the Internet. More information would be provided only if money and staff were increased.

This would likely limit the knowledge of, and interest in, wildlife and other resources on the refuge, the importance and types of conservation work our refuge staff and we carry out, and opportunities for the public to engage in outdoor recreation. It is not expected, however, that the lack of public information would have a negative effect on the environment.

Cultural Resources

Our refuge staff would comply with State and Federal laws and regulations that protect our cultural, historical, and archaeological resources. All necessary coordination, inventories and surveys required by laws and regulations would be carried out before engaging in any management activities on refuge lands that could potentially affect these resources.

The refuge does not now have the money or staff to carry out a comprehensive survey to find these types of resources or to provide for their interpretation. This situation would continue and would not be expected to change in the immediate future, but it is considered sufficient to protect them.

Partnerships

Supporting existing partnerships would provide resources to contain invasive species infestations, thus providing adequate habitat conditions for the refuge's wildlife. Existing partnerships would continue to prevent damage to public and private property from wildfires and could allow us to define wildlife use, population trends, and habitat conditions on refuge lands, which would allow us to manage refuge resources better.

Landscape Conservation

Our ability to take part in landscape conservation efforts outside of the refuge boundary, such as with the Bear River Watershed Conservation Area, would be reduced and would be less able to work with our partners in their efforts to reduce habitat fragmentation.

Refuge Development and Operations

This section describes the environmental consequences that affect refuge development and operations.

Staff

The refuge is unmanned and receives staff (permanent and seasonal) and financial support from Seedskaadee National Wildlife Refuge Complex. The unmanned status of this refuge is not desirable, but would continue. Lack of permanent staff at Cokeville Meadows Refuge would complicate its management and would require us to keep the refuge closed to visitors for human health and safety reasons and to protect wildlife and resources.

Leaving the refuge unmanned would impede the management of infrastructure, leading to their damage or failure. It could also encourage trespassing on refuge lands, reduce the adequate and timely response to invasive species, delay responses to wildlife disease outbreaks, cause us to disregard refuge visitors, advance a negative image of the refuge and the Service among some local residents, and increase other negative effects to refuge resources.

Facilities

The replacement of irrigation infrastructure and adding a new shop has given the refuge the ability to manage resources better and to provide a more constant presence onsite.

Water Management

We would continue to place a high priority on water management to support habitats and to protect refuge water rights. Several infrastructure projects over the last several years have been completed, and we would move on to improve delivery systems. Projects thus far have been focused on irrigation, but our newer facilities will also help us to improve annual maintenance and operations.

Inventory, Monitoring, and Research

Inventory and monitoring on the refuge is done primarily by WGFD for wildlife species and by Lincoln County Weed and Pest for invasive plants. We recognize the need for more monitoring. However, because the refuge is not staffed, we have to rely on partners. There would be little time for the Seedskaadee National Wildlife Refuge Complex staff to conduct added inventory and monitoring activities at the refuge, and they do not now have a full-time biologist who could conduct these activities.

Without a methodical and broad monitoring program, we would lack the most correct and timely information needed to avoid adverse effects or to better address the needs of habitats, wildlife, and species of concern.

General third-party, wildlife-dependent research would continue to take place on the refuge when there is a request and when it is found to be compatible. It is important to host this type research so that it may help us make sound management decisions based on science, but the inconstant and opportunistic nature of the research that takes place at the refuge would make it difficult for us to get important information that could help us optimize habitat management activities for the benefit of wildlife.

Nuisance Animal and Predator Control

Control of these animals should not have an adverse effect on the environment. No control measures for nuisance animals or predators would be authorized for the public. In response to landowners' concerns, however, Region 6's division of refuges issued a general guidance memorandum to all of its units in the Refuge System on December 2011 to explain how to deal with predator control issues (appendix H). The Seedskadee National Wildlife Refuge Complex project leader, who administers Cokeville Meadows Refuge, would follow this guidance when determining what predator control measures will be allowed on the refuge.

Controlling predators and nuisance animals on refuge lands in accordance with our regional guidance would provide the means to address this issue in a ecological and sensible way and help alleviate the negative perception of some in the local community have about the Service and the refuge.

Alternative B, Maximum Restoration

Under alternative B, management of the refuge would seek to restore habitats that closely resemble presettlement conditions.

Habitat and Wildlife Management

This section describes the environmental consequences that affect proposed actions to enhance wet meadow, upland, and riparian and river habitats and their associated wildlife as well as to control wildlife diseases, crop depredation, and private property damage.

Wet Meadow Habitat

Actions for this habitat would affect a range of elements. They could decrease the extent of wet meadow habitats and their types and availability, which would change the use by, and variety of, aquatic, resident, and migratory bird species. They would also change vegetative compositions, most likely increasing the number and variety of native plant species and displacing some introduced species.

Water Management and Control Structures

We would remove many of the water management structures, including dikes, ditch plugs, and control structures, and allow water to naturally flood out of the banks to irrigate wet meadows. This would drastically reduce irrigation and water management workloads for our staff. It could also affect refuge water rights and give the impression that refuge lands are not being managed properly.

Vegetative Community and Species Diversity

Effects would be similar to alternative A, plus reducing the extent of flooding by removing irrigation infrastructure would change the vegetative dynamics and diversity of the refuge in the wet meadows. With less water in the meadows, some areas could begin to resemble upland areas and certain species may not be able to compete as well.

Haying and Grazing and Other Economic Uses

With the removal of irrigation infrastructure, there could be less haying of meadow areas because there would be less quality vegetation to hay. Grazing, however, may increase. It is not known if economic activities would increase or decrease, but it is expected that they would be modified.

Nesting and Brood-rearing Habitat

Natural flooding from the river into sloughs and other low areas would provide areas for nesting and brood rearing. This area would be drastically smaller than under alternative A. Fewer broods may be produced, and a lower diversity of birds may exist.

Water Quality for Amphibians

We would attempt to check water quality in the river and wet meadow areas and work with local landowners to improve water quality and to reduce sedimentation for amphibians. With less wet meadow habitat under this alternative, there may be fewer amphibians on the refuge. With fewer amphibians there would be a smaller food base for wildlife that prey on amphibians, such as American bitterns, great blue herons, and egrets.

Salt Loads

Salt loads in the refuge have not been figured out. Only casual observation has been made of areas where salt has precipitated from the soil or up the stalks of vegetation in the wet meadows. We are concerned that salt loads might be a problem, but we do not have the ability to verify this.

We would work with partners to develop monitoring programs to help us figure out if salt loading is an issue on the refuge. With less flood irrigation on the refuge, however, there may be fewer salt loading issues.

Brood Rearing, Irrigation Timing, and the Flooding of Nests

The removal of irrigation infrastructure would reduce the risk of flooding out early nesters on the refuge. Allowing natural flood events into low areas and sloughs along the river would leave many nesting areas undisturbed. Natural flows from the river would also be unlikely to damage nests, as these flows tend to come later in the spring. However, broods may have to move to the river, as fewer wet areas to forage and find cover would exist later in the year.

Upland Habitat

Actions for this habitat would affect a range of elements, similar to alternative A. In addition, native species composition would increase and benefit sage-steppe-obligate species. They would also make more acres of native upland habitats available to wildlife.

Haying and Grazing and Other Economic Uses

Economic uses such as haying and grazing have proven to be useful tools to support healthy habitats on the refuge. Haying and grazing are used primarily in lieu of prescribed fire. These have also been a major factor in controlling invasive plants. It has been found that spring grazing affects refuge habitats in a negative way when the practice is used multiple years in a row, and the refuge is working to phase it out except in cases where a spring treatment would be beneficial to remove a vegetative overburden to improve management activities such as irrigation.

Haying and grazing activities may change because there would be less meadow habitat to hay. Grazing may be of greater value to the refuge for habitat treatments. To manage upland habitats effectively, a grazing management plan would be needed.

Irrigated Croplands Conversion to Native Upland Habitats

The refuge has several areas that were converted to alfalfa from sagebrush habitat before we acquired them. These fields remain in alfalfa. We do not want to allow the conversion of more upland habitat and would prefer to revert

current alfalfa to native vegetation. There are now 660 acres of alfalfa on the refuge that are being prepared for conversion to native vegetation.

The conversion of alfalfa fields to native vegetation on refuge lands would restore their use by migratory and resident wildlife and decrease the need for irrigation after restoration is complete. Agricultural crops such as alfalfa and small grains would no longer be grown on the refuge. Areas restored back to native grasses would eventually fill in with sagebrush. Prescriptive grazing would be used to keep these habitats in good health. Native species composition would be increased, helping the obligate species of the shrub-steppe. More acres of native upland habitats would be available to wildlife.

Nesting and Brood-rearing Habitat

We have not focused on upland habitat for nesting or brood rearing but recognize that we need to consider wildlife use in this area.

There would be more upland areas for nesting, and management to improve nesting here would become an important issue. There could be a shift in the types of birds that use the refuge from wetland-dependent birds to upland nesting birds.

Riparian and River Habitats

Actions for this habitat would affect a range of elements. They would help recover and restore native vegetation, especially woody species. They would greatly help migratory bird populations, especially neotropical species that depend on native riparian vegetation to complete their life cycles. They would also likely create greater bird diversity and population numbers and would better shade the river, decreasing water temperatures and increasing oxygen content to help all forms of aquatic animal species.

Fisheries and Fish Habitat

The refuge would continue to coordinate with WGFD to conduct species surveys and make recommendations on areas to approach. There is no work being done by the refuge to improve the fishery within the refuge. There could be more water in the river to provide more and better habitat and connectivity for fish populations.

Riparian Corridor Vegetation Condition and Diversity

In general, the riparian habitat is in poor condition and lack of attention would perpetuate the problem. The riparian corridor has low diversity and is not excluded from haying or grazing. Woody species are in decline and require restoration. Streambanks are cut and vertical in most places. That herbivory is not excluded is an overall problem.

Coordination with WGFD and partners, however, would improve riparian health. Targeted projects to improve riparian condition would include wildlife-friendly fencing, the improved management of haying and grazing to reduce herbivory within the riparian corridor, and the planting of woody vegetation such as different willow species.

Restoring the woody part of the riparian corridor would increase shade on the river and decrease water temperatures that would, in turn, increase the oxygen content and help all forms of aquatic animal species. Protecting and restoring native vegetation would greatly help migratory bird populations, especially neotropical species that depend on native riparian vegetation to complete their life cycles. A restored riparian corridor would also likely lead to a greater bird diversity and population numbers.

Vegetation and Streambank Changes

Riparian streambanks and vegetation receive little to no rest from herbivory, haying, grazing, and trampling. Thus, there is no time to recover from such effects. Fencing would be needed to exclude activities such as grazing, and limits would need to be placed on haying to reduce effects and to improve the vegetative diversity within the riparian zone.

Hunting used to reduce the effects of large native ungulates on riparian areas would be emphasized. Protecting riparian and river habitats from excessive browsing and trampling from ungulates would help recover and restore native vegetation, especially woody species.

Streambank Stabilization

We would collaborate with other groups to evaluate, plan, and conduct projects that would improve streambank stability and riparian and river health. These are necessary and would be emphasized, but we lack the resources to conduct them ourselves.

We would help the river to migrate through natural patterns via streambank enhancement, restoration, and other activities to provide new substrates and sedimentation that is conducive to willow and cottonwood regeneration. We would also fence out ungulates to reduce herbivory and to help with woody vegetation reestablish itself.

Streamflow Regime

Where feasible and without changing our or our neighbors' water rights, we would remove and manage the refuge's irrigation infrastructure to help restore a natural streamflow regime.

We recognize that instream flows are essential for healthy river habitats, but we do not actively seek to keep them. We are working with WGFD to understand river health and diversity, but this has just begun. There are also many other issues about streamflow regime to consider.

By removing irrigation infrastructure and allowing the river to flood from its banks, streamflows should improve and provide more habitat for fish.

Wildlife Diseases

Same as alternative A

Crop Depredation and Private Property Damage

Same as alternative A

Wildland Fire Management

Because the refuge FMP would be revised to allow the use of prescribed fire as a refuge habitat management tool, fire would once again be able to promote healthy vegetation and wildlife habitat in most ecosystems, including grasslands, wetlands, woodlands, and forests. When integrated back into an ecosystem, fire can help restore and support its health systems and reduce the risk of future wildfires. Reintroducing fire to the Bear River Basin could:

- improve or support wildlife habitat by reducing the density or changing species composition;
- help to sustain biological diversity and restore natural conditions;
- improve access in upland, wetland, and riparian habitats;
- enhance soil pH and increase soil nutrients;
- create barriers for protecting high-value areas such as private property or administrative sites;
- reduce susceptibility of plants to insects and disease outbreaks;
- reduce accumulated vegetation;
- help in the control of non-endemic and invasive plants.

Prescribed fire during bird nesting seasons could lead to nest destruction or increased nest predation. Usually this is not only because of the burning of nests but because islands of unburned areas may also be targeted by nest predators like the coyote, skunk, and raccoon. However, birds will typically renest if the initial nest is destroyed, though renests usually contain fewer eggs. The initial loss of nests and the potential reduction in bird numbers would eventually be offset by improved habitat conditions that could lead to better nesting conditions and numbers.

Prescribed fires could also cause the direct mortality of wildlife species. Most large mammals can move away from a prescribed fire, and smaller mammals, like mice, are well adapted to most prescribed fires as they retreat to their underground burrows or use their high reproductive rates to recolonize. Reptiles and amphibians tend to be more at risk from prescribed fires, as they are cold blooded and move slower. Ignition techniques can help reduce the potential for wildlife mortality in prescribed fires.

A prescribed fire's effects on vegetation would depend on the heat of the fire and the climate-induced state of the vegetation. Grass fires conducted late in the spring generally help warm-season grasses while decreasing native forbs and cool-season grasses. Late summer burns can reduce woody encroachment and generally help cool-season grasses. Fire has little effect on wetland vegetation other than to remove residual cover, as these areas are driven by hydrology. However, if wetland soils are dry, fire can burn down into organic layers and kill cattail and phragmites. This can lead to an increase in carbon dioxide emissions because this is material that may not normally burn. Fires during drought conditions may lead to an increase in soil erosion because of the lack of regrowth.

Depending on the sagebrush species, fire can negatively affect sagebrush–steppe habitats. While some sagebrush species resprout following a fire, others have to recolonize the burned area from nearby unburned areas. Recent work by Baker (2006) seems to show that fire was much less prevalent in sagebrush communities than what was thought before. In addition, cheatgrass may invade these habitats after a fire. Cheatgrass is an introduced annual that is dramatically changing fire regimes throughout the Great Basin.

The reintroduction of fire could also reduce areas available for grazing or haying for a year or two. However, prescribed fire would not replace grazing or haying on refuge lands. Prescribed fire would be another tool for management to use for habitat and fuels management.

Fire can negatively affect air quality. Smoke from prescribed fires contains particulate matter, carbon monoxide, carbon dioxide, and other chemicals that can cause adverse health effects, especially to children, the elderly, and people with asthma. Conducting prescribed burns during favorable atmospheric conditions would allow the smoke to go higher into the atmosphere and reduce effects to smoke-sensitive areas.

Visitor Services and Cultural Resources

This section describes the environmental consequences that affect visitor services and cultural resources.

Public Access

We would open portions of the refuge to compatible, wildlife-dependent recreation via walk in-only access from at least one point on the east and west sides of the refuge. We feel that it is important to provide more recreational opportunities; however, it would take some time to improve areas for recreation. Initially, there would be few facilities for visitors because the removal of infrastructure would limit access, and there would likely be no vehicle access developed for an auto tour route.

A plan to allow, and manage, visitors would have to be developed with the help of our Region 6 visitor services staff to address issues such as travel management, the infrastructure development, and needed staff.

Limited public access would shield wildlife and habitats from disturbance but would also perpetuate negative attitudes about the Service and the refuge held by refuge neighbors and visitors because they would not be able to enjoy many of the wildlife-dependent public uses that other refuges provide.

Visitor Safety

With increased public access, our staff would have to find ways to ensure visitor safety. Public access to the refuge would continue to be limited to the existing sites, where it can occur in a safe manner, so there would be little effect on visitor safety.

We are studying sites and ways in which to allow public access to refuge lands to engage in compatible, wildlife-dependent recreational opportunities, such as hunting, fishing and bird observation. One of the main visitor safety concerns is the presence of a railroad track. We will only allow public access to the refuge when there is adequate infrastructure and other safeguards installed, which would take time. Railroad crossings will have to be outfitted with safety equipment to warn of oncoming train traffic and to prevent visitors from crossing the tracks when trains are approaching.

We would need help from local governments and individuals to find ways to provide, and support, facilities. We would also need to increase staff for the increased workload to come as more visitors take part in recreational opportunities.

Ensuring the safety of visitors on the refuge may negatively affect refuge habitats because of the development of access points, infrastructure, roads, signals, fences, and parking lots.

River Boating

We would be interested in opening the refuge to noncommercial recreational boating on the Bear River using nonmotorized watercraft to facilitate priority wildlife-dependent public uses. There are areas that would allow access to the river, but getting over, or around, the BQ and Pixley Dams is one of several safety concerns. There are also private property issues along the river in many areas that would have to be addressed. Tubing and rubber rafts would not be considered appropriate forms of boating.

Finding ways to allow river boating would go a long way toward improving the public's perception of the Service and the refuge. Using nonmotorized boats, according to our and State regulations, would not have an adverse effect on the refuge's habitats and aesthetics and would cause a minimal amount of disturbance to the refuge's wildlife and plants.

Hunting

The refuge would seek to open portions of the refuge for big game, small game, upland game (except sage-grouse), and migratory bird hunting. Where possible, refuge hunting regulations would be consistent with regulations established by WGFD. A hunt plan is being developed and would need to be approved before any hunting takes place. We believe that it is important to allow hunting because this is a priority wildlife-dependent public use on national wildlife refuges.

A hunt program would have a minimal effect on wildlife populations and refuge habitats, mostly because of the moderate foot trampling of outdoor enthusiasts. It would also greatly alleviate the negative perception the public has of the refuge and the Service and could improve local and State economies while also reducing the comingling of domestic cattle and wildlife, which would reduce the risk of wildlife disease to cattle.

It is expected that a hunt program on the refuge would not adversely affect the environment.

Fishing

We would seek to open portions of the refuge to fishing opportunities. Where possible, refuge fishing regulations would be consistent with regulations established by WGFD. A fishing access plan would need to be developed to provide visitors with information about special refuge regulations, areas to fish, and issues about private property. We believe that it is important to allow fishing because this is a priority wildlife-dependent public use on national wildlife refuges.

A fishing program would have a minimal effect on existing fish populations and refuge habitats because of moderate foot trampling and other activities conducted by outdoor enthusiasts. It would also greatly alleviate the negative perception the public has of the refuge and the Service and help local and State economies.

It is expected that a fishing program on this refuge would not adversely affect the environment.

Trapping

Trapping for recreation and fur harvesting is a historical and cultural practice within the local area. Limited opportunities might exist for the recreational harvest of furbearing animals on the refuge under the right conditions and given management needs.

A limited trapping program would have a minimal effect on wildlife populations and refuge habitats because of moderate foot trampling by outdoor enthusiasts. It would also greatly alleviate the negative perception the public has of the refuge and the Service.

Wildlife Observation and Photography

Wildlife observation would be allowed on a limited basis, but would need to be expanded to allow self-guided opportunities on the refuge. Photography is now allowed on a limited basis, but would need to be expanded to allow self-guided opportunities on the refuge.

Limited wildlife observation and photography programs would have a minimal effect on wildlife populations and refuge habitats because of moderate foot trampling by outdoor enthusiasts. They would also greatly alleviate the negative perception the public has of the refuge and the Service.

It is expected that limited wildlife observation and photography programs would not adversely affect the environment.

Environmental Education and Interpretation

Environmental education would be conducted on a limited basis, but would need to be expanded to allow for self-guided interpretive opportunities. As staff increases, there would be more opportunity to include staff- or volunteer-guided activities for school groups or special interest groups.

Limited environmental education and interpretation programs would have a minimal effect on wildlife populations and refuge habitats because of moderate foot trampling by outdoor enthusiasts and because of the installation of interpretation facilities. They would, however, greatly alleviate the negative perception the public has of the refuge and the Service and increase support for our mission and that of the Refuge System, the goals of this CCP, and the purposes of the refuge would increase. Interest in natural resources, conservation efforts, and related careers among refuge visitors would also increase.

Public Information

The availability of more information for the public, be it verbal or printed, would have a neutral effect on the environment. It would, however, create a more inviting atmosphere for visitors and increase public awareness and interest in wildlife and habitat needs, which may result in increased revenues for local and State economies.

Cultural Resources

Same as alternative A.

Partnerships

Same as alternative A.

Landscape Conservation

Same as alternative A.

Refuge Development and Operations

This section describes the environmental consequences that affect refuge development and operations.

Staff

While water management responsibilities would be reduced, other priorities would increase. Thus, we would need to add one full-time, on site, wildlife refuge specialist, one full-time biological technician, and one career seasonal (six month) biological technician. These additions would allow us to improve management within the refuge boundary.

Facilities

The removal of the refuge's water delivery infrastructure would subject wet meadow and wetland habitats to more cyclical water regimes that would mimic those found at the refuge before the area was settled. This could help native vegetation better compete against nonnatives.

New access points and boat and canoe launch sites would increase public enjoyment as well as disturbances to wildlife.

Water Management

Water management would be reduced, providing opportunities to shift work to other activities such as public use. We would remove dikes and structures, thus reducing the level of water management required on the refuge. However, this could put water rights held by the refuge in jeopardy because of the real, or perceived, lack of water management. A change of use for refuge water rights might have to be applied.

The removal of the refuge's water delivery infrastructure would subject wet meadow and wetland habitats to more cyclical water regimes mimicking those found at the refuge before the area was settled. This may help native vegetation better compete against nonnatives.

Inventory, Monitoring, and Research

Developing a habitat management plan and an inventory and monitoring plan, coupled with the more refuge staff and with existing cooperative work with WGFD for wildlife species and with Lincoln County Weed and Pest monitors for invasive plants, would greatly increase our knowledge of the refuge's habitat and wildlife resources. In turn, this would give us more correct and timely information to help us avoid adverse effects to, or to better address the needs of, habitats, wildlife, and species of concern.

Expanding the existing monitoring partnership with WGFD and Lincoln County to include aquatic species would give us the possibility of impeding, or at least slowing down, the infestation of refuge habitats by aquatic invasive species.

Nuisance Animal and Predator Control

When nuisance animals are identified as having caused damage to refuge wildlife and resources or to neighboring private property interests, we could take steps to reduce the damage or we could allow others to do it, such as an agency like Animal and Plant Health Inspection Services (APHIS). It is important to have the ability to correct problems that animals cause, such as livestock depredation (appendix H).

Effects, however, would be similar to those under alternative A.

Alternative C, Resource Enhancement

Under this alternative, we would find partners to work with us within the refuge acquisition boundary to enhance resources.

Habitat and Wildlife Management

This section describes the environmental consequences that affect proposed actions to enhance wet meadow, upland, and riparian and river habitats and their associated wildlife as well as to control wildlife diseases, crop depredation, and private property damage.

Wet Meadow Habitat

Actions for this habitat would affect a range of elements, similar to alternative A except for haying and grazing effects, which would be similar to alternative B. There could be greater vegetative communities and species diversity.

Water Management and Control Structures

Water management and the replacement of poorly functioning infrastructure would continue and would improve wildlife habitats. Existing and planned structure placement would be evaluated to increase productivity and diversity. We would also work closely with the Partners for Fish and Wildlife Program to coordinate with adjacent landowners for help with water management projects that would improve habitats and enhance operations on private lands.

With these improvements and an increased number of water control structures, there would be a greater demand on staff time to manage the movement of water through the refuge. It is expected that habitats would become more productive, which would require more active habitat management by staff and permittees. This, in turn, would lead to greater use by a wider variety of wildlife species.

Vegetative Community and Species Diversity

Effects would be similar to alternative A, but as the habitat would become more productive there would be greater vegetative community and species diversity.

Haying and Grazing and Other Economic Uses

Haying, grazing, and prescribed fire would help create a more diverse native vegetative community. A grazing management plan would be needed for effective management.

Effects on the environment would be similar to those in alternative B.

Nesting and Brood-Rearing Habitat

Natural flooding from the river into sloughs and other low areas would provide areas for nesting and brood rearing. This area would be similar to alternative A. More broods may be produced, and a greater variety of birds may exist. The refuge would be especially interested in working with local landowners to enhance habitats on their lands for nesting and brood rearing to increase wildlife abundance and diversity.

Effects on the environment would be similar to those in alternative A.

Water Quality for Amphibians

The refuge would check water quality in the river and wet meadow areas and work with local landowners to improve water quality and to reduce sedimentation for amphibians. An increased number of amphibians may be seen

with the proper management of water quality. With more amphibians, there would also be a larger food base for other wildlife, such as American bitterns, great blue herons, and egrets.

Salt Loads

Salt loads in the refuge have not been checked. Only casual observation has been made of areas where salt has precipitated from the soil or up the stalks of vegetation. We are concerned that salt loads might be a problem and would seek opportunities to conduct monitoring.

Effects on the environment would be similar to those in alternative A.

Brood Rearing, Irrigation Timing, and the Flooding of Nests

The refuge would continue to irrigate the wet meadows as under alternative A. As a result, we would use adaptive management techniques to decide if effects can be reduced in the short and long terms. We would see if effects to early nesters and late broods could be avoided by making simple changes in irrigation management.

Effects on the environment would be similar to those in alternative A.

Upland Habitat

Actions for this habitat would affect a range of elements, similar to alternative B. In addition, they would help other wildlife species that have similar life cycle needs to targeted species.

Haying and Grazing and Other Economic Uses

These have proven to be useful to support healthy habitats. Haying and grazing are used primarily in lieu of prescribed fire and have helped us control invasive plants. We found that spring grazing affects refuge habitats negatively when used several years in a row, so we are working to phase it out except in cases where a spring treatment would be beneficial for management activities like irrigation.

A grazing management plan would be needed to manage upland habitats effectively.

Environmental effects would improve the habitat for targeted species, which would also help wildlife species that share similar life cycle needs and ecological parameters.

Upland Conversion to Irrigated Cropland

The refuge has several areas that were converted to alfalfa from sagebrush habitat before we acquired them. These fields remain in alfalfa. We do not want to allow the conversion of more upland habitat and would prefer to revert current alfalfa to native vegetation. There are now 660 acres of alfalfa on the refuge that are being prepared for conversion to native vegetation.

To phase out alfalfa, we would rotate small grain crops through proposed upland restoration sites to control weeds for 2 to 3 years and then convert them to native grass. We would also find 2–3 sites where small grain crops can be grown to offset depredation on private lands.

By restoring native vegetation to areas that are now being cropped, we would help migratory and resident upland birds, mammals, and reptiles to return and thrive for an overall positive effect on the environment.

Nesting and Brood-rearing Habitat

We would restore upland native habitats to provide for more nesting cover and brood rearing by rotating small grain crops through proposed upland restoration sites to control weeds for 2–3 years and then converting to native grass. We would also find 2–3 sites where small grain crops can be grown to offset depredation on private lands. This would phase out growing of alfalfa on the refuge.

By restoring native vegetation to areas that are now being cropped, we would help migratory and resident upland birds, mammals, and reptiles to return and thrive for an overall positive effect on the environment.

Riparian and River Habitats

Actions for this habitat would affect a range of elements, similar to alternative B.

Fisheries and Fish Habitat

There would be no work done by the refuge to improve the fishery within the refuge, but we would coordinate with WGFD to conduct species surveys and to make recommendations on areas to study. Special emphasis would be placed on Bonneville cutthroat trout populations and on increasing diversity within the refuge.

Environmental effects would be decidedly positive as native fisheries could be restored and supported to improve overall ecological resiliency and provide sportfishing opportunities.

Riparian Corridor Vegetation Condition and Diversity

The riparian corridor has low diversity and is not excluded from haying or grazing. Woody species are in decline and require restoration. Streambanks are cut and vertical in most places. Lack of exclusion from herbivory is an overall problem. In general, the riparian habitat is in poor condition. Lack of attention would continue to perpetuate the problem. Coordination with WGFD and partners would improve riparian health.

The refuge would seek to manage riparian vegetation to optimize habitat for selected perching and other migratory birds that use riparian corridors for survival. Targeted projects to improve riparian condition would include wildlife-friendly fencing, improved management of haying and grazing to reduce herbivory within the riparian corridor, and the planting of woody vegetation such as different willow species.

Vegetation and Streambank Changes

These receive little to no rest from herbivory, haying, grazing, and trampling. Thus, they cannot recover from effects. Fencing would be needed to exclude activities like grazing, and limits would need to be placed on haying to reduce effects and improve vegetative diversity within the riparian zone.

Hunting would be emphasized to reduce the effects of large native ungulates on riparian areas.

We would emphasize reintroducing woody vegetation to the riparian zone to improve nesting habitat, water quality in the river, and streambank stability.

Streambank Stabilization

We would emphasize stabilizing the streambank, but we lack the resources to conduct needed projects. As a result, we would collaborate with other groups to evaluate, plan, and conduct projects to improve streambank stability and riparian and river health.

We would use the best scientific methods available to stabilize degraded sites. The Pixley and BQ Dams would be evaluated for replacement or repair, and fish passage would be created to improve connectivity and species diversity along the river.

Effects on the environment would be similar to those in alternative B, but improved habitats and the inclusion of fish-passage structures on water diversion facilities would greatly enhance the success of fisheries restoration.

Streamflow Regime

We would use adaptive management to decide where to change water diversion schemes and infrastructure to enhance wetlands and to optimize migratory bird habitats and production. Part of this would be accomplished by

cooperating with the State Engineer's Office, WGFD Water Management Staff, and local WGFD biologists to develop water management plans that consider the needs for irrigation, enhance floodplain and wetland habitat using flows, and define the timing necessary for healthy riparian and river habitats for native aquatic species within the refuge acquisition boundary. We would seek a balance of water use to enhance both wetland and riparian and river habitats and would develop a cooperative water monitoring and management plan with partners to achieve a mutually compatible balance of water uses.

We expect that this upgraded water management scheme will help both wet meadow and wetland habitats and the wildlife species that depend on them. Resultant waterfowl and waterbird nesting habitat improvements would lead to increased nesting success and production. Amphibians will also benefit and continue to thrive. Mammals, insects, and reptiles will also benefit. Thus, the effects on the environment are all expected to be positive.

Wildlife Diseases

Without staff at the refuge, we may be doing too little to prevent disease transmission. When staff is on the refuge, they will make casual observations for evidence of disease. They would also cooperate with WGFD and neighbors, when they are available, to define and reduce the risks of transmitting diseases such as brucellosis, avian botulism and cholera, whirling disease, rabies, West Nile, chronic wasting disease, and others.

WGFD would proactively check and sample for wildlife diseases. We might need to review and update the refuge disease contingency plan.

Leaving the refuge unmanned would heighten the threat of wildlife diseases because no one would be present to promptly acknowledge and contain outbreaks. Therefore, there would be potentially negative effects on the environment.

Crop Depredation and Private Property Damage

Our refuge staff worked with private landowners and WGFD in the past to reduce damage to private property by waterfowl and large ungulates. Occasionally, small grain crops would be grown on the refuge to reduce damage by waterfowl on privately held lands.

This method, however, is not a permanent solution to the problem. As a result, national wildlife refuges have started to move away from planting bait crops to reduce depredation on private land and have started to focus on improving their habitats to provide required food sources that are abundant enough to reduce crop damage. We would continue to restore native grasses on a large area of the refuge while also considering grain crops for a few years to control weeds before planting grass seed. This should also help with private crop damage issues.

We would also consider designating limited areas of cropland for small grains as a supplemental food source for sandhill cranes and other migratory birds to reduce depredation on neighboring lands and to provide enhanced wildlife observation opportunities.

Effects on the environment would be neutral.

Wildland Fire Management

Same as alternative B.

Visitor Services and Cultural Resources

This section describes the environmental consequences that affect visitor services and cultural resources.

Public Access

Same as alternative B, but the development of new infrastructure would increase access. New access points and infrastructure and increased visitation would likely increase the level of disturbance to wildlife and habitats. However, the negative effect would be moderate, as it should not interfere with the life cycles of wildlife or the management

activities of the refuge. Increased access and wildlife-dependent recreation would help alleviate the negative perception some have of the Service and the refuge.

Visitor Safety

Same as alternative B.

River Boating

Same as alternative B.

Hunting

Same as alternative B.

Fishing

Same as alternative B.

Trapping

Same as alternative B.

Wildlife Observation and Photography

Same as alternative B.

Environmental Education and Interpretation

Same as alternative B.

Public Information

Same as alternative B.

Cultural Resources

Same as alternative A.

Partnerships

Same as alternative A.

Landscape Conservation

Same as alternative A.

Refuge Development and Operations

This section describes the environmental consequences that would affect refuge development and operations.

Staff

Same as alternative B.

Facilities

Same as alternative A, plus focusing on the needs of targeted species would allow us to help a greater variety of wildlife and plant species.

By increasing the number, variety, and distribution of infrastructure and access points into the refuge, we would also improve wildlife-dependent recreation.

Water Management

We have prioritized water management on the refuge to support habitats and protect our water rights, and we would continue to improve delivery system infrastructure.

Effects on the environment would be decidedly positive because an improved water delivery system and water management regime would allow us to achieve habitat management targets with greater accuracy and success. This, in turn, would create better habitat conditions for native plants and wildlife.

Improved habitat and wildlife would provide refuge visitors with a better outdoor recreational experience and foster our conservation message. Better outdoor recreational experiences could lead to greater visitation and result in greater expenditures on outdoor recreation gear and services, which would providing a boost to local and State economies.

Inventory, Monitoring, and Research

Same as alternative B.

Nuisance Animal and Predator Control

Same as alternative A.

Alternative D, Proposed Action: Landscape-level Management

Expanding on alternative C, we would find partners to work with us on a landscape scale rather than just within the refuge acquisition boundary. We recognize that there is a lot of great wildlife habitat outside of the refuge that is in private ownership or belongs to other government agencies.

We would reach out to private landowners who want to improve habitat for wildlife while still operating their farms and ranches as they see fit and provide them with help to improve their habitats. This alternative would broaden the scope of the refuge to work with partners throughout the Bear River watershed in Wyoming and seek greater improvement for wildlife.

Habitat and Wildlife Management

This section describes the environmental consequences that affect proposed actions to enhance wet meadow, upland, and riparian and river habitats and their associated wildlife as well as to control wildlife diseases, crop depredation, and private property damage.

Wet Meadow Habitat

Actions for this habitat would affect a range of elements, similar to alternative A. In addition, they would significantly help a large number of migratory and resident birds, waterfowl, and waterbirds, as well as large ungulates and aquatic species. They would also help to disperse wildlife.

Water Management and Control Structures

Water management and the replacement of poorly functioning infrastructure to improve hydrologic functions within the wet meadow habitats would continue to take place and help to improve wildlife habitats. Existing and planned structure placement should be evaluated to increase the productivity and diversity of wet meadow habitats. We would also work closely with the Partners for Fish and Wildlife Program to coordinate with landowners within the Bear River watershed to help in water management projects that would improve habitats on private lands as well as enhance their operations. However, with improvements and an increased number of water control structures, there would be a greater demand on staff time to manage the movement of water through the refuge. It is expected that, with improved water control, wet meadow habitats would become more productive, which would require more active habitat management by staff and permittees.

Vegetative Community and Species Diversity

Effects would be similar to alternative A plus reducing the extent of flooding by removing irrigation infrastructure, would change the vegetative dynamics and diversity of the refuge in the wet meadows. With less water in the meadows, some areas could begin to resemble upland areas and certain species may not be able to compete as well.

By using active water level management, haying, grazing, prescribed fire and other proper management activities in wet meadows and floodplain wetlands, it is expected that a more diverse native vegetative community would be encouraged.

We would seek to coordinate with private landowners within the Bear River watershed to work toward a vegetative community that is more diverse for wildlife but still helps their operations as farmers and ranchers.

Haying and Grazing and Other Economic Uses

A grazing management plan would be necessary to manage upland habitats effectively.

We would work with other agencies and partners to use grazing management as a tool to improve habitats across the landscape. The potential of rotational grazing among private, BLM, and refuge lands could be effective in improving habitat on essential winter range for migratory and resident wildlife.

Nesting and Brood-Rearing Habitat

Natural flooding from the river into sloughs and other low areas would provide areas for nesting and brood rearing. The area would be drastically smaller than under alternative A. Fewer broods may be produced, and a lower diversity of birds may exist.

We would be especially interested in working with local landowners to enhance habitats on their lands for nesting and brood rearing to increase wildlife abundance and diversity in the area of the refuge and across the watershed within Wyoming.

Water Quality for Amphibians

We would attempt to check water quality in the river and wet meadow areas and work with local landowners to improve water quality and to reduce sedimentation for amphibians. An increased number of amphibians may be seen because of the proper management of water quality. With more amphibians, there would also be a larger food base for other wildlife, such as American bitterns, great blue herons and egrets.

There would be potential to work with partners to improve water quality in many areas across the Bear River watershed in Wyoming to create, or improve, more areas of habitat for amphibians.

Salt Loads

Salt loads in the refuge have not been checked. Only casual observation has been made of areas where salt has precipitated from the soil or up the stalks of vegetation in the wet meadows. The refuge is concerned that salt loads might be a problem and would seek opportunities to conduct monitoring to decide if a problem exists.

If a problem on the refuge were identified, we would work with partners to decide if the problem is widespread throughout the basin or only in certain areas.

Effects to the environment would be similar to those in alternative A.

Brood Rearing, Irrigation Timing, and the Flooding of Nests

We would continue to irrigate the wet meadows as under alternative A.

As a result, we would need to do an evaluation of potential adaptive management techniques to decide if changes can be reduced in the short, and long, terms. An evaluation of the irrigation systems that provide water to the refuge would need to be conducted to see if changes to early nesters and late broods can be avoided by making simple changes in irrigation management.

In general, it is expected that the environmental effects from these actions would be similar to those under alternative A. Additionally, enhancing and restoring naturally occurring wet meadow and wetland habitats within the Bear River watershed in Wyoming would have a significant positive benefit to a large number of migratory and resident birds, waterfowl, and waterbirds, as well as large ungulates and aquatic species. Restoring these types of habitats in and around the refuge would create wildlife migration corridors that would help disperse wildlife.

Upland Habitat

Actions for this habitat would affect a range of elements, similar to alternative B. In addition, they would cause less fragmentation and create more connectivity throughout the Bear River watershed in Wyoming, which would make better migration corridors and decrease wildlife crowding.

Haying and Grazing and Other Economic Uses

Economic uses such as haying and grazing have proven to be useful tools to support healthy habitats on the refuge. Haying and grazing are used primarily in lieu of prescribed fire. Haying and grazing on the refuge has also been a major factor in controlling invasive plants on the refuge. It has been found that spring grazing changes refuge habitats in a negative way when the practice is used multiple years in a row and the refuge is working to phase out spring grazing, except in cases where a spring treatment would be beneficial to remove a vegetative overburden to improve management activities such as irrigation.

We would work with other agencies and partners to use grazing management as a tool to improve habitats across the landscape. The potential of rotational grazing between private, BLM, and refuge lands could be effective in improving habitat on essential winter range for migratory and resident wildlife.

It is expected that the environmental effects from these actions would be similar to those under alternative B. Additionally, there should be less fragmentation and more connectivity of upland habitats throughout the Bear River watershed in Wyoming. This would lead to better migration corridors for wildlife and decreased wildlife crowding.

Upland Conversion to Irrigated Cropland

The refuge has several areas that were converted to alfalfa from sagebrush habitat before we acquired them. These fields remain in alfalfa. We do not want to allow the conversion of more upland habitat and would prefer to revert current alfalfa to native vegetation. There are now 660 acres of alfalfa on the refuge that are being prepared for conversion to native vegetation.

We would develop a plan to rotate small grain crops through proposed upland restoration sites to control weeds for 2–3 years and then convert to native grass. The refuge would find 2–3 sites where small grain crops can be grown to offset depredation on private lands. This would phase out growing of alfalfa on refuge lands.

Effects to the environment would be similar to those in alternative B.

Nesting and Brood-rearing Habitat

We would restore upland native habitats on the refuge to provide more nesting cover and brood rearing and develop a plan to rotate small grain crops through proposed upland restoration sites to control weeds for 2–3 years and then convert to native grass. We would find 2–3 sites where small grain crops can be grown to offset depredation on private lands. This would phase out the growing of alfalfa on refuge lands.

Effects to the environment would be similar to those in alternative B.

Riparian and River Habitats

Actions for this habitat would affect a range of elements, similar to alternative B. In addition, they could increase river shading and decrease river temperatures and sediment loads upstream and downstream of the refuge, allowing the water to hold more dissolved oxygen and help native trout and other aquatic species. They would also decrease fragmentation and help wildlife move and migrate through the watershed, increasing opportunities for wildlife-dependent recreational opportunities.

Fisheries and Fish Habitat

We would continue to coordinate with WGFD to conduct species surveys and make recommendations on areas to approach for improvement. Special emphasis would be placed on Bonneville cutthroat trout populations. Cooperative efforts with partners throughout the Bear River Valley to improve habitats both on and off the refuge for all native aquatic species would further increase the probability that Federal listing of Bonneville cutthroat trout could be avoided.

It is expected that the environmental effects from these actions would be similar to those under alternative B. However, the benefits of protecting and restoring the riparian corridors of the Bear River watershed in Wyoming could result in increased shading and decreased river water temperatures and sediment loads upstream and downstream of the refuge, which would allow water to hold more dissolved oxygen for the benefit of native trout and other aquatic species.

Riparian Corridor Vegetation Condition and Diversity

The riparian corridor has low diversity and is hayed or grazed. Woody species are in decline and require restoration. Streambanks are cut and vertical in most places. Herbivory is an overall problem. In general, the riparian habitat is in poor condition. Lack of attention would perpetuate the problem. Coordination with WGFD and partners would improve riparian health.

We would seek to manage riparian vegetation to optimize habitat for selected perching and other migratory birds. Targeted projects to improve riparian condition would include wildlife-friendly fencing, improved management of haying and grazing to reduce herbivory within the riparian corridor, and the planting of woody vegetation such as different willow species.

Restoring more sections of the riparian corridor in Wyoming would decrease fragmentation and help wildlife to move and migrate throughout the watershed, which would increase opportunities for wildlife-dependent recreational opportunities.

Vegetation and Streambank Changes

Riparian streambanks and vegetation receive little-to-no rest from herbivory, haying, grazing, or trampling. Thus, there is no time for recovery. Fencing would be needed to exclude activities such as grazing, and limits would need to be placed on haying to reduce effects and to improve vegetative diversity within the riparian zone.

The use of hunting to reduce how large native ungulates affect riparian areas would be emphasized.

We would place a greater emphasis on introducing woody vegetation back into the riparian zone to improve nesting habitat, water quality in the river, and streambank stability.

New, or expanded, partnerships would lead to an improved distribution of wildlife species and would greatly increase opportunities to meet landscape-level objectives within the Bear River watershed in Wyoming.

The effects of this action on the environment are similar to those under alternative C, however the positive environmental effects would extend outside the refuge boundaries to the Bear River watershed in Wyoming.

Streambank Stabilization

Projects to stabilize the streambank are necessary, and would be emphasized. The refuge sees the value in such projects, but lacks the resources to conduct them. The refuge would seek to collaborate with other groups to evaluate, plan and conduct projects that would improve streambank stability and riparian and river health.

We would use the best scientific methods available to stabilize degraded sites. The Pixley and BQ Dams would be evaluated for replacement or repair, and fish passage would be created to improve connectivity and species diversity along the river. We would work with other cooperators to support these practices throughout the Bear River watershed.

The effects of this action on the environment are similar to those under alternative C, however the positive environmental effects would extend outside the refuge boundaries to the Bear River watershed in Wyoming.

Streamflow Regime

We would use adaptive management to decide where to change water diversion schemes and infrastructure, if feasible, to enhance wetlands and to optimize migratory bird habitats and production. Part of this would be accomplished by working cooperatively with the State Engineer's Office, WGFD Water Management Staff, and local WGFD biologists to develop water management plans that balance the needs for irrigation, enhance floodplain and wetland habitat using flows, and define the timing necessary for healthy riparian and river habitats for native aquatic species within the refuge acquisition boundary. We would seek a balance of water use to enhance both wetland and riparian and river habitats and would work to develop a cooperative water monitoring and management plan with partners to achieve a mutually compatible balance of water uses.

The effects of this action on the environment are similar to those under alternative C, however the positive environmental effects would extend outside the refuge boundaries to the Bear River watershed in Wyoming. We would attempt to gain support for this process among other water users so that they may apply this same process across the watershed to improve many other areas of riparian and river habitat.

Wildlife Diseases

Our staff makes casual observations when they are on the refuge and we cooperate with WGFD and neighbors when they are available to find and reduce the risks of transmitting diseases such as brucellosis, avian botulism and cholera, whirling disease, rabies, West Nile, chronic wasting disease and others. Because we do not have staff stationed at Cokeville Meadows Refuge, there is a perception that we are doing little to prevent disease transmission. Under this alternative, WGFD would proactively check and sample for wildlife diseases. We would need to review and update the refuge disease contingency plan if necessary.

Effects to the environment would be similar to those in alternative B.

Crop Depredation and Private Property Damage

We work with private landowners and WGFD to reduce damage to private property by waterfowl and large ungulates. Occasionally, small grain crops are grown on the refuge to reduce damage by waterfowl on privately held lands, but this practice is not permanent.

We would continue to carry out native grass restoration on a large area of the refuge and would look to use grain crops to control weeds for a few years before planting grass seed. This should help with private crop damage issues, but it is only a temporary fix. National wildlife refuges, in general, have moved away from planting bait crops to reduce depredation on private lands and have started to focus on improving refuge habitats to provide required food sources that are abundant enough to reduce crop damage.

Effects to the environment would be similar to those in alternative B. We would consider designating limited areas of cropland for small grains as a supplemental food source for sandhill cranes and other migratory birds to reduce depredation on neighboring lands and to provide enhanced wildlife observation opportunities.

Wildland Fire Management

Same as alternative B. However, the benefits derived by humans, wildlife, and natural habitats from fuel reduction treatments and other elements of a prescribed fire program would be extended to other areas within the Bear River watershed in Wyoming and could help prevent catastrophic wildfire events.

Visitor Services and Cultural Resources

This section describes the environmental consequences that affect visitor services and cultural resources.

Public Access

Same as alternative C, though positive environmental effects would extend outside the refuge boundaries to the Bear River watershed in Wyoming.

Visitor Safety

Same as alternative B

River Boating

Same as alternative B.

Hunting

Same as alternative B, however the positive environmental effects would extend outside the refuge boundaries to the Bear River watershed in Wyoming.

Fishing

Same as alternative B.

Trapping

Same as alternative B.

Wildlife Observation and Photography

Same as alternative B.

Environmental Education and Interpretation

Same as alternative B, but with expanded support for the conservation of natural resources throughout southwest Wyoming.

Public Information

Same as alternative B.

Cultural Resources

Same as alternative A.

Partnerships

Same as alternative A, but expanding existing partnerships and developing new ones to include various areas in the Bear River watershed in Wyoming would provide new resources to contain invasive species infestations throughout the watershed to ensure healthy habitat conditions for many wildlife species.

Strengthening and expanding our existing wildfire containment partnerships would continue to prevent damage to public and private property and would encourage fire management strategies that would further protect human life and infrastructure and help habitats and wildlife throughout the watershed.

Finally, expanding the range, variety, and scope of existing partnerships to include the entire watershed would allow our staff and partners to find wildlife uses, population trends, and habitat conditions, which, in turn, would help WGFD staff better manage habitat and wildlife resources throughout the watershed and would help our staff better manage within the refuge boundary.

Landscape Conservation

More resources would be available for habitat enhancement and protection that would help wildlife and wildlife-related recreation. Coordinating with Bear River Watershed Conservation Area partners would enhance and preserving wildlife migration corridors and would increase the genetic exchange between wildlife populations and their access to adequate food sources which would improve their reproductive success and survival.

Refuge Development and Operations

This section describes the environmental consequences that affect refuge development and operations.

Staff

Same as alternative B, plus the addition of a full-time extension biologist would help us improve management throughout the Bear River watershed in Wyoming.

Facilities

Same as alternative C, however increased partnerships and more volunteers would have a greater positive effect on the environment and would allow us to expand our management and visitor services activities to the greater Bear River watershed in Wyoming.

Water Management

Same as alternative C, plus we would consider using the refuge's water rights to restore habitats watershed wide in Wyoming. We would seek to work with the State Engineer's Office to decide if water rights can be used in other places in the watershed to carry out important habitat projects for wildlife. For example, we would be interested in working on a project with a private landowner, or other agency to keep water in a stream for fish passage during important times of the year.

Same as alternative C, plus positive environmental effects would extend outside the refuge boundaries to the Bear River watershed in Wyoming.

Inventory, Monitoring, and Research

Same as alternative B, plus the cooperative work that we would carry out with existing and new partners throughout the Bear River watershed in Wyoming would expand the range of possibilities to better deal with existing, or prevent new infestations of invasive species. Furthermore, generating new information on the Bear River watershed's water quality could equip the staff and its partners with ways to resolve water quality issues and thus improve the habitats for aquatic and terrestrial plant and animal species, as well as the quality of the experience for outdoor recreation enthusiasts and other sportsmen or women.

Nuisance Animal and Predator Control

Same as alternative A.

5.3 SOCIOECONOMIC IMPACTS

Cokeville Meadows Refuge lies within Lincoln County, along the borders of Idaho and Utah, in rural southwestern Wyoming. In 2010 the population of this county was slightly more than 18,000, which is roughly 4.4 persons per square mile. In 2011 it was estimated that the unemployment rate for Lincoln County was approximately 6.6 percent. Industries that provide the most jobs for residents of Lincoln County include ranching, farming, mining, forestry, and services.

When the refuge was established, it was expected that the visitors would contribute to the local and State economies through buying local goods and services. However, the refuge is closed to most public uses except wildlife viewing, photography, and interpretation at the contact station and kiosk at Netherly Slough.

Alternative A proposes no change to management, which would keep the refuge closed to most public uses. Visitor contributions to the local and State economies would be small, and a negative image of the refuge and the Service may continue.

Alternatives B, C, and D, on the other hand, propose opening parts of the refuge to compatible, wildlife-dependent public uses—mainly hunting, fishing, wildlife observation, photography, environmental education, and interpretation—to varying degrees. This would be accomplished by designating and opening access points on the east and west sides of the refuge and developing the necessary infrastructure. We project that opening the refuge to these compatible public uses would increase visitation and local and State revenues, especially through outdoor recreational opportunities.

Among these three alternatives, D would have the greatest positive effect on the local and State economies because it calls for not only opening the refuge to compatible public uses but for the development of partnerships that could result in increased opportunities to enjoy outdoor recreational opportunities throughout the entire Bear River watershed in Wyoming.

Chapter 6—Implementation of the Proposed Action (Draft Plan)

This chapter describes the objectives, strategies and rationales for carrying out the proposed action developed in this draft CCP for Cokeville Meadows Refuge. Once approved, the proposed action will become the new management direction for refuge. After we have notified the public in the final CCP of our decision on a new management direction, the implementation phase of the CCP process will begin and these objectives and strategies will be carried out during the next 15 years, from 2013 to 2028.

The final CCP will serve as the primary management document for Cokeville Meadows Refuge until it is formally revised. We will carry out the actions identified in the final CCP with help from existing and new partner agencies, organizations, and the public. There are no assurances that projects identified in this draft CCP will be fully, or even partially, financed. However, within every planning effort there are opportunities to examine current funds and other available resources, to choose implementation strategies, and to prioritize projects for improved effectiveness.

6.1 IDENTIFICATION OF THE PROPOSED ACTION

The planning team for Cokeville Meadows Refuge developed four unique management alternatives based on the issues, concerns, and opportunities expressed during the scoping process (chapter 1). The issues discussed throughout this draft CCP and EA were derived from the collective input of local citizens and communities, cooperating agencies, conservation organizations, and refuge staff. Below is a brief description of the selection of the proposed action alternative and the other three alternatives, ranked in order of preference.

1. Alternative D, Proposed Action: Landscape-level Management

Alternative D was chosen to be the proposed action for this draft CCP and EA because it best addresses the vision and goals for Cokeville Meadows Refuge. Management of the refuge would strive to improve resources and refuge development with the use of partners to increase wildlife and habitat productivity within, and outside of, the refuge boundary. Refuge management would focus its efforts on managing lands within a greater landscape footprint by using partnerships to enhance habitats throughout the Bear River watershed in Wyoming.

Land and easement acquisition would continue to round out and complete the acquisition boundary. Wet meadow and upland habitats would be managed and restored to increase wildlife productivity and diversity. The use of agricultural practices would be specifically geared to enhance refuge habitats for wildlife both on and off refuge lands. We would emphasize the development of visitor resources such as access and opportunities for wildlife-dependent uses (hunting, fishing, wildlife observation, photography, interpretation, and environmental education) to encourage a greater understanding and appreciation of the Bear River watershed, wet meadow, riparian, and stream habitats and wildlife. Details on the objectives and strategies for the proposed action may be found in section 6.3.

The primary difference between this alternative and alternative C is that we would find partners that would work with us on a landscape scale rather than just within the refuge acquisition boundary. We recognize that there is a lot of great wildlife habitat outside the area of the refuge that is in private ownership or that belongs to another government agency, and we would broaden the scope of the refuge to work with partners throughout the Wyoming part of the Bear River watershed wherever opportunities to help wildlife exist. We also want to reach out to private landowners to help them improve habitat for wildlife while they run their farms and ranches as they see fit.

2. Alternative C, Resource Enhancement

Under alternative C we would strive to improve resources and refuge development with the use of partners to increase wildlife and habitat productivity primarily within the refuge. Land and easement acquisition would continue to round out and complete the acquisition boundary. Wet meadow and upland habitats would be managed and restored to increase wildlife productivity and diversity. The use of agricultural practices would be specifically geared to enhance refuge habitats for wildlife. We would emphasize the development of visitor resources such as access and opportunities for wildlife-dependent uses to encourage a greater understanding and appreciation of the Bear River watershed and wet meadow habitats and wildlife.

3. Alternative B, Maximum Restoration

Under alternative B we would seek to restore habitats so that they closely resemble presettlement conditions. Using recommendations from the recently completed HGM report for Cokeville Meadows Refuge, we would consider removing dikes, water control structures, and irrigation infrastructure. Land and easement acquisition would continue to round out and complete the acquisition boundary.

Wet meadow irrigation would follow historical flood patterns and allow vegetative communities that existed before development to reestablish. The flooding of wet meadows would primarily take place over river banks rather than from irrigation diversions. Haying and grazing activities would be used to keep habitats productive, and nonnative agricultural crops would be limited or used as a tool to establish native habitats. We would emphasize public uses that are compatible or that support habitat restoration.

4. Alternative A, No Action

Under alternative A, management issues would not be adequately addressed. This alternative serves as a baseline by which other alternatives may be compared.

Our current management programs and efforts would not change significantly unless money and staff were increased. Land and easement acquisition would continue to round out and complete the acquisition boundary. Habitat management, in the form of irrigation, haying, and grazing would continue at, or near, current levels to support existing conditions at Cokeville Meadows Refuge. Outreach, partnerships, and priority public uses that are compatible and wildlife dependent (fishing, hunting, wildlife observation, photography, interpretation, and environmental education) would be limited.

6.2 SUMMARY OF THE PROPOSED ACTION

Alternative D proposes that greater attention be given to Cokeville Meadows Refuge so that we may conduct site-specific research; strengthen and support current partnerships and build new ones; develop specific, biologically based, and goal-oriented stepdown management plans; and guide future management decisions for the refuge. For most of the past 19 years, Cokeville Meadows Refuge has received little active management because its staff is relatively small and is stationed at the Seedskaadee National Wildlife Refuge Complex headquarters. The refuge had to compete with Seedskaadee National Wildlife Refuge for resources until 2002, when the refuge received money specifically for its own management. This allowed us to begin habitat-specific projects on the refuge in 2004 and to continue with them every year since. We hope that this plan will build on the work that we started in 2004 to help migratory bird species and to improve the relationships we have with our partners.

The planning team for this CCP developed objectives for alternative D that support the goals identified in chapter 2. Strategies to help us achieve these objectives were written, as were rationales that document why the objectives and strategies are needed. Among these are goals, objectives, and strategies for visitor services and cultural resources and refuge operations and development.

We based many goals and objectives on habitats rather than on wildlife because wildlife often respond to factors beyond the control of local refuge management (for example, management of migratory birds). As well, our management practices, like prescribed fire, grazing, and water-level manipulation, usually help wildlife communities by way of improved habitat conditions rather than by helping them directly. Habitat-based objectives emphasize the checking of important vegetation structure over time, which can be done by the staff we have. Checking wildlife population responses to changes in habitats, however, would require more staff. In lieu of checking wildlife directly, site-specific inventories, applied research, and literature reviews offer reasonable predictions of wildlife response to habitat management.

The Administration Act requires the Secretary of the Interior to make sure that public uses are compatible with refuge purposes before they can be permitted. The CCP process requires a compatibility determination for all existing and proposed uses. Draft compatibility determinations for Cokeville Meadows Refuge in appendix A include cooperative farming, hunting, fishing, trapping, wildlife observation and photography, environmental education and interpretation, prescribed haying and grazing, and research.

6.3 OVERVIEW OF GOALS AND OBJECTIVES

This section discusses goals, objectives, and strategies that serve as the steps needed to achieve the goals of this CCP:

- A goal is a descriptive, broad statement of desired future conditions that conveys a purpose but does not define measurable units.
- An objective is a concise statement that shows what is to be achieved, the extent of the achievement, who is responsible, and when and where the objective should be achieved.
- The rationale for each objective provides context, such as background information, assumptions, and technical details.
- The strategies describe the actions needed to achieve the objectives.

Habitat and Wildlife Management

This section discusses objectives and strategies for habitat and wildlife management.

Wet Meadow Habitat and Wildlife Goal

Using the best scientific practices to manage and preserve critical wet meadow habitat, the refuge will provide quality feeding, loafing, and breeding opportunities for a diversity of migratory birds and resident wildlife.

Indicator Species: American bittern, redhead, northern pintail, white-faced ibis.

Aim: Restore and expand bulrush sites where proper throughout the refuge; keep a variety of shallow to semideep water levels to encourage nesting and feeding of indicator species.

Table 8 shows the vegetation needs of indicator or focal species in the wet meadow habitat.

Table 8. Indicator species in wet meadows habitat by needs at Cokeville Meadows National Wildlife Refuge, Wyoming.

Bulrushes, cattails, reeds, sedges, dense wet meadow grasslands	Tall (3–4.5 feet), dense emergent vegetation, prefers wetlands greater than 7 acres	Frogs and other amphibians, small fish, aquatic insects and invertebrates, small mammals occasional reptiles	Water \geq 10 centimeters (4 inches), nests above water 4–24 inches deep
Rushes, cattails, Dense stands of emergent vegetation for nesting	Nests on emergent vegetation on shallow water attached to surrounding vegetation and built with rushes, reeds, and cattails; may sometimes nest on the ground on the edge of wetlands	Aquatic vegetation, insect larvae, snails, mollusks, small crustaceans, seeds, buds and tubers of submergent aquatic plants	Shallow water for nesting but deep for feeding (commonly 3–10 feet) and brood-rearing, near larger water bodies
Grasslands, cultivated fields, sandy flats, lake marsh pond	Nest concealed in grass stubble Nests further from wetlands and sparser vegetation Vegetation height less than 12 inches 40 percent open water for brood habitat	Snails, shrimp, midges, earthworms, grains, bulrush seeds, pond weeds, spikerush, widgeon grass, smartweeds Diet 90 percent vegetation: seeds, aquatic vegetation, sedges, grain, minnows, aquatic invertebrates, tadpoles, insects	Uses a variety of wetlands from seasonal to semipermanent Breeding sites are typically small, shallow wetlands, with emergent vegetation and low vegetation cover in surrounding uplands
Nests in bulrushes and cattails (either floating or attached to aquatic vegetation); forages in flooded meadows and agricultural fields	Tall, dense emergent vegetation for nesting and shallow water areas for foraging*	Aquatic and moist soil invertebrates, especially earthworms and larval insects, leeches, snails, crayfish, small fish, frogs, midges, occasional aquatic vegetation	Strong preference for >74 acres, relatively level (<5 -percent slope) fields with standing water 8 inches or less water depth

* Source: Andrea Orabona, WGFD nongamebird biologist, personal communication.

Wet Meadow Habitat Objective 1

Continue to keep at least 10 percent bulrush-dominant wet meadows and wetlands, and increase the bulrush part in selected wet meadow and wetland sites by 20 percent over the course of the CCP. Would make sure that wet meadow habitat is moderately dominated by native graminoids (sedges, rushes and grasses).

Wet Meadow Habitat Objective 1—Specific Strategies

- Figure out white-faced ibis nesting status and trends on refuge lands.
- Collaborate with other agencies, nongovernment organizations and volunteers to conduct forage and foraging habitat baseline and availability on refuge lands.
- Use GIS to map important foraging habitat on refuge lands.
- Find sites on refuge lands that are conducive to establishing bulrush patches adequate for waterbird nesting.
- Work to establish bulrush patches suitable for white-faced ibis nesting.

Wet Meadow Habitat Objective 2

Keep a variety of constant and stable water levels and reduce human disturbance to nesting areas during the breeding season (mid-April through July 10) in refuge wet meadows and wetlands.

Wet Meadow Habitat Objective 2—Specific Strategies

- Reduce human disturbance in nesting colonies during the breeding season through proper area and seasonal closures; the careful placement of public parking lots, roads, and trails; and continued coordination with cooperators.

Wet Meadow Habitat Objective 3

Make sure that at least 10 acres of contiguous areas of wet meadow habitat scattered throughout the refuge are dominated by water depths of between 6 to 36 inches and emergent vegetation that creates a mosaic of relatively short (less than 1 foot) to moderately tall (1–2 feet) cover conducive for brood rearing and foraging habitat within 5 years of CCP approval.

Strategies Common to All Wet Meadow Habitat Objectives

- Use a combination of prescribed fire, prescriptive livestock grazing, and mechanical or chemical treatments to figure out the best method for invasive plant species control and the restoration of native wet meadow vegetation.
- Collaborate with WGFD, the Rocky Mountain Bird Observatory, and other entities to conduct necessary monitoring and wildlife data-gathering activities in support of these objectives.
- Collaborate with Lincoln County Weed and Pest Control, permittees, and other stakeholders to control invasive plant species.
- Conduct a vegetation inventory and monitoring program to assess if target species' habitat needs are being met.
- Review all water-management structures for improvements or repairs that would enhance management capabilities, assess and adjust water control structures and management plans to achieve habitat objectives.

- Figure out baseline waterfowl, waterbird, and shorebird nesting status in wet meadow habitats in the refuge.
- Sample vegetation zones (wet meadow, shallow and deep marsh, open water) to measure the percentage cover of different species and to complete a vegetation species inventory for each zone.
- Work with partners to conduct aquatic vegetation and invertebrate abundance and biomass surveys on the refuge to assess current wet meadow health and productivity.
- Estimate the percentage cover of emergent vegetation through either visual estimation or GIS area determination using aerial photography.
- Find out if prescriptive wet meadow livestock grazing and haying are achieving habitat objectives through increased and improved oversight, monitoring, and research, and figure out the distribution, abundance, and nesting success of wet meadow species.
- Conduct water quality sampling to figure out salinity and total dissolved solids.
- Issue special use permits exceeding 5 years but no more than 10 years at the manager's discretion and when it is found to be appropriate to meet the goal and objectives of wet meadows habitat. This long-term permit is intended to offset the substantial financial costs associated with carrying out long-term restoration projects that a cooperator would accept to improve refuge habitats.

Wet Meadow Habitat Objectives Rationale

Healthy wet meadow habitats on the refuge are essential because they provide habitat for a large variety of wetland-dependent species. With such a variety of wetland-dependent species on the refuge, there would be a need to have a variety of vegetative heights and water depths, with some areas of vegetation that are dense and others that provide open areas for loafing and foraging. The American bittern, for example, is totally dependent on wetland habitats and prefers large wetlands (at least 7 acres) with tall, dense, emergent vegetation such as cattails, rushes, and reeds inhabiting marshes with open water in the center, gradual slopes, a band of emergent vegetation around the periphery, and idle grassland in the adjacent uplands. Water quality conducive to the prey base is essential for these species.

To keep these habitats healthy and productive, we would use a combination of water management, prescribed fire, prescriptive livestock grazing, and mechanical or chemical treatments to provide a variety of healthy and productive wet meadow habitats for the greatest number and variety of species possible. Using all management techniques and the best science available, we would find the best methods to control invasive plant species and restore native wet meadow vegetation.

Upland Habitat and Wildlife Goal

Manage and restore the diversity and composition of grassland and shrub-steppe habitats within the range of historical conditions for sagebrush-dependent species, upland nesting migratory birds, and other resident species.

Indicator Species: Sage sparrow and short-eared owl.

Aim: Keep sagebrush in large continuous stands made up of a mosaic of open (5 percent) to moderate (25 percent) shrub cover and a variety of ages and heights in Wyoming.

Upland Habitat Objective 1

Within 4 years of plan approval, and for the duration of this plan, reestablish native grassland vegetative cover made up of an understory of western wheatgrass, thickspike wheatgrass, bluebunch wheatgrass, basin wildrye, Indian rice grass, and other native grasses and native forb species to help upland-nesting and brood-rearing species such as dabbler waterfowl species, horned lark, vesper sparrow, Savannah sparrow, western meadowlark, long-billed curlew, short-eared owl, and northern harrier.

Upland Habitat Objective 2 (existing native habitat)

Within 7 years of plan approval, and for the duration of this plan, manage shrub–steppe grasslands to improve vegetation conditions to meet a sagebrush canopy cover of at least 5 percent and no more than 30 percent with heights greater than 20 inches and a clumped or patchy low grass or forb understory made up of mostly bunchgrasses and native forb species (for example, yellow salsify, prairie pepperweed, clover, knotweed, yarrow, vetch, milkvetch, and prickly lettuce).

Upland Habitat Objectives 1 and 2 Strategies

- Use prescriptive livestock grazing to make sure that both early and late-successional stages help short-eared owls and other wildlife species.
- Begin the vegetation monitoring of shrub–steppe and grassland habitats to make sure that there is adequate sagebrush, native bunchgrass, and forb cover to support target species.
- Support partnerships to make sure that there is adequate monitoring of greater sage-grouse.
- Collaborate with WGFD, the Rocky Mountain Bird Observatory, and other entities to conduct necessary monitoring and wildlife data-gathering activities.
- Evaluate interior fences for their condition and effectiveness in managing the prescriptive livestock grazing program.
- Collaborate with Lincoln County Weed and Pest Control, permittees, and other stakeholders to control invasive plant species.
- Conduct experiments using a combination of prescribed fire, prescriptive livestock grazing, and mechanical or chemical treatments to find the best method for invasive species control and the restoration of native grasses.
- Figure out and rank future areas for restoring to native grasses.
- Examine potential revegetation choices based on the surrounding native plant communities.
- Issue special use permits exceeding 5 years, but no more than 10 years, at the manager's discretion and when found to be appropriate to meet the goal and objectives for upland habitats. This long-term permit is intended to offset the substantial financial costs associated with carrying out long-term restoration projects that a cooperator would accept to improve refuge habitats.

Upland Habitat Objectives Rationale

It is important that upland habitats be restored to for the health of wildlife species that depend on them. Many of the upland habitats on the refuge were converted to agricultural crops before our ownership and need work to be restored to their native conditions. Doing this restoration work would provide a key habitat type that is missing for many species of wildlife on the refuge.

To keep these habitats healthy and productive, we would use a combination of water management, prescribed fire, prescriptive livestock grazing, and mechanical or chemical treatments to provide a variety of healthy and productive upland habitats for the greatest number and variety of species possible. Using all management techniques and the best science available, we would find the best methods for controlling invasive plant species and restoring native upland vegetation. Following restoration activities a range assessment would be conducted to figure out stocking rates for livestock. This would help make sure that grazing used as a management tool would be done in a manner that would not negatively affect newly restored habitats.

Riparian and River Habitats and Wildlife Goal

Maintain and, where appropriate, restore the processes necessary to sustain the biological diversity and integrity of riparian vegetation and aquatic habitats for breeding birds, native fishes, reptiles and amphibians.

Indicator Species: yellow warbler, common yellowthroat, northern leopard frog.

Aim: Restore and expand riparian woodlands and wooded marshes, where proper throughout the refuge, to provide the adequate variety and structure of plant species to encourage the nesting of indicator species as well as to attract and support adequate food sources.

Table 9 shows the vegetation needs of the indicator and focal species of riparian and river habitats.

Table 9. Indicator species in riparian and river habitats by needs at Cokeville Meadows National Wildlife Refuge, Wyoming.

<i>Indicator species</i>	<i>Vegetation species diversity needs</i>	<i>Vegetation structure or cover needs</i>	<i>Food preference or source</i>	<i>Habitat and water regime needs</i>
Yellow warbler	Nests in wet deciduous thickets, dominated by willows, alder, dogwood	Riparian woodlands, wooded marshes; riparian shrubs (nest placement at 1–14 feet) below 8,000 feet. Midstory and canopy. Will eject cowbird eggs or build another layer over them	Insects and other arthropods; caterpillars, moths, beetles, aphids; some occasional berries	Riparian-obligate
Common yellowthroat	Willow and marshes below 8,000 feet.	Nest placement at 0–3 feet; Dense, riparian shrubs near water. Uses understory. Third most commonly cowbird-parasitized bird	Insects such as grasshoppers, spiders, beetles, butterflies, dragonflies, and a few seeds	riparian-obligate
Northern leopard frog	Sedges, cattails and tallgrasses.	Breed and lay eggs in stock ponds, semipermanent ponds, margins of larger lakes and beaver ponds, or in the backwaters out of the main flow of the stream; Forage among sedges, cattails and tallgrasses. Winter in ponds, buried in mud; shallow ponds for breeding and deep pools to hibernate	Invertebrates such as beetles, flies, ants, worms, and snails. But adult frogs sometimes consume voles, small birds, snakes, small fish, and other amphibians	Riverine and wet meadow wetlands, up to 9,000 in elevation; Swampy cattail marshes on plains and in beaver ponds in montane zones Breeding season: mid-march through July

Riparian Habitat Objective 1

Strive to keep, protect, and enhance existing riparian herbaceous, shrub (greater than or equal to 40 percent canopy cover) and tree habitat to allow it to expand into dense patches with a variety of native herbaceous, shrub, and tree species (various native sedges, willows, alder, dogwood, cottonwood), age classes, and structural heights to provide the cover needed for neotropical migratory bird nest concealment and for streambank stabilization and shading.

Riparian Habitat Objective 1—Specific Strategy

- Survey, name and map (using GIS) all herbaceous, shrub, and tree species found along the refuge’s riparian corridor; define native species’ potential; and figure out the degree of invasive plant infestation.

Riparian Habitat Objective 2

Restore at least 25 acres of dense (greater than or equal to 40 percent canopy cover) willow in patches greater than or equal to 0.5 acre in size and greater than or equal to 60 feet wide on either side of the river to connect existing willow patches for yellow warbler, common yellowthroat, and other neotropical migratory birds that nest here and for increased streambank stabilization and stream shading.

Riparian Habitat Objective 2—Specific Strategies

- Fence off segments of the riparian corridor with wildlife-friendly fencing.
- Find and apply all proper methods, which include planting native vegetation, to restore the riparian corridor composition of the Bear River watershed.
- Manage livestock grazing to make sure that riparian habitat is not overgrazed and that willows are not removed or that canopy density is not reduced.

River Habitat Objective 1 (find and improve river habitat types)

Within 7 years of plan approval, develop partnerships to help name , monitor, and improve various river habitat types (such as pools, riffles, runs, glides) in greater than or equal to 1 mile of the Bear River within the boundary of the refuge.

River Habitat Objective 1—Specific Strategy

- Develop and support all necessary partnerships, such as with Trout Unlimited, WGFD, Lincoln County Conservation District, and others, to find and map river habitat types and where sources of dissolved solids and other sediments enter the Bear River within and beyond the refuge boundary.

River Habitat Objective 2

Work with partners to find and remove barriers to improved habitat connectivity for all native riverine species in the Bear River within and beyond the refuge boundary.

River Habitat Objective 2—Specific Strategies

- Replace the Pixley Dam with a fish passage-friendly structure designed to allow the movement of native fishes from one side of the dam to the other along the Bear River within the refuge boundary.
- Replace or change irrigation diversion structures and culverts that create barriers and entrapment issues for fish species.

- Work with the Partners for Fish and Wildlife program to find private landowners that are interested in projects to improve riparian and riverine habitats on their lands.
- Work with cooperators of the BQ Dam to help resolve riverine species passage issues.

Strategies Common to All Riparian and River Habitats Objectives

- Use a combination of prescribed fire, prescriptive livestock grazing, and mechanical or chemical treatments to find the best method to control invasive plant species control and restore native riparian vegetation.
- Collaborate with WGFD, the Rocky Mountain Bird Observatory, and other entities to conduct the necessary research, inventory, and monitoring of terrestrial and aquatic wildlife populations.
- Collaborate with Lincoln County Weed and Pest Control, permittees, and other stakeholders to control invasive plant species in the riparian habitats of the refuge.
- Collaborate with WGFD to monitor and control aquatic invasive species.
- Conduct a vegetation inventory and monitoring program to see if target species' habitat needs are being met.
- Review all water management structures for improvements or repairs that would enhance management capabilities, and assess and adjust water control structures and management plans to achieve habitat objectives.
- Figure out baseline waterfowl, waterbird, shorebird, and neotropical migratory bird species nesting status in the riparian corridor and aquatic species' life history habitat needs in the riverine corridor within the refuge.
- Sample riparian and riverine corridor vegetation zones to measure the percentage cover of different species.
- Sample physical characteristics of riverine habitats within the refuge boundary.
- Work with partners to conduct aquatic and riparian vegetation and invertebrate abundance and biomass surveys on the refuge to assess current river and riparian health and productivity.
- Figure out if prescriptive livestock grazing is achieving habitat objectives by using increased and improved oversight, monitoring, and research, and figure out the distribution, abundance, and nesting success of riparian corridor species.
- Sample water quality for salinity and total dissolved solids.

Riparian and River Habitats Objectives Rationale

Sections of the Bear River on the refuge had willows removed before we acquired them, probably in an effort to increase hay yields. These open stretches of river have:

- less bank stability, resulting in the potential for increased sedimentation;
- decreased shade over the stream, resulting in increased water temperatures for trout;
- sparse woody vegetation for use by songbirds or other wildlife.

Given the growth characteristics of willows, their lack of expansion here leads us to believe that there is substantial herbivory by species other than livestock or that hydrology has been significantly altered by upstream diversions. With this in mind, willow plantings would only be done in association with fencing. Haying and grazing practices in the riparian zone would be modified to encourage willow establishment, and hydrological needs would be considered.

Monitoring would be needed to document our efforts and to note any significant changes to existing willow communities.

We also recognize that there are significant issues with instream habitat for fish and other aquatic species including:

- sediments in the water from upstream agricultural and irrigation practices;
- instream diversions (BQ and Pixley Dams) that cause river downcutting below them and reduce species diversity because they lack fish passage;
- lack of instream structure to provide quality fish habitat, such as the lack of riffles, runs, glides, and overhanging riparian vegetation on the riverbanks.

Willow plantings and changes to haying and grazing practices in the riparian zone would help to improve some of the riverine issues identified, but more work would be required to create necessary structures in the river to promote better habitat conditions for aquatic species such as fish, mollusks, and amphibians.

Invasive Species

The following objectives propose abatement and control measures for several species.

Mosquito Abatement and Control Objective

Within 1 year of plan approval, meet with State and county officials to share with them our nationwide policy and to begin coordinating efforts to make sure that mosquito abatement on the refuge complies with Federal and State regulations.

Mosquito Abatement and Control Objective Strategies

- Develop a mosquito monitoring, abatement, and control plan in coordination with State and county officials.
- Set up all necessary points of contact to make sure that there are sufficient meetings and that there is adequate coordination with State and county officials.

Grasshopper Abatement and Control Objective

Within 1 year of plan approval, meet with State and county officials to share with them our nationwide policy and to begin coordinating efforts to make sure that grasshopper and cricket control on the refuge complies with Federal and State regulations.

Grasshopper Abatement and Control Objective Strategies

- Develop a grasshopper and cricket monitoring, abatement, and control plan in coordination with State and county officials.
- Set up all necessary points of contact to make sure that there are sufficient meetings and that there is adequate coordination with State and county officials.

Mosquito and Grasshopper Abatement and Control Objectives Rationale

Developing a plan with the help of local community, county and State officials that describes monitoring protocols and establishes thresholds for treatment in the event that there are threats to human health and safety and that also provides an advanced directive on how to deal with such issues would provide a better understanding of the refuge and how it deals with infestations and disease issues on refuge lands and what actions can be taken if issues arise.

Integrated Pest Management Objective

Within 7 years of plan approval, our staff would develop and have a final IPM plan in place to deal with fast-spreading diseases among animals and pest-carried disease issues.

Integrated Pest Management Objective Strategies

- Work with Region 6's IPM coordinator to develop the IPM plan for the refuge.
- Work with Region 6's contracting division to find ways to contract out the writing of an IPM plan.
- Hire a term employee to develop and write an IPM plan.

Integrated Pest Management Objective Rationale

We not only have to apply our own regulations but we need a plan that has undergone the NEPA process to help us deal with all pest species in an agile and proactive way. The plan must provide thresholds and acceptable alternatives for treatments.

Wildlife Diseases, Crop Depredation, and Private Property Damage

The following objectives propose actions to control wildlife diseases, crop depredation, and private property damage.

Wildlife Diseases Objective

Carry out management activities and establish partnerships that help to prevent disease transmission from wildlife to livestock on and off refuge lands.

Wildlife Diseases Objective Strategies

- Develop a comprehensive wildlife disease contingency plan.
- Develop and carry out a hunt plan that reduces the commingling of elk and livestock.
- Work with partners to institute a forage reserve and grazing management plan to make sure that there is wide distribution and adequate dispersal of wild large ungulates throughout the Bear River watershed to end their commingling with domestic livestock.
- Coordinate with WGFD and other agencies to conduct hazing operations when necessary to prevent the commingling of wild large ungulates and domestic livestock.
- Coordinate with WGFD to increase game sampling operations in the area.

Wildlife Diseases Objective Rationale

Developing plans to reduce or mitigate the potential transmission of wildlife diseases to domestic livestock or humans is an important part of wildlife management and part of our being a good neighbor. However, the potential for disease transmission is low; having plans would give us the ability to start counter measures in the event of a problem to save lives and reduce financial hardships.

Crop Depredation Objective

Use small grain crops or other vegetative cover in designated areas of the refuge to help adjacent landowners to reduce damage to their crops from wildlife depredation

Crop Depredation Objective Strategies

- Rotate crops through areas designated for the establishment of native vegetation to exhaust weed seed banks before planting native vegetation.
- Find two to three small areas on the refuge where small grain crops can be grown.
- Find ways to offset crop damage through permitting for other agricultural uses on the refuge.
- Define a rotational scheme for different vegetative covers in designated areas of the refuge.

Private Property Damage Objective

Make sure that our management activities and our compatible public use activities on the refuge help abate damage to private property next to the refuge.

Private Property Damage Objective Strategies

- Coordinate hunting seasons with WGFD.
- Hold annual meetings with WGFD and local landowners to discuss damage issues and to develop solutions to abate damage.
- Find ways to offset private property damage through permitting for other agricultural uses on the refuge.

Crop Depredation and Private Property Damage Objectives Rationale

In the past, grain crops were used to reduce damage to private property interests; however, national wildlife refuges are moving away from planting bait crops to reduce damage and putting more emphasis on healthier habitats to provide better food sources for wildlife. Cokeville Meadows Refuge would be in a restoration phase for several years and would have grain crops in advance of native seeding plots to reduce weed seed buildup in the fields being restored. This would provide a grain crop on the refuge for wildlife and reduce damage on private lands.

After restoration activities are completed and in cooperation with WGFD, we would find a small area on the refuge that could be used as a place to plant small grains to reduce crop damage on private land.

Wildland Fire Management Goal

Manage wildland fires using a full array of strategic options from suppression to manipulating a fire to achieve benefits. Prescribed fire, manual, and mechanical treatments will be used to: (1) reduce the threat to land and property through hazardous fuel reduction treatments, and (2) meet the habitat goals and objectives identified in this CCP.

Wildland Fire Management Objective 1

Manage wildfires according to our and Federal wildland fire policies.

Wildland Fire Management Objective 1 Rationale

Current (2009) Federal wildland fire policy allows wildfires to be managed for multiple objectives, and these objectives can change through time. A wildfire can be managed for suppression in one area and managed to achieve benefits in another. As conditions change, these objectives can also change.

Before European settlement, wildfires had the ability to burn vast areas. Today, there is still potential to have large fires (greater than 300 acres), but this potential has been reduced due mostly to wildfire suppression. While the potential for large fires has decreased, there is still a high probability that wildfires on Cokeville Meadows Refuge will damage neighboring property. Therefore, most wildfires that occur on the refuge would be suppressed.

Region 6 has identified fire management zones within its boundary. Under this approach, the level of fire management staff would be determined by established modeling systems based on workload. Data used to figure out the workload is based on historical wildfire suppression activities as well as on historical and planned fuel treatments.

Realizing that fire management staff and equipment may be placed anywhere within the fire management zone, using our refuge staff as well as other Federal and non-Federal partners to aid in wildfire suppression is a priority. We will attempt to keep and encourage more fire qualifications for our refuge staff. In addition, local agreements between Federal and non-Federal partners will be kept or added.

Wildland Fire Management Objective 2

Within 1 year of plan approval, complete and submit for Region 6 review and approval a revised FMP that reflects the goals and objectives identified in this CCP. Within two years of plan approval, begin carrying out a prescribed fire program at the refuge.

Wildland Fire Management Objective 2 Rationale

Our policy requires that every unit that has burnable vegetation must have an FMP. The FMP is a stepdown plan from the CCP that guides the fire management program. One will be instituted to meet national, Region 6, and refuge goals and objectives. An approved FMP allows our refuge manager to consider a wide range of suppression alternatives and to conduct prescribed fires.

The FMP is intended to be dynamic and reflect current policies and situations and is periodically reviewed or revised. Required updates or revisions will follow our national and Region 6 policies and guidance.

Wildland Fire Management Objective 3

Increase the use of prescribed fire to 1,000–1,500 acres per year. This includes maintenance-style burning such as irrigation ditches and around water control structures.

Wildland Fire Management Objective 3 Rationale

Fire supports and restores nearly all the habitats located within the refuge. The frequency and magnitude of prescribed fires can have a profound effect on a habitat's successional state and the transition from one habitat type to another. After European settlement, wildfires were suppressed, which disrupted the natural disturbance cycle. Prescribed fire is an effective tool for restoring plant communities to historical benchmark conditions, recycling nutrients, reducing or eliminating nonendemic vegetation, increasing the growth and production of native plants, reducing woody encroachment, and reducing the risk of catastrophic wildfire. The Refuge Improvement Act states that we must make sure that "biological diversity," "biological integrity," and "environmental health" is maintained and, by definition, these include, "...the natural biological processes that shape genomes, organisms, and communities..." such as fire.

Past fire history for the refuge is not well known. Since the refuge was established, no prescribed burns have occurred. Local residents have periodically burned lands now within the refuge acquisition boundary.

Wildland Fire Management Objective 4

Within 3 years of plan approval, develop a comprehensive prescribed burn plan that identifies priority areas within the refuge for treatment and establishes burns on a rotational basis.

Wildland Fire Management Objective 4 Rationale

Per our policy, a prescribed burn plan is required before conducting prescribed fire. Because staff is limited, priorities need to be established to find which areas are most suitable for prescribed fire application.

Wildland Fire Management Objective 5

Increase the number of partners and interagency prescribed fires.

Wildland Fire Management Objective 5 Rationale

We have limited fire staff within our Region 6 fire management zone and limited staff at Seedskaadee National Wildlife Refuge Complex. Help from partners is needed to carry out a prescribed fire program fully at Cokeville Meadows Refuge. We will pursue partnerships with other Federal agencies like the BLM and non-Federal cooperators to carry out prescribed fire on the refuge.

Wildland Fire Management Objective 6

Carry out and monitor prescribed fire, chemical, or mechanical treatments to reduce hazardous fuels throughout the refuge. Over the next 5 years, treat 20 percent of our lands that are close places where values are at risk if funding allows.

Wildland Fire Management Objective 6 Rationale

Hazardous fuel treatments are conducted to reduce the threat of catastrophic wildfire to values at risk. Values at risk may include sensitive habitats or species, cultural resources, Federal and private infrastructure and facilities, and nearby local communities. Our fire management and refuge staffs will collaborate with affected parties in developing Community Wildfire Protection Plans (CWPP) and hazardous fuels reduction treatments and in adding or removing communities that are at risk or that are of interest.

Wildland Fire Management Objective 7

Use Burned Area Emergency Response or Burned Area Rehabilitation funding as needed following wildfires.

Wildland Fire Management Objective 7 Rationale

Wildfires can cause damage to natural and cultural resources or improvements. Burned Area Emergency Response treatments are intended to protect public safety and stabilize and prevent further degradation to natural and cultural resources. These treatments are considered emergencies and are done within one year of wildfire containment. Burned Area Rehabilitation treatments are nonemergency efforts done within 3 years of wildfire containment to improve fire-damaged lands that are unlikely to recover to management-approved conditions or to repair or replace minor facilities that are damaged by wildfire. The use of Burned Area Emergency Response or Burned Area Rehabilitation funding will follow our national and Region 6 policies and guidance.

It is anticipated that Burned Area Rehabilitation has the potential to be used most within the refuge. Burned Area Rehabilitation funding can be used to repair or replace fences damaged because of wildfire as well as to treat burned areas to prevent the spread of invasive plants.

Strategies Common to All Wildland Fire Management Objectives

- Safely suppress all wildfires within the refuge boundary.
- Maintain fire qualifications for all capable Seedskaadee National Wildlife Refuge Complex staff.
- Use Burned Area Emergency Response and Burned Area Rehabilitation funding as needed.

- Update the FMP as needed to accommodate this plan.
- Make the treatment of refuge lands near the wildland–urban interface a high priority for the reduction of hazardous fuels.
- Develop and support all necessary partnerships with State, county and local agencies and authorities to make sure that wildland fire suppression efforts are successful.

Visitor Services and Cultural Resources Goal

Provide appropriate public access to refuge lands where visitors can safely enjoy compatible, wildlife-dependent recreation, such as hunting, fishing, wildlife observation, photography, environmental education, and interpretation. The refuge will seek partnerships to help protect onsite cultural resources.

Public Access Objective 1

Within 7 years of plan approval, develop a safe auto tour route and open it to the public.

Public Access Objective 1 Strategies

- Work with Union Pacific Railroad to develop a safe auto tour route within the refuge.
- Work with Wyoming Travel and Tourism Board to secure money to develop an auto tour route and facilities.
- Contact the Federal highway coordinator to get Federal access over the railroad.
- Develop projects through Region 6’s education and visitor services (EVS).
- Develop projects for Federal highways money on the identified auto tour route.
- Include Federal highways and refuge roads funds as potential sources to pay for roads, not just to pay for potential projects.

Public Access Objective 2

Within 3 years of plan approval, develop a safe access point into the Etcheverry tract or another site on the western side of the refuge.

Public Access Objective 3

Within 3 years of plan approval, develop a safe access point into the Thornock tract or another site on the eastern side of the refuge.

Public Access Objective 4

Within 3 years of plan approval, develop a new walking trail that includes interpretive panels and a photography blind to improve access to Netherly Slough.

Public Access Objective 5

Find and study sites on the refuge where potential access points could be developed to provide the public with access to compatible, wildlife-dependent activities (figure 9).

Public Access Objectives 2 through 5 Strategies

- Use refuge resources and money to develop refuge access point.
- Apply for EVS money.
- Work with Wyoming Travel and Tourism Board to secure funding to develop an auto tour route and facilities.
- Develop projects through EVS.
- Work with WGFD to obtain money for these projects.
- Use challenge cost share.
- Work with Region 6's GIS coordinator.

Public Access Objectives Rationale

Access to wildlife-dependent recreational activities is needed to fulfill the purposes of Cokeville meadows Refuge, our mission, and the vision and goals of this CCP. Local residents have been seeking access to the refuge for many years to conduct these consumptive and nonconsumptive activities.

Visitor Safety Objective 1

Within 2 years of plan approval, establish the necessary means to increase the safety of our refuge staff and visitors who cross over the railroad tracks to access refuge lands.

Visitor Safety Objective Strategy

- Work with Region 6's department of transportation coordinator to find ways to finance safe railroad crossings onto refuge lands.

Visitor Safety Objective Rationale

Public safety and railroad crossings have to be addressed with the help of Union Pacific Railroad because the railroad bisects the refuge acquisition boundary and refuge fee-title lands.

River Boating Objective 1

Within 2 years of plan approval, find proper launching and take-out sites along the Bear River within the refuge to allow the public to enjoy nonmotorized recreational boating opportunities necessary for hunting, fishing, wildlife observation, photography, and environmental education.

River Boating Objective 2

Within 2 years of plan approval, find safety portages, obstacles, and disturbance areas along the Bear River to create a map that shows safe boating recreational opportunities for the public.

River Boating Objectives Strategies

- Work with Region 6's GIS coordinator to develop the necessary GIS layers for a correct map.
- Work with Region 6's EVS to develop a brochure and map with information on river boating.
- Develop or improve all necessary roads to launch and take out sites.

- Coordinate with the State and the BLM to obtain gravel from developed pits necessary to create or improve access roads and launch sites.

River Boating Objectives Rationale

Nonmotorized boats provide a unique opportunity for visitors to experience and learn about the refuge by ways other than from a vehicle. Keeping these nonmotorized would provide excellent conditions for angling, wildlife viewing, photography, and other compatible, wildlife-dependent recreational uses.

Hunting Objective 1

Before the 2013 Wyoming hunting season, carry out the refuge hunt plan if it is approved.

Hunting Objective 2

Before the 2013 Wyoming hunting season, develop a hunt map to guide refuge users to designated hunting areas and access points and to inform of special refuge hunting regulations and hunting opportunities for people of all abilities.

Hunting Objective 3

Immediately after plan approval, begin work with WGFD to establish hunts that are consistent with WGFD commission regulations and that support population management objectives.

Hunting Objectives Strategies

- Develop media contacts and outreach materials to inform the hunting community of hunting opportunities.
- Allow hunters access to portions of the refuge that would provide reasonable challenges and opportunities for taking species that have harvest objectives and create minimal conflict with other priority wildlife-dependent recreational uses or refuge operations.
- Produce and distribute a factsheet with a map that designates areas open and closed to hunting along with all pertinent rules, regulations, and restrictions so hunters can make informed decisions.
- Provide information in collaboration with WGFD about opportunities on surrounding lands to allow hunters to plan for a quality experience.
- Erect proper signs to designate closed and restricted areas to reduce the chance of noncompliance and conflicts with nonhunters.
- Provide adequate law enforcement staff in collaboration with WGFD during peak hunting periods.
- Erect interpretive displays at designated parking areas and at the contact station that describe ways to hunt ethically and to explain hunting rules, regulations, and restrictions.
- Provide one half-time law enforcement officer to be available in the field during the hunting season to inform hunters of rules, regulations, and ethical behavior.
- Use seasonal road and access closures to make sure that there is a quality hunt, to protect refuge habitats from erosion, and to reduce the overlapping of other public uses like rifle hunting and birdwatching.

Hunting Objectives Rationale

We recognize hunting as a traditional outdoor pastime that is deeply rooted in America's natural heritage. As long as resources can support it, hunting is considered a legitimate and proper public use on national wildlife refuges.

Hunting can foster an understanding and instill appreciation of native wildlife and plants and generate support for their restoration and conservation as well as to generate support for the refuge, the Refuge System, and the Service.

The refuge is part of a larger system of lands. Given that many native wildlife species migrate on and off the refuge, such as waterfowl, elk, deer, and pronghorn, our refuge hunting program affects more than just refuge lands. The key to success is a strong working relationship with sportsmen and women and with the State and incorporating our hunting goals and objectives into a hunting stepdown management plan. We would consider more refuge hunting opportunities for species like moose, elk, and deer with community and State help, and we would work with the State to promote sound hunting practices as a wildlife management tool.

Fishing Objective 1

Figure out within 10 years of plan approval the feasibility of restoring native sport fisheries.

Fishing Objective 2

Develop a public use area where one fishing event per year could be held for youth and where other wildlife-dependent public uses could be served.

Fishing Objective 3

Develop a area that provides access for safe fishing opportunities to people of all abilities.

Fishing Objective 4

Work with WGFD to obtain access to fishing areas through private lands next to the refuge in conjunction with the refuge fishing program.

Fishing Objectives Strategies

- Gather baseline resource data, review literature, and develop and carry out restoration plans, in collaboration with USDA Natural Resources Conservation Service, Trout Unlimited, WGFD, and USGS.
- Develop a map with access points and areas that are accessible to fishing.
- Develop a volunteer base to help with a youth fishing program and event.
- Work with EVS to plan, develop, and finance the public use area and a youth fishing program.
- Collaborate with local outdoor groups (sportsmen and women) to promote and sponsor a youth fishing program.
- Work with youth programs, such as Girl Scouts and Boy Scouts, and with schools to encourage a broad spectrum of participation in fishing events.
- Develop a fishing brochure that details fishing access points and rules and regulations and sign open and closed areas.

Fishing Objectives Rationale

We recognize fishing as a traditional outdoor pastime that is deeply rooted in America's natural heritage. As long as resources can support it, fishing is considered a legitimate and proper public use. Fishing can foster and understanding and instill appreciation of native fish, wildlife, and plants and generate support for their restoration and conservation as well as to generate support for the refuge, the Refuge System, and the Service.

Trapping Objective 1

Carry out a management-directed trapping program that would be administered by refuge staff.

Trapping Objective 1 Strategy

- Administer the trapping program on the refuge by issuing special use permits to qualified trappers who would serve management to:
 - watch mammal populations;
 - remove portions of the annual surplus of furbearing mammals;
 - reduce mammals that cause damage to refuge infrastructure and are responsible for localized predation or depredation issues.

Trapping Objective 1 Rationale

Trapping is done in accordance with the needs of the Refuge Recreation Act, the Administration Act (as amended in 1997) and NEPA. Authorized by 50 CFR, part 31.16, we administer recreational trapping and recognize it as a traditional outdoor pastime that is deeply rooted in America's natural heritage. As long as resources can support it, trapping is considered a legitimate and proper public use on national wildlife refuges. Trapping can foster an understanding and instill appreciation of native wildlife and plants and generate support for their restoration and conservation as well as to generate support for the refuge, the Refuge System, and the Service.

Permit trappers are essential because they provide cost-effective information for assessing populations of various furbearing mammals. They also find furbearing mammals, like muskrats, that damage refuge infrastructure. Trappers who continue to remove mammals that predate ground-nesting birds late in the winter or early spring may help reduce the effects of nest predators on ground-nesting birds.

Trapping Objective 2

Allow recreational trapping for economic benefits on refuge lands.

Trapping Objective 2 Strategies

- Allow trapping on refuge lands within the framework of State seasons and regulations as prescribed by law.
- Watch and enforce trapping access and use regulations for compatibility with other refuge objectives.

Trapping Objective 2 Rationale

As refuge acreage allows, we would offer limited, refuge-permitted, WGFD-coordinated trapping for beaver, mink, muskrat, bobcat, red fox, badger, weasel, skunk, and raccoon. How we would address nuisance animals, predators like wolves and coyotes, and furbearers would be described in a stepdown management plan to this CCP. For compatibility reasons, the use of motorized vehicles would be restricted to designated roads.

Wildlife Observation and Photography Objective 1

Within 5 years of plan approval, provide opportunities with minimal disturbance to wildlife and habitat and develop designated viewing sites (one auto tour route and two accessible wildlife-viewing areas) to promote an appreciation of natural and cultural resources.

Wildlife Observation and Photography Objective 2

Within 5 years of plan approval, develop at least two photography blinds.

Wildlife Observation and Photography Objectives Strategies

- Work with EVS to plan, design, and find the best locations to build viewing sites and blinds.
- Evaluate which public access points can serve multiple functions.
- Work with local sportsmen and sportswomen organizations and volunteer groups to construct and support local viewing areas or blinds.

Wildlife Observation and Photography Objectives Rationale

Wildlife observation and photography are two of the six priority wildlife-dependent recreational public uses as defined in the Improvement Act. They should be allowed if found compatible and if the refuge has the resources to support them.

Promoting wildlife observation and the photography of plants and animals and their habitats can foster an understanding of, and an appreciation for, America's natural resources and the role of the Refuge System in managing and protecting these resources. Cokeville Meadows Refuge is part of an intermontane ecosystem that typically has been used for farming and ranching. The refuge offers a unique opportunity for the public to view plants and animals in a natural ecosystem setting.

Engaging in wildlife viewing or photography on foot would generally be allowed unless our staff designates specific areas or periods closed to the public. This would be the case during hunting seasons when visitor safety would be an issue.

Environmental Education and Interpretation Objective 1

Within 5 years after plan approval, evaluate refuge lands for the possible development of environmental education and interpretation sites.

Environmental Education and Interpretation Objective 1 Strategies

- Work with Region 6's EVS, WGFD, Lincoln County officials, and the Wyoming Department of Transportation to find areas of potential development along Highway 30 and Lincoln County Road 207.
- Work with Region 6's EVS to design and develop environmental education and interpretation signage as well as to obtain money for their development and placement.

Environmental Education and Interpretation Objective 2

Within 5 years of plan approval, work with EVS and develop a visitor services plan that covers all wildlife-dependent compatible uses.

Environmental Education and Interpretation Objective 2 Strategy

- Work with EVS to develop a visitor services plan.

Environmental Education and Interpretation Objectives 1 and 2 Rationale

A visitor services plan should be developed to find areas properly for public uses and to guide our staff on how to develop these areas.

Environmental Education and Interpretation Objective 3

Work with the Wyoming Department of Transportation to develop at least two highway pullouts on State Highway 30 along the east side of the refuge boundary to allow the driving public an opportunity to engage in wildlife observation and interpretation.

Environmental Education and Interpretation Objective 3 Strategies

- Work and develop a relationship with the Wyoming Department of Transportation to plan and establish pullouts.
- Involve other partners to engage the Wyoming Department of Transportation on pullout development.
- Establish a needs list of what the Wyoming Department of Transportation can provide and what we can provide to make pullouts happen.

Environmental Education and Interpretation Objective 3 Rationale

There is a substantial amount of traffic on State Highway 30 traveling to and from the Jackson Hole and Yellowstone areas in the spring, summer, and fall. Cokeville Meadows Refuge receives many of those visitors, and pullouts would provide good opportunities to reach out to these people.

Environmental Education and Interpretation Objective 4

Develop designated viewing sites (one auto tour route and two accessible wildlife-viewing areas) with minimal disturbance to wildlife and habitat to promote the public's appreciation of natural and cultural resources.

Environmental Education and Interpretation Objective 4 Strategy

- Work with EVS to develop the visitor services plan and find the best areas for which to develop a route and to interpret to visitors.

Environmental Education and Interpretation Objective 4 Rationale

Developing an auto tour route and areas to interpret to visitors are important ways to reach out to the public and to educate visitors about national wildlife refuges. Through such, they would get a feel for what refuges do and how they run. Additionally they would provide modes of access to get up close and personal with wildlife and their habitats.

We plan to develop opportunities to interpret wildlife resources, the Refuge System, and the Bear River watershed. Through these, visitors should be well informed of refuge resources and their roles within the larger landscape. Any environmental education and interpretive facilities would complement the habitats of the refuge and surrounding landscapes while better orienting and educating visitors.

Public Information Objective 1

Within 2 years of plan approval, develop and begin disseminating a refuge brochure that contains information on the refuge's background, a refuge map, access points, and available wildlife-dependent recreational opportunities.

Public Information Objective 2

Within 2 years of plan approval, update the refuge's Web site to include all pertinent and up-to-date information on the refuge, such as hunting and fishing information and maps, species lists, and access points.

Public Information Objectives Strategies

- Work with Region 6's EVS staff to develop the refuge brochure.

- Collaborate with local, county and State groups and agencies to disseminate the brochure as far and as wide as possible.
- Update the refuge Web site and include electronic versions of refuge maps and the refuge brochure.
- Coordinate with local communities and chambers of commerce to alert them on the status of refuge programs and the brochure.
- At least monthly, post printed and Web site press releases on what is happening on the refuge.

Public Information Objectives Rationale

It is important that information about the refuge be developed and disseminated to the public, especially to help protect refuge resources. The information should be in place to inform and direct the public so refuge regulations can be understood, wildlife disturbance can be avoided, and the public can understand what the refuge is about and what the Refuge System provides to wildlife and refuge visitors.

Cultural Resources Objective

Protect documented cultural and historic resources to preserve them for all Americans and to comply with applicable laws.

Cultural Resources Objective Strategies

- Work with Region 6's archaeologist to develop and perform a formal review of documented resources every 5 years for protection, evaluation of condition, and preservation.
- Survey for cultural resources before doing developments and restoration activities.
- Submit potential prescribed fire treatments and the right management activities for clearance, such as Section 106 clearance, before carrying them out.
- Use the most up-to-date techniques for surveying, documentation, preservation, restoration, and research through coordination with Region 6's archaeologists, Wyoming State Historical Preservation Office, and local scholars and experts.
- Provide one half-time law enforcement officer to protect cultural resources.

Cultural Resources Objective Rationale

Our policy and certain laws direct Federal land managers to protect cultural resources found on Federal lands. It is important that they are identified and that adequate protection is provided to keep them intact for future generations.

Law Enforcement Objective

Provide adequate law enforcement coverage to make sure that wildlife-dependent recreational opportunities and other refuge programs and management activities are conducted in accordance with State and Federal laws and regulations to protect human safety and wildlife resources.

Law Enforcement Objective Strategies

- Collaborate and coordinate with the State of Wyoming and other Federal and State agencies to conduct patrol activities on refuge lands.

- Coordinate all law enforcement efforts and programs with the our zone officer at Bear River Migratory Bird Refuge.

Law Enforcement Objective Rationale

Law enforcement on refuges is an essential part of protecting public safety and infrastructure and enforcing refuge laws and regulations. Collaborating with other agencies is an important way to broaden cooperation and to help each other with wildlife law enforcement.

Partnerships Goal

Engage in mutually beneficial partnerships to promote wildlife and habitat conservation, and public enjoyment of wildlife resources in the upper Bear River watershed that are consistent with historic land uses, refuge purposes and goals.

Partnerships Objective 1

Take part in partnerships, such as with the Bear River Watershed Conservation Area, that support landscape-scale management.

Partnerships Objective 2

Work with local, State and Federal agencies, as well as with private organizations and individuals, to achieve refuge goals and objectives and to help these groups with management activities across the Bear River watershed that promote habitat health and wildlife productivity.

Partnerships Objectives 1 and 2 Strategies

- Coordinate with State agencies and private conservation organizations on projects that directly help wildlife and their habitats.
- Actively seek partnerships with private landowners in the Cokeville Valley to improve wildlife habitat along the Bear River.
- Work with WGFD and private landowners to increase fishing access on the Bear River.

Partnerships Objective 3

Seek out, develop, and support all partnerships with State and other Federal agencies, local governments and communities, and any private conservation organizations and individuals that would help us to carry out the goals and objectives in this plan.

Partnerships Objective 4

Provide strong support for, and actively take part in, partnerships in the Bear River watershed that promote projects that are mutually beneficial.

Partnerships Objective 5

Develop more community-based partnerships that involve local individuals, groups, or organizations in the protection, management, enhancement, and enjoyment of the refuge's habitats and activities.

Partnerships Objectives 3 through 5 Strategies

- Set priorities for our money and support for projects (land protection, staff, and equipment) that accomplish refuge objectives and that use partner contributions.
- Work with WGFD to manage public lands that are near each other more efficiently through the coordinated exchange of staff, cooperators, equipment, and facilities.
- Pursue partnerships to develop a field bird guide that is specific to the refuge.
- Develop, coordinate, and support working relationships with State and local law enforcement authorities and fire departments to protect refuge properties and trust species.
- Develop, coordinate, and support working relationships with cooperating agencies and other partners who conduct prescribed burns.
- Through the Partners for Fish and Wildlife Program and other partners, develop, coordinate, and support working relationships with those who deliver private lands projects.

Partnerships Objectives Rationale

A major objective of this CCP is to establish partnerships with landowners, volunteers, private organizations, and county, State, and Federal natural resource agencies. In particular, landowners would be informed of opportunities to take part in habitat protection programs, such as conservation easements, for which they would be compensated. Opportunities exist to enhance, or to establish new, partnerships with nonprofit organizations, sporting clubs, community organizations, and educational institutes. Strong partnerships already exist with The Nature Conservancy, WGFD, Lincoln County Weed and Pest District, and Partners for Fish and Wildlife.

Working across entire landscapes with multiple partners to protect and enhance wildlife habitat on large tracts of land is more effective than having multiple individuals working alone within their political boundaries. Partnerships bring about better understanding and coordination between different groups and illustrate what various partners can and cannot do to improve habitat. Partnerships also improve the odds for garnering and leveraging money for important projects that may help all the groups involved.

Refuge Development and Operations Goal

Effectively utilize all available resources to develop, enhance, and support refuge facilities and operations for wildlife, habitat, and public use programs. We will pursue easements and other land protection opportunities with willing sellers within the approved refuge acquisition boundary.

This section discusses goals, objectives, and strategies for refuge development and operations. Projects required to carry out the CCP are financed through two separate systems, as follows:

- The Refuge Operations Needs System is used to document requests to Congress for money and staff needed to carry out projects above the existing base budget.
- The Service Asset Maintenance Management System is used to document the equipment, buildings, and other existing properties that require repair or replacement.

Staff

The Seedskaadee National Wildlife Refuge Complex has a staff of five full-time employees. All of them have duties at Seedskaadee National Wildlife Refuge and at Cokeville Meadows Refuge, but all are stationed at Seedskaadee National Wildlife Refuge. Table 7 in chapter 4 lists these positions along with one new, full-time equivalent position assigned to Cokeville Meadows Refuge that is needed to carry out fully this CCP.

Staff Objective

Seek to hire at least one new, full-time equivalent position at Wage Grade-7 or Wage Grade-8 to function as maintenance staff for Cokeville Meadows Refuge to support public use and refuge facilities.

Staff Objective Strategies

- Refer to the 2008 staff model for the refuge.
- Work with Friends group and partners to increase congressional awareness of refuge needs.
- Look at split or joint positions with other agencies.

Staff Objective Rationale

The addition of this position is instrumental in supporting wetland impoundments, carrying out new habitat projects, giving proper care and maintenance to all refuge facilities and equipment, and to help with public access.

Equipment Objective

Within 5 years of plan approval, replace all decrepit equipment and obtain all necessary equipment to carry out day-to-day activities to reduce dependence on the equipment at Seedskaadee National Wildlife Refuge.

Equipment Objective Strategies

- Replace pickup truck and tractor.
- Obtain tractor with mowing attachment and front-end bucket (at least 50 horsepower).
- Replace backhoe.
- Work with Friends group to better the chances of obtaining necessary equipment.

Equipment Objective Rationale

Cokeville Meadows Refuge relies on Seedskaadee National Wildlife Refuge to provide equipment and fleet support for operations. The refuge needs support to conduct its day-to-day activities that require maintenance equipment. The refuge has some equipment, but needs more tools to complete priority habitat and maintenance projects.

Facilities Objective 1

Replace the Pixley Dam by 2015 with a more efficient irrigation management structure that includes fish passage and river connectivity and is large enough to allow for single-lane access.

Facilities Objective 1 Strategies

- Obtain full ownership of the Pixley Dam.

- Add the Pixley Dam to refuge property inventory for replacement in the Service Asset Maintenance Management System.
- Obtain all necessary Wyoming State Historic Preservation Office and Region 6's archaeologist approvals.
- Work with regional engineering and water resources to develop a new plan and design.
- Work with our fisheries program and WGFD, the State Engineers Office, and other partners in the design and placement of a new structure.

Facilities Objective 1 Rationale

Pixley Dam is now jointly owned by a private owner and us. The dam was built in 1903, is in poor condition and near failure, and poses major safety hazards to anyone who works on it or uses it as a river crossing. The dam is an in-river structure that does not allow fish to pass upstream or downstream and has, over the years, created a situation where the biodiversity of species above the dam is low.

Facilities Objective 2

Work with other interests on the BQ Dam to make sure that this structure continues to serve the irrigation needs of refuge and private habitats.

Facilities Objective 2 Strategies

- Meet, on an as-needed basis, with other BQ Dam interests and coordinate all maintenance and repair activities.
- Use permittees to help with necessary repairs.
- Find grant opportunities for repairs and maintenance.

Facilities Objective 2 Rationale

The BQ Dam is an old, in-river structure that is used to divert water from the Bear River to irrigate wet meadow habitats in the Cokeville Valley. This structure requires annual maintenance to keep it functioning properly and safely. It does not allow fish to pass upstream or downstream and has, over the years, created a situation where the biodiversity of species below the dam is low.

Facilities Objective 3

Support irrigation infrastructure to provide adequate and proper irrigation of refuge habitats.

Facilities Objective 3 Strategies

- Use our staff and equipment to support irrigation infrastructure.
- Work with partners to support infrastructure and facilities on the refuge and on private properties to support the proper function of irrigation systems.

Facilities Objective 3 Rationale

Proper irrigation and facilities maintenance throughout the Cokeville Valley greatly enhance wildlife habitat conditions.

Facilities Objective 4

Support wildlife-friendly boundary fencing and evaluate interior fences for removal.

Facilities Objective 4 Strategies

- Use permittees to repair or remove refuge fences, as necessary, to support wildlife management objectives.
- Replace fencing with deferred maintenance money.

Facilities Objective 4 Rationale

Refuge fences are required to properly manage and protect refuge lands from trespass. Fences help to separate uses such as grazing and haying. Evaluating interior fences for removal is an ongoing process.

Railroad Facilities Objective 1

Within 2 years of plan approval, work with Union Pacific Railroad officials to define roles and responsibilities relating to railroad right-of-way maintenance and other issues that affect refuge operations.

Railroad Facilities Objective Strategy

- Contact Union Pacific Railroad officials to work through right-of-way issues about crossing over railroad for refuge and public uses.

Railroad Facilities Objective Rationale

Railroad right-of-way issues, including fires, noxious weeds, accidents, contaminants, and wildlife effects, have to be addressed by working with the Union Pacific Railroad because the railroad bisects the refuge acquisition boundary and refuge fee-title lands.

Junk and Debris Removal Objective

Within 5 years of plan approval, find and remove all junk and debris piles from lands managed by the refuge.

Junk and Debris Removal Objective Strategies

- Find and map areas where junk and debris are located.
- Work with partners and cooperators to find safe and proper ways to remove and dispose of all the junk and debris piles on refuge lands.
- Hire seasonal employees to help in clearing debris piles.
- Work with partners and cooperators to find ways to keep junk and debris materials extraneous to the refuge from being dumped on refuge lands.

Junk and Debris Removal Objective Rationale

Junk and debris piles on refuge lands are a health hazard to humans and wildlife alike and are eyesores. These piles are often used by small mammals, especially animals that depredate on migratory bird nests, to burrow under or dwell in dens in them. It is important that the staff and its partners find ways to promptly and properly dispose of all the debris and junk in the piles to protect humans and wildlife, and restore the pristine look of refuge lands now burdened with junk and debris piles.

Water Rights and Resources Objective

Within 3 years of plan approval, conduct an evaluation and develop a plan to define the refuge's water rights and how they should be used for habitat management.

Water Rights and Resources Objective Strategies

- Work with the division of water resources to develop a comprehensive refuge water rights evaluation.
- Name unneeded water rights for abandonment such as unused domestic water wells.
- Find money to allow us to drop unneeded abandoned wells.
- Work with the State Engineer's Office to define all refuge water rights and proper uses.

Water Rights and Resources Objective Rationale

We have multiple water rights that are important for habitat management on the refuge that need to be identified, understood, and used for proper management of these rights.

Land Protection Objective

Seek to incorporate all ways to protect habitat and wildlife values, as well as to preserve and enhance habitat connectivity

Land Protection Objective Strategies

- Acquire lands in fee title from willing sellers within the refuge boundary.
- Use conservation or access easements throughout the Bear River watershed in Wyoming.
- Work with partners to find money to help us acquire easements.

Land Protection Objective Rationale

We feel that urban sprawl and development are posing major threats to wildlife habitat in the Cokeville Valley, and steps need to be taken to protect habitat conditions and connectivity by authorizing different ways to protect lands such as by fee-title acquisition, through conservation easements, and by working with partners to improve and protect key habitats within the Bear River watershed.

Refuge Mineral Rights and Energy Development Objective

Find ways to protect refuge habitats and the wildlife and plants dependent on them from onsite and offsite mineral and energy development and transportation activities to preserve refuge land and resources integrity.

Refuge Mineral Rights and Energy Development Objective Strategy

- Work with the BLM and other agencies and partners to secure mineral rights on refuge lands as opportunities arise.
- Work with partners to find existing and future mineral and energy development and transportation activities that could adversely affect refuge habitats and resources and to find ways to avoid or reduce effects.

Refuge Mineral Rights and Energy Development Objective Rationale

Mineral rights associated with refuge lands should be sought and bought whenever possible to protect refuge resources. Mineral and energy development and transportation in and around the approved acquisition boundary of the refuge have the potential to affect habitats adversely and the plants and wildlife that depend on them. Our mission compels us to find ways to protect wildlife habitats from adverse effects. We will continue to work with partners and adjacent landowners to find ways to protect refuge resources while respecting private property.

Monitoring

Adaptive management is a flexible approach to the 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 by a CCP (figure 14).

To apply adaptive management, specific survey, inventory, and monitoring protocols would be adopted for Cokeville Meadows Refuge. The habitat management strategies would be systematically evaluated to figure out management effects on wildlife populations. This information would be used to refine approaches and to figure out how effectively the objectives are being accomplished. If monitoring and evaluation show undesirable effects for target and nontarget species or communities, management projects would be altered accordingly and the CCP would be revised. Specific monitoring and evaluation activities would be described in a stepdown management plan (table 10).

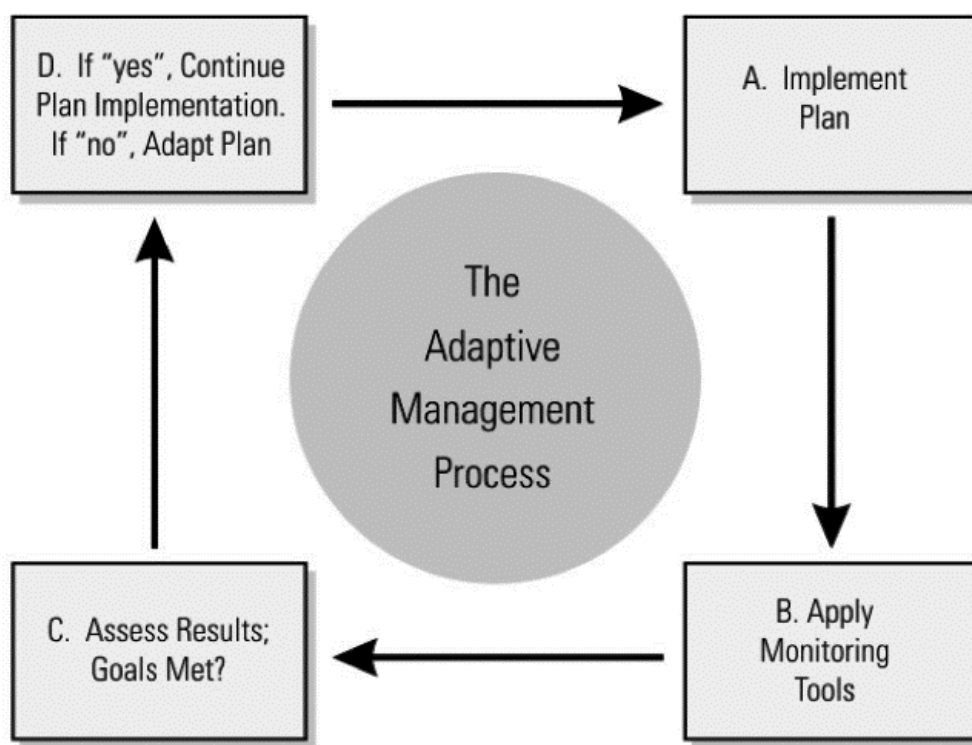


Figure 14. The adaptive resource management process.

Monitoring Objective 1

Within 5 years of plan approval, define refuge monitoring needs with the help of Region 6's inventory and monitoring team and our partners.

Monitoring Objective 1 Strategies

- Define and rank habitat management research needs.
- Promote refuge research needs within the scientific community.
- Encourage research that focuses on the refuge’s habitat management goals.

Monitoring Objective 2

Within 7–10 years of plan approval, develop a monitoring plan.

Monitoring Objective 2 Strategy

- Work with Region 6’s inventory and monitoring team to develop a comprehensive monitoring plan for Cokeville Meadows Refuge.

Monitoring Objectives Rationale

We recognize that the refuge has substantial inventory, monitoring, and research needs but we lack the resources to harvest data, thus we need to find creative ways to encourage such data gathering and scientific studies from outside parties. We first need to find and categorize the most substantial data gaps.

Research Objective 1

Where possible, allow third-party research to help us make sound, management-based decisions and to use the collected data.

Research Objective 2

Have outside groups perform refuge-specific research that would help us manage refuge habitats and resources or would fill in information and data gaps.

Research Objectives Strategies

- Conduct animal species inventories.
- Conduct vegetation inventories.
- Conduct soils data and inventories.
- Create breeding bird and nesting data baseline.

Research Objectives Rationale

Baseline data for habitat and wildlife on the refuge needs to be acquired. Our staff would collaborate with universities and other entities to collect baseline data on refuge resources and obtain a better understanding of the effects of our management activities.

Nuisance Animal and Predator Control Objective

Allow the take of any nuisance species within the refuge boundary to reduce conflicts with our neighbors

Nuisance Animal and Predator Control Objective Strategies

- Develop a nuisance animal management plan that identifies potential species and treatment choices to address problem animals.
- Work with WGFD and other agencies and partners to develop thresholds and management actions when problems are identified.

Nuisance Animal and Predator Control Objective Rationale

We are engaging in a landscape-level management plan that can only be achieved by working cooperatively with our neighbors who make their living from the land, both within and surrounding the refuge boundary. Thus, our staff needs to make sure that animals that cross the threshold and become a problem or a nuisance to the refuge and its neighbors are dealt with properly.

Volunteers Programs Objective 1

Within 1 year of plan approval, create a list of tasks that a volunteers group could undertake to help the refuge and its habitats.

Volunteers Programs Objective 1 Strategies

- Name refuge needs and create a list of activities that volunteers could undertake.
- Seek input from our staff and partners on needs and possibilities.

Volunteers Programs Objective 2

Within 5 years of plan approval, create at least one volunteers group to help our staff with priority volunteer projects that would be identified in objective 1.

Volunteers Programs Objective 2 Strategies

- Develop and put out press releases in surrounding communities.
- Contact the regional volunteer program coordinator.
- Contact local universities.
- Work with local governments to promote a volunteer program.

Volunteers Programs Objectives Rationale

Volunteers have taken a more important role in refuge operations as budgets tighten and staff scarcity deepens. It is important for our staff to select which refuge activities can be delegated to volunteers.

6.4 PLAN AMENDMENT AND REVISION

The final CCP would be reviewed annually to find out if there is a need for plan revision. A revision would occur if and when significant information becomes available. The final CCP would be supported by detailed stepdown management plans to address the completion of specific strategies to support Cokeville Meadows Refuge goals and objectives. Revisions to the CCP and the stepdown management plans would be subject to public review and NEPA compliance. At a minimum, the final CCP would be evaluated every 5 years and revised after 15 years.

Table 10 shows the timeline for stepdown management plans for Cokeville Meadows Refuge.

Table 10. Stepdown management plans for Cokeville Meadows National Wildlife Refuge, Wyoming.

<i>Plan</i>	<i>New or completed plan, approved year</i>	<i>Revised plan, completion year</i>
Habitat management	—	2010
Fire management	2002	2009
Disease contingency	2006	2016
Wilderness management	1986	2012
Refuge safety	2002	2010
Visitor services	1986	2012
Wildlife inventory and monitoring	—	2012
Spill prevention control and countermeasures	2006	2012

Glossary

abiotic—Pertaining to nonliving things.

accessible—Pertaining to physical access to areas and activities for people of different abilities, especially those with physical impairments.

adaptive management—Rigorous application of management, research, and monitoring to gain information and experience necessary to assess and change management activities; a process that uses feedback from research, monitoring, and evaluation of management actions to support or change objectives and strategies at all planning levels; a process in which policy decisions are carried out within a framework of scientifically driven experiments to test predictions and assumptions inherent in a management plan. Analysis of results helps managers figure out whether current management should continue as is or whether it should be modified to achieve desired conditions.

Administration Act—See National Wildlife Refuge System Administration Act of 1966.

alternatives—Different sets of objectives and strategies or means of achieving refuge purposes and goals, helping fulfill the Refuge System mission and resolving issues.

amphibian—Class of cold-blooded vertebrates including frogs, toads or salamanders.

annual—A plant that flowers and dies within 1 year of germination.

baseline—Set of essential observations, data, or information used for comparison or a control.

Beckwith and Quin Dam—An instream water control structure located within the Cokeville Meadows Refuge boundary.

biological control—Reduction in numbers or elimination of unwanted species by the introduction of natural predators, parasites, or diseases.

biological diversity, also biodiversity—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 (“U.S. Fish and Wildlife Service Manual” 052 FW 1.12B). The National Wildlife Refuge System’s focus is on endemic species, biotic communities, and ecological processes.

biological integrity—Composition, structure, and function at the genetic, organism, and community levels consistent with natural conditions and the biological processes that shape genomes, organisms, and communities.

biomass—Total amount of living material, plants and animals, above and below the ground in a particular habitat or area.

biota—Animals and plants of a given region.

biotic—Pertaining to life or living organisms.

BLM—See Bureau of Land Management.

BQ Dam—See Beckwith and Quin Dam.

breeding habitat—Habitat used by migratory birds or other animals during the breeding season.

buffer zone or buffer strip—Protective land borders around essential habitats or water bodies that reduce runoff and nonpoint source pollution loading; areas created or sustained to lessen the negative effects of land development on animals and plants and their habitats.

Bureau of Land Management—A Federal agency under the executive branch of government.

canopy—Layer of foliage, generally the uppermost layer, in a vegetative stand; midlevel or understory vegetation in multilayered stands. Canopy closure (also canopy cover) is an estimate of the amount of overhead vegetative cover.

CCP—See comprehensive conservation plan.

CFR—See Code of Federal Regulations.

cfs—An abbreviation for cubic feet per second, a measurement of water flow.

climax—Community that has reached a steady state under a particular set of environmental conditions; a relatively stable plant community; the final stage in ecological succession.

Code of Federal Regulations (CFR)—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.

community—Area or locality in which a group of people resides and shares the same government.

compatible use—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 (“Draft U.S. Fish and Wildlife Service Manual” 603 FW 3.6). A compatibility determination supports the choice of compatible uses and identified stipulations or limits necessary to make sure that there is 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 (“Draft U.S. Fish and Wildlife Service Manual” 602 FW 1.5).

concern—See issue.

conservation—Management of natural resources to prevent loss or waste. Management actions may include preservation, restoration, and enhancement.

cooperative agreement—Legal instrument used when the principal purpose of the transaction is the transfer of money, property, services or anything of value to a recipient to accomplish a public purpose authorized by Federal statute and substantial involvement between the Service and the recipient is anticipated.

cover, also cover type, canopy cover—Present vegetation of an area.

cultural resources—Remains of sites, structures, or objects used by people in the past.

cultural resource inventory—Professionally conducted study designed to locate and evaluate evidence of cultural resources present within a defined area. Inventories may involve various levels including background literature search (class I), sample inventory of project site distribution and density over a larger area (class II), or comprehensive field examination to name all exposed physical manifestation of cultural resources (class III).

database—Collection of data arranged for ease and speed of analysis and retrieval, usually computerized.

deciduous—Pertaining to any plant organ or group of organs that is shed annually; perennial plants that are leafless for some time during the year.

defoliation—Removing of vegetative parts; to strip vegetation of leaves; removal can be caused by weather, mechanical, animals, and fire.

demography—Quantitative analysis of population structure and trend.

disturbance—Significant alteration of habitat structure or composition. May be natural (for example, fire) or human-caused events (for example, timber harvest).

drawdown—Manipulating water levels in an impoundment to allow for the natural drying-out cycle of a wetland.

EA—See environmental assessment.

easement—Agreement by which a landowner gives up or sells one of the rights on his or her property.

ecosystem—Dynamic and interrelating complex of plant and animal communities and their associated nonliving environment; a biological community, 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.

education and visitor services—A division of the U.S. Fish and Wildlife Service.

emergent—Plant rooted in shallow water and having most of the vegetative growth above water such as cattail and hardstem bulrush.

Endangered Species Act (1973), as amended—A law that required all Federal agencies to carry out programs for the conservation of threatened and endangered species.

endangered species, Federal—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—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 (EA)—Concise public document, prepared in compliance with the National Environmental Policy Act of 1969, that briefly discusses the purpose and need for an action and alternatives to such action, and provides sufficient evidence and analysis of changes to figure out whether to prepare an environmental impact statement or finding of no significant impact (40 CFR 1508.9).

environmental education—Education aimed at producing a citizenry that is knowledgeable about the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution.

environmental health—Natural composition, structure, and functioning of the physical, chemical, and other abiotic elements, and the abiotic processes that shape the physical environment.

ESA—See Endangered Species Act (1973), as amended.

EVS—See education and visitor services.

extinction—Complete disappearance of a species from the earth; no longer existing.

extirpation—Extinction of a population; complete eradication of a species within a specified area.

°F—See Fahrenheit.

Fahrenheit—A measurement of temperature.

fauna—All the vertebrate and invertebrate animals of an area.

Federal land—Public land owned by the Federal Government, including lands such as national forests, national parks, and national wildlife refuges.

federally listed species—Species listed under the Federal Endangered Species Act of 1973, as amended, either as endangered, threatened, or species at risk (formerly candidate species).

fee title—Acquisition of most or all the rights to a tract of land.

fire regime—Description of the frequency, severity, and extent of fire that typically occurs in an area or vegetative type.

fire management plan (FMP)— A plan that identifies and integrates all wildland fire management and related activities within the context of approved land or resource management plans. It defines a program to manage wildland fires (wildfire and prescribed fire).

flora—All the plant species of an area.

FMP— See “fire management plan.”

forb—A broad-leaved, herbaceous plant; a seed-producing annual, biennial, or perennial plant that does not develop persistent woody tissue but dies down at the end of the growing season.

geographic information system (GIS)—Computer system capable of storing and manipulating spatial data; a set of computer hardware and software for analyzing and displaying spatially referenced features (points, lines and polygons) with nongeographic attributes such as species and age.

GIS—See geographic information system.

goal—Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units (“Draft U.S. Fish and Wildlife Service Manual” 620 FW 1.5).

GPS—Global Positioning System.

guild—A group of species that use a common resource base in a similar fashion within an ecological community. A guild can be generally defined (for example, grassland birds) or specifically defined (for example, seed-eating small mammals).

habitat—Suite of existing environmental conditions required by an organism for survival and reproduction; the place where an organism typically lives and grows.

habitat conservation—Protection of animal or plant habitat to make sure that the use of that habitat by the animal or plant is not altered or reduced.

habitat disturbance—Significant alteration of habitat structure or composition; may be natural (for example, wildland fire) or human-caused events (for example, timber harvest and disking).

habitat type, also vegetation type, cover type—Land classification system based on the concept of distinct plant associations.

herbivore—Animal feeding on plants.

herbivory—The eating of plants, especially ones that are still living.

HGM—See hydrogeomorphic method.

hydrogeomorphic method—An interdisciplinary science that focuses on the interaction and linkage of hydrologic processes with landforms or earth materials and the interaction of geomorphic processes with surface and subsurface water in temporal and spatial dimensions.

impoundment—A body of water created by collection and confinement within a series of levees or dikes, creating separate management units although not always independent of one another.

Improvement Act—See National Wildlife Refuge System Improvement Act of 1997.

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 nonnative plant or animal species that is intentionally or accidentally released into an ecosystem where it was not adapted before.

introduction—Intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem because of human activity.

invasive plant, also noxious weed—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.

involute sanctuary—Place of refuge or protection where animals and birds may not be hunted.

IPM—See integrated pest management.

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 (“Draft U.S. Fish and Wildlife Service Manual” 602 FW 1.5).

lek—A physical area where males of a certain animal species gather to show their prowess and compete for females before or during the mating season.

local agencies—Municipal governments, regional planning commissions, or conservation groups.

management alternatives—See alternatives.

management plan—Plan that guides future land management practices on a tract of land. See cooperative agreement.

mean sea level—The sea level halfway between average levels of high and low water.

mechanical control—Reduction in numbers or elimination of unwanted species through the use of mechanical equipment such as mowers and clippers.

mesic—Characterized by, relating to, or requiring a moderate amount of moisture; having a moderate rainfall.

microhabitat—Habitat features at a fine scale; often identifies a unique set of local habitat features.

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 bird—Bird species that follow a seasonal movement from their breeding grounds to their wintering grounds. Waterfowl, shorebirds, raptors, and songbirds are all migratory birds.

migratory gamebird—Bird species, regulated under the Migratory Bird Treaty Act and State laws (legally hunted, including ducks, geese, woodcock, and rails).

mission—Succinct statement of purpose or reason for being.

monitoring—Process of collecting information to track changes of selected parameters over time.

monotypic—Having only one type or representative.

moraine—Mass of earth and rock debris carried by an advancing glacier and left at its front and side edges as it retreats.

National Environmental Policy Act of 1969—Required all agencies including the Service to examine the environmental effects of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Required Federal agencies to integrate this act with other planning needs and prepare proper documents to facilitate better environmental decisionmaking (40 CFR 1500).

national wildlife refuge—Designated area of land, water, or an interest in land or water within the 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.”

National Wildlife 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 Administration Act of 1966—Defined the National Wildlife Refuge System and authorized the Secretary of the Interior to allow any use of a refuge, provided such use is compatible with the major purposes for which the refuge was established.

Native species—Species that, other than as a result of an introduction, historically occurred or now occur in that ecosystem.

neotropical migrant, also neotropical migratory bird —Bird species that breeds north of the United States–Mexico border and winters primarily south of this border.

NEPA—See the National Environmental Policy Act of 1969.

nest success—Percentage of nests that successfully hatch one or more eggs of the total number of nests started in an area.

nongovernment organization—Any group that does not include Federal, State, tribal, county, city, town, local, or other government entities.

North American Waterfowl Management Plan—North American Waterfowl Management Plan, signed in 1986, recognizes that the recovery and perpetuation of waterfowl populations depends on restoring wetlands and associated ecosystems throughout the United States and Canada. It established cooperative international efforts and joint ventures made up of individuals; corporations; conservation organizations; and local, State, provincial, and Federal agencies drawn together by common conservation objectives. The Souris River Basin refuges are included in the “Prairie Pothole Joint Venture.”

notice of intent—Notice that an environmental impact statement will be prepared and considered (40 CFR 1508.22); published in the “Federal Register.”

noxious weed, also invasive plant—Any living stage (including seeds and reproductive parts) of a parasitic or other plant of a kind that is of foreign origin (new to or not widely prevalent in the United States) and can directly or indirectly injure crops, other useful plants, livestock, poultry, other interests of agriculture, including irrigation, navigation, fish and wildlife resources, or public health. According to the Federal Noxious Weed Act (PL 93-639), a noxious weed (invasive plant) is one that causes disease or has adverse effects on humans or the human environment and, therefore, is detrimental to the agriculture and commerce of the United States and to public health.

NWR—See national wildlife refuge.

objective—Concise statement of what is to be achieved, when and where it is to be achieved, and who is responsible for the work. Objectives are derived from goals and provide the basis for determining management strategies. Objectives should be reachable, time-specific, and measurable.

partnership—Contract or agreement entered into by two or more individuals, groups of individuals, organizations or agencies in which each agrees to furnish a part of the capital or some in-kind service, such as labor, for a mutually beneficial enterprise.

patch—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.

phenology—The relationship between plant or animal development and climatic conditions.

planning team—Team that prepares the comprehensive conservation plan. Planning teams are interdisciplinary in membership and function. A team generally consists of a planning team leader; refuge manager and staff biologist; staff specialists or other representatives of Service programs, ecosystems or regional offices; and State partnering wildlife agencies as proper.

planning team leader—Typically a professional planner or natural resource specialist knowledgeable of the needs of National Environmental Policy Act and who has planning experience. The planning team leader manages the refuge planning process and ensures compliance with applicable regulatory and policy needs.

planning unit—Single refuge, an ecologically or administratively related refuge complex, or distinct unit of a refuge. The planning unit also may include lands now outside refuge boundaries.

plant association—Classification of plant communities based on the similarity in dominants of all layers of vascular species in a climax community.

plant community—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 (ponderosa pine or bunchgrass).

potentimetric surface—A hypothetical surface representing the level to which ground water would rise if not trapped in a confined aquifer.

predation—Mode of life in which food is primarily obtained by the killing or consuming of animals.

prescribed fire—A wildland fire originating from a planned ignition to meet specific objectives identified in a written, approved, prescribed fire plan for which NEPA requirements (where applicable) have been met before ignition.

priority public use—See wildlife-dependent recreational use.

pristine—Typical of original conditions.

private land—Land that is owned by a private individual, a group of individuals, or a nongovernment organization.

private landowner—Any individual, group of individuals, or nongovernment organization that owns land.

private organization—Any nongovernment organization.

proposed action—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). The draft comprehensive conservation plan.

public—Individuals, organizations, and groups; officials of Federal, State, and local government agencies; Indian tribes; and foreign nations. It may include anyone outside the core 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—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.

public involvement plan—Broad long-term guidance for involving the public in the comprehensive planning process.

public land—Land that is owned by the local, State, or Federal government.

purpose of the refuge—Purpose 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, refuge unit, or refuge subunit (“Draft U.S. Fish and Wildlife Service Manual” 602 FW 1.5).

refuge lands—Lands in which the Service holds full interest in fee title, or partial interest such as limited-interest refuges.

refuge purpose—See purpose of the refuge.

Refuge System—See National Wildlife Refuge System.

Region 6—Mountain–Prairie Region of the U.S. Fish and Wildlife Service, which administers Service programs in Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Wyoming, and Utah.

rest—Free from biological, mechanical, or chemical manipulation, in reference to refuge lands.

restoration—Artificial manipulation of a habitat to restore it to something close to its natural state. Involves taking a degraded grassland and reestablishing habitat for native plants and animals. Restoration usually involves the planting of native grasses and forbs, and may include shrub removal and prescribed fire.

riparian area or riparian zone—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 parts 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.

runoff —Water from rain, melted snow, or agricultural or landscape irrigation that flows over the land surface into a waterbody.

scoping—Process of obtaining information from the public for input into the planning process.

sediment—Material deposited by water, wind, and glaciers.

Service—See U.S. Fish and Wildlife Service.

shorebird—Any of a suborder of birds such as a plover or a snipe that frequent the seashore or mudflat areas.

sound professional judgment—Finding, determination, or decision that is consistent with principles of sound fish and wildlife management and administration, available science and resources, and adherence to the needs of the National Wildlife Refuge System Administration Act of 1966 and other applicable laws.

spatial—Relating to, occupying, or having the character of space.

special status species—Plants or animals that have been identified through Federal law, State law, or agency policy as requiring special protection or monitoring. Examples include federally listed endangered, threatened, proposed, or candidate species; State-listed endangered, threatened, candidate, or monitor species; the Service’s species of management concern; and species identified by the Partners in Flight program as being of extreme or moderately high conservation concern.

special use permit—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 (“National Wildlife Refuge System Manual” 5 RM 17.6).

species of concern—Those plant and animal species, while not falling under the definition of special status species, that are of management interest by virtue of being Federal trust species such as migratory birds, important game species, or significant keystone species; species that have documented or clear populations declines, small or restricted populations, or dependence on restricted or vulnerable habitats. Species that: (1) are documented or have clear population declines; (2) are small or restricted populations; or (3) depend on restricted or vulnerable habitats.

stand—Any homogenous area of vegetation with more or less uniform soils, landform, and vegetation. Typically used to refer to forested areas.

stepdown management plan—Plan that provides the details necessary to carry out management strategies identified in the comprehensive conservation plan (“Draft U.S. Fish and Wildlife Service Manual” 602 FW 1.5).

strategy—Specific action, tool, or technique or combination of actions, tools, and techniques used to meet unit objectives (“Draft U.S. Fish and Wildlife Service Manual” 602 FW 1.5).

submergent—Vascular or nonvascular hydrophyte, either rooted or nonrooted, that lies entirely beneath the water surface, except for flowering parts in some species.

succession—Orderly progression of an area through time from one vegetative community to another in the absence of disturbance. For example, an area may proceed from grass-forb through aspen forest to mixed-conifer forest.

surficial—Relating to or occurring on the surface.

temporarily flooded—Surface water is present for brief periods during the growing season.

trust resource—Resource that, through law or administrative act, is held in trust for the people by the government. A Federal trust resource is one for which trust responsibility is given in part to the Federal Government through Federal legislation or administrative act. Generally, Federal trust resources are those considered to be of national or international importance no matter where they occur, such as endangered species and species such as migratory birds and fish that regularly move across State lines. Besides species, trust resources include cultural resources protected through Federal historic preservation laws, nationally important and threatened habitats, notably wetlands, navigable waters, and public lands such as State parks and national wildlife refuges.

trust species—See trust resource.

understory—Any vegetation whose canopy (foliage) is below, or closer to the ground than canopies of other plants.

upland—Dry ground; other than wetlands.

USDA—See U.S. Department of Agriculture.

U.S. Department of Agriculture—A Federal agency under the executive branch of government.

U.S. Fish and Wildlife Service—Principal Federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people. The Service manages the 93-million-acre National Wildlife Refuge System made up of more than 530 national wildlife refuges and thousands of waterfowl production areas. It also runs 65 national fish hatcheries and 78 ecological service field stations, 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. Fish and Wildlife Service mission—The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

USFWS—See U.S. Fish and Wildlife Service.

U.S. Geological Survey—Federal agency whose mission is to provide reliable scientific information to describe and understand the earth; reduce loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

USGS—See U.S. Geological Survey.

vision statement—Concise statement of what the planning unit should be, or what the Service hopes to do, based primarily on the Refuge System mission, specific refuge purposes, and other mandates. In addition, the vision statement is tied to the maintenance and restoration of biological integrity, diversity, and environmental health of each refuge and the Refuge System.

visual obstruction—Pertaining to the density of a plant community; the height of vegetation that blocks the view of predators and conspecifics to a nest.

visual obstruction reading (VOR)—Measurement of the density of a plant community; the height of vegetation that blocks the view of predators to a nest.

VOR—See visual obstruction reading.

wadingbirds—Birds having long legs that enable them to wade in shallow water. Includes egrets, great blue herons, black-crowned night-herons, and bitterns.

Wage Grade—Pay rate schedule for certain Federal positions.

waterfowl—Category of birds that includes ducks, geese, and swans.

watershed—Geographic area within which water drains into a particular river, stream or body of water. A watershed includes both the land and the body of water into which the land drains.

wetland—Land transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water.

WGFD—See Wyoming Game and Fish Department.

wildfire—Unplanned ignition of a wildland fire (such as a fire caused by lightning, volcanoes, unauthorized and accidental human-caused fires) and escaped prescribed fires.

wildland fire—A general term describing any non-structure fire that occurs in the wildland. There are two types of wildland fire—wildfire and prescribed fire.

wildlife-dependent recreational use—Use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation. These are the six priority public uses of the Refuge System as established in the National Wildlife Refuge System Administration Act of 1966, as amended. Wildlife-dependent recreational uses, other than the six priority public uses, are those that depend on the presence of wildlife.

wildlife management—Practice of manipulating wildlife populations either directly through regulating the numbers, ages, and sex ratios harvested, or indirectly by providing favorable habitat conditions and alleviating limiting factors.

woodland—Open stands of trees with crowns not usually touching, generally forming from 25 to 60 percent cover.

Wyoming Game and Fish Department—A government department of the State of Wyoming.

xerophytic—Pertaining to a plant that needs little water (adapted to growing in dry habitat).

Appendix A

Draft Compatibility Determinations

A.1 REFUGE INFORMATION

Refuge Name and Location

Cokeville Meadows National Wildlife Refuge, Lincoln County, near Cokeville, Wyoming.

Date Established

October 12, 1993

Establishing and Acquisition Authorities

Emergency Wetlands Resources Act of 1986 (16 U.S.C. § 3901(b))

Consolidated Farm and Rural Development Act (7 U.S.C. § 2002)

Migratory Bird Conservation Act (16 U.S.C. § 715d)

A.2 REFUGE PURPOSES

- "... for the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ..." 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)
- "... for conservation purposes ..." 7 U.S.C. § 2002 (Consolidated Farm and Rural Development Act)
- "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. § 715d (Migratory Bird Conservation Act)
- "to preserve and protect wetland riparian habitat for its migratory waterfowl and other migratory bird values; for resident big game, small game, furbearers and upland gamebirds; for public educational and interpretive values; and for public recreational values" (USFWS 1990).

National Wildlife Refuge System Mission:

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"

A.3 DESCRIPTION OF USES

The following uses are evaluated for compatibility within the refuge.

Cooperative Farming

Description of Use

Cooperative farming is the term used for cropping activities done by a third party on lands that we own in fee title or controls through a conservation easement. This activity is usually done on a short-term basis (3–4 years or less) to provide an optimal seedbed for establishment of native grasses and forbs or other desirable planted cover for wildlife. Cooperative farming on certain tracts can provide a fall food source for migratory waterfowl or a winter food source for resident wildlife. A farmer acts under authority of a cooperative farming agreement or special use permit issued by the project leader or refuge manager. Terms of the agreement make sure that the farmer follows all current Service and refuge restrictions.

Cooperative farming activities are generally limited to areas of former cropland or poor quality stands of tame or cool-season invasive grasses. Service policies do not allow tilling or cropping of highly erodible soils without an approved USDA Natural Resources Conservation Service conservation plan. Generally, farmed areas (before reseeding to more desirable plant species) would not cover more than 50 percent of the tract. Areas at the refuge that are planted for food plots would be limited to the size needed to provide sufficient food for the targeted wildlife species.

Availability of Resources

Staff time is available for development and administration of cooperative farming agreements. Most of the needed fieldwork to prepare and plan for this use would be done as part of routine grassland or upland management duties. The decision to use a cooperating farmer would occur as part of the overall strategy for managing and within a refuge. The added time needed to coordinate issuance of the special use permit or cooperative farming agreement and oversight of the permit or agreement is relatively minor and within the refuge's resources. In addition, the use of a cooperating farmer would free up Service employees who would otherwise have to conduct the farming operation. In most cases, farmers conduct cooperative farming operations on Service lands on a share basis rather than for a fee. We typically receive our share as:

- harvested grain used for other management purposes such as standing grain left for wildlife food,
- added work such as the control of invasive plants, cultivation, or added seedbed preparation, or
- supplies such as herbicide or grass seed to be used on the same tract of land.

We deposit any fees or cash income related to the farming into the Refuge Revenue Sharing Account. We receive fair market value consideration from cooperating farmers, but the generation of income is a secondary consideration when developing the terms and conditions of a special use permit or cooperative farming agreement. To lessen any appearance of favoritism or impropriety, managers follow "Refuge Manual" procedures for establishing rental rates and cooperator choice.

Anticipated Effects of This Use

Cooperative farming to prepare suitable seedbeds for planting better cover and habitat would result in short-term disturbances and long-term help to both resident and migratory wildlife using the refuge. Short-term effects include disturbance and displacement of wildlife typical of any noisy heavy equipment operation, and the loss of poor quality cover while the tract is farmed. Wildlife may use farmed areas as added food sources during the farming period.

There would be long-term help because of the establishment of diverse or more desirable habitat for nesting, escape cover, perching, or noncrop feeding activities. The resulting habitat would generally improve conditions for most of the species negatively affected by the short period of farming activity.

There would be no negative effects on cultural resources or threatened and endangered species.

Public Review and Comment

This compatibility determination was prepared concurrently with the draft CCP and EA for the refuge. Public review and comment will be achieved concurrently with the public review and comment period for the draft CCP and EA.

Determination

Cooperative farming is a compatible use with the following stipulations.

Stipulations Necessary to Make Sure That There is Compatibility

- Monitor vegetation and wildlife to assess the effects of cooperative farming as a management tool.
- Require general and special conditions for each permit to make sure that there is consistency with management objectives.
- Restrict the use of vehicles and motorized equipment to the minimum necessary to conduct operations to meet management objectives.
- Restrict farming permittees to use approved chemicals that are less detrimental to wildlife and the environment.

Justification

Habitat conditions would deteriorate without the use of a full range of management tools. Migratory bird habitat and ecological diversity would decrease as habitat suitability declined. Invasive plant species would increase and habitat diversity would decrease if farming practices did not continue at the refuges. To support and enhance habitat for migratory birds and other wildlife, habitat manipulation such as farming needs to occur.

Mandatory 10-Year Reevaluation Date: 2023

Prescribed Haying and Grazing

Description of Use

We propose to issue special use permits to manage various refuge land tracts cooperatively to improve habitat conditions and help migratory and resident wildlife species. To accomplish this, we would allow permittees to cut meadow hay and complete prescriptive grazing of wet meadow, wetland, and upland areas on specified portions of refuge tracts to support healthy and vigorous vegetative stands on Cokeville Meadows National Wildlife Refuge. In return, the cooperators would complete habitat improvement projects on the tracts including irrigating wet meadows, a control of noxious weeds, fence repair or replacement, tract cleanup, seeding native vegetation, and other mutually agreed-on projects.

Cooperative management of refuge tracts, including haying and grazing, is not one of the priority public uses of refuge lands. However, the occasional haying or grazing, particularly of wet meadow habitat, is an important habitat management technique that supports the health and vigor of the vegetation in these areas.

Haying and prescriptive grazing would occur on refuge-owned tracts on areas designated by our refuge manager and specifically outlined in each special use permit. These tracts are located within the refuge acquisition boundary in Townships 22, 23, and 24 North and Range 119 and 120 West. These areas provide a mosaic of habitats including wet meadows and cattail or bulrush sloughs that provide nesting and migratory habitat for many duck species, Canada

geese, greater sandhill cranes, white-faced ibis, snowy egret, long-billed curlew, black tern, great blue heron, American bittern, black-crowned night-heron, and many other marsh and shorebirds and raptors.

The special use permits would allow permittees to complete operations on the tracts between specified periods during the calendar year. Irrigation activities generally take place between March and July, haying of meadow grasses is generally conducted in mid-to-late August, and prescriptive (usually short-term, intensive) grazing would be conducted primarily in the fall but occasionally in the early spring or in some circumstances during the winter dormant season. Meadow grass haying would not be permitted before August 1st to prevent destruction of ground nesting migratory bird nests. Cooperators must provide their own agricultural equipment to complete operations. Standard agricultural equipment and techniques are permitted. Permittee may complete work himself or contract labor.

Availability of Resources

Refuge resources required for administering and managing special use permits include staff time to conduct site reviews before and throughout the growing season, cooperator meetings and coordination, administrative time to complete pesticide use permits or reports and special use permit or compatibility determination, and enforcement. Refuge tracts are located within Cokeville Meadows National Wildlife Refuge, a satellite refuge of Seedskaadee Refuge, about a 1.5 hour drive away. Meetings with each cooperator would be conducted a minimum of two times each season and are often in conjunction with site visits. General coordination with cooperators, including phone calls and incidental meetings, occur on a regular basis and may total eight or more hours each year per permit. Research for writing and editing the special use permits and associated Compatibility Determination take about four to six hours. These staff costs are estimated to total about \$700 per permit. Direct fuel, telephone, and miscellaneous supplies are estimated to total about \$100 per permit.

General maintenance and repairs of refuge equipment such as irrigation systems, pumps, and ditches are the responsibility of the permittees and result in no direct costs to the refuge. Major repairs (outside of normal wear and tear) or replacement of equipment, such as irrigation systems or pumps, is the responsibility of the refuge and can result in a wide range of expenses depending on the nature of the repair or purchase. Furthermore, we do not expect that refuge staff will be increased to handle these activities in the future. The most cost-efficient way for us to support irrigation equipment, other infrastructure, water rights, and to improve habitat for wildlife on refuge lands now is through haying and grazing operations. Revenue generated by the uses outlined in each permit directly help habitat and wildlife management of the tracts.

Anticipated Effects of This Use

Haying would result in short-term disturbances to wildlife and long-term help to wet meadows and uplands and the wildlife species that use these grasslands. Short-term changes would include disturbance and displacement of wildlife typical of any noisy heavy equipment operation. Cutting and removal of standing grass would result in the short-term loss (late summer to midsummer the following year) of habitat for those species requiring taller grass for feeding and perching. We would typically schedule prescribed haying after August 1st to avoid changes to most nesting birds.

Long-term help would accrue because of the increased vigor of regrown grasses or the establishment of highly desirable native grass and forbs species, which would improve habitat conditions for the same species affected by the short-term removal of cover. Long-term negative effects may occur to some resident wildlife species such as sage-grouse, which may lose overwinter habitat in hayed areas. Strict time constraints and limiting grass stands to no more than 50 percent being hayed at any one time would limit the anticipated effects on these species.

Grazing by domestic livestock has the short-term effect of removing some or much of the standing vegetation from a tract of grassland. Properly prescribed, the effect of this vegetation removal increases the vigor of the grassland, stimulates growth of desired species of grass and forbs, and reduces the abundance of targeted species such as cool-season invasive plants, noxious weeds and other invasive plants, and cattails. Grazing in the spring may cause the loss of some bird nests because of trampling, and may cause some birds not to nest in grazed areas. Prescribed grazing is usually of short duration with the result of enhanced, more diverse, and vigorous grassland habitats. Grazing livestock may create a minor and temporary disturbance to wildlife, but generally does no harm. Grazing on public wildlife lands can create an aesthetic issue of concern for some people, including visitors, who do not understand grassland or upland management. There is a slight potential for conflict between the visiting public and the livestock or the permittee, particularly during fall hunting seasons. To remove any appearance of favoritism or impropriety, managers

follow “Refuge Manual” procedures for cooperator or permittee choice. There would be no negative effects on cultural resources or threatened and endangered species.

Public Review and Comment

This compatibility determination was prepared concurrently with the draft CCP and EA for the refuge. Public review and comment will be achieved concurrently with the public review and comment period for the draft CCP and EA.

Determination

Prescribed haying and grazing is a compatible use with the following stipulations.

Stipulations Necessary to Make Sure That There is Compatibility

Permittees would comply with all stipulations in the special use permits. The following conditions will be included in each permit (more conditions may be added to each permit):

- The Cooperator agrees that grazing and haying activities must be conducted according to the conditions and rates specified by this permit. Any changes in the agreement must be made by an addendum, which is attached to and becomes part of the agreement.
- Capital improvements to facilities (fences and irrigation system) would become the property of the U.S. Fish and Wildlife Service unless specifically stated otherwise.
- The Cooperator and a Service representative would meet before, during, and at the conclusion of this permit to assess habitat conditions and other work completed under this special use permit. Duration of grazing on the tract may be shortened, or lengthened, at the discretion of the refuge manager to maximize help to vegetation and meet this goal. Corresponding changes would be made in rental fee computation.
- We must have a pesticide use proposal completed and approved before the application of any chemicals for crop production. The Cooperator would follow the directions on the label and our recommendations when applying any herbicides or pesticides. Cooperator must provide correct records of chemical, including acreages and application rates, used on the tract.
- Changes in the deduction rates, custom services, or termination date would be by an addendum, which is attached to and becomes part of the agreement.
- The cooperator is subjected to the same restrictions, terms, and agreements about land and water management as that of the U.S. Fish and Wildlife Service.
- Haying of irrigated meadow areas would not be permitted until after August 1 each year to prevent destruction of ground nesting migratory bird nests.

Justification

The proposed use would not materially interfere with or detract from the refuge or Refuge System purposes and mission. Haying and prescriptive grazing operations in sedge or grass communities would support or improve the health and vigor of vegetation and keep the area as open wet meadows or grasslands for use by sandhill cranes, shorebirds, ducks, geese and other marsh species. Haying and grazing operations would be rotated from year to year to maximize revitalization of meadow grasses and other vegetation throughout the tract. Continuing the irrigation of hay meadows and lowland pastures would provide foraging, nesting, or resting areas for geese, ducks, cranes, sage-grouse, and other migratory birds. Other species that would be directly helped include deer, elk, pronghorn, and amphibian species. Without irrigation, most of the area would convert to dryland grasses and shrubs. Continued use of the water supply would keep valid water rights for the refuge, which would be needed for future wetland management and development.

Cokeville Meadows National Wildlife Refuge is managed by Seedskaadee National Wildlife Refuge, which is about 90 miles away. Only one full-time staff position is now allocated to manage lands at Cokeville Meadows National Wildlife Refuge. The use of cooperative farmers is instrumental in conducting habitat management projects for wildlife.

Mandatory 10-Year Reevaluation Date: 2023

Hunting

Description of Use

Cokeville Meadows National Wildlife Refuge was established in 1993. Hunting occurred on this private property before refuge establishment and hunting has not been authorized to occur on the refuge since establishment.

Hunting is one of the six legislated wildlife-dependent, priority public uses of the National Wildlife Refuge System. Hunting would occur within designated hunting areas on the refuge during refuge hunting seasons that are within Wyoming Game and Fish Department-established hunting seasons. Hunting would be subject to Federal, State and refuge-specific regulations.

Because Cokeville Meadows National Wildlife Refuge is a newer refuge, the exact number of users is unknown. Based on hunting that occurs on the adjacent private and public lands, we would anticipate up to 50 people and 20 vehicles to use the public hunting area each day of the weekend during the peak of elk and deer season. We expect approximately 15 people and 8 vehicles on a weekday during the peak of elk and deer season. We anticipate up to 300 more user-days per year for all other species hunted.

Hunting could occur throughout the refuge area acquired to date. As more areas are acquired they would be evaluated to figure out their suitability for this activity. Access is limited because of ongoing refuge acquisition. The current lack of access would necessitate hiking to many hunting areas on the refuge. As refuge acquisition is completed, more access could be provided.

Hunting would occur during designated refuge hunting seasons that are within Wyoming Game and Fish Department-established hunting seasons. Hunting would be subject to Federal, State and refuge-specific regulations and occur within designated hunting areas on the refuge. Camping and use of all-terrain vehicles would not be allowed. Tree stands or blinds would be removed daily by the hunter.

Hunting is proposed to offer the public recreational opportunities that are identified as the priority wildlife-dependent public uses of the National Wildlife Refuge System.

Availability of Resources

The hunting program would be reviewed yearly, and necessary changes would be incorporated accordingly. Law enforcement would consist of random hunting license and bag limit checks as well as aggressive investigation and prosecution of flagrant offenses. A first and second year emphasis would be placed on hunter compliance through educational efforts with a progressively higher emphasis placed on enforcement in subsequent years. Operational and maintenance costs to conduct the Cokeville Meadows National Wildlife Refuge hunt are not yet projected with the bulk of those costs budgeted toward infrastructure and enforcement work-hours. Some overtime can be anticipated, with more hours worked by collateral law enforcement and full-time officers. Local budget costs may be defrayed in part by our regional law enforcement officer overtime budget. Added costs are anticipated for signs, brochures, parking lots and access points, which would be constructed and reviewed.

Anticipated Effects of This Use

Biological Conflicts

The proposed hunting would cause few biological conflicts with other wildlife species. Some disturbance of other animals is unavoidable when people are on the refuge and when they are using firearms. However, most of the current and potential refuge lands were, or are, open for private or public hunting, and are open to the public for hiking, birdwatching and similar activities now. Public hunting on refuge lands would not change the situation much unless hunting pressure increases markedly. If that happens, we would take measures—such as having a permit system or allowing hunting only on certain days of the week—to reduce the number of hunters.

Refuge staff would make every effort to maximize protection of endangered species and other nontarget wildlife.

High-visibility law enforcement activities, as well as covert operations, would be conducted to dissuade hunters from affecting wildlife other than the target species. Special Refuge Regulations would be, in effect, to reduce disturbance and to protect flora and fauna in the area.

Public Use Conflicts

No conflicts of consequence are expected between sport anglers and big game, upland game, or small game hunters. Overlap of hunting area usage between sport anglers, migratory bird hunters, and big game hunters may occur, but is expected to be minimal because of the dissimilar nature of these activities and the areas of the refuge where these activities may be expected to occur.

The demand for nonconsumptive wildlife-oriented use on Cokeville Meadows National Wildlife Refuge continues to grow. Conflicts between hunters and nonconsumptive users may occur. Providing nonconsumptive users access to wildlife viewing areas as described in this plan, notifications of when users are entering a hunting area and even closing a hunting area to nonconsumptive users if proper would reduce conflicts. In addition, restrictions on hunting methods and restrictions on hunting near designated public use facilities and trails should aid in reducing potential conflicts between hunters and nonconsumptive users. Should serious conflicts arise, considerations would be given to changes in time and space scheduling or zoning. Decisions would be based on minimizing changes to various user groups, and best management practices for wildlife.

Cokeville Meadows National Wildlife Refuge area has been a popular hunting area for many years. The refuge hunting program is designed to provide for the use of refuge lands within a framework designed to protect wildlife populations and provide for public safety. The continuance of these traditional uses has been widely supported by the public both before and after the establishment of the refuge. It is expected that this support would continue.

Administrative Conflicts

At this time, little administrative conflicts are anticipated. Existing refuge staff would be used to administer the hunting program. Our refuge manager would set station priorities to assure that required support staff is adequate. As this hunt program evolves over the years, refuge-specific regulations, systems of control to limit number of hunters, and fee costs may occur or change at the refuge manager's discretion.

Some research activities may extend into the fall and would be separated from hunting areas when possible.

Fall maintenance activities that occur during hunting seasons may include prescribed burns, maintenance of fences, gates, signs, water control structures, and roads. These activities can be managed so that they will not interfere with hunting opportunity while allowing needed work to be accomplished.

Waterfowl surveys, water level checking, and other habitat surveys may occur during hunting seasons.

Safety briefings for staff and researchers working in hunting areas would make them aware of hunting times and locations. Approved hunter safety vests and hats must be worn by all non-law enforcement operation persons working in areas open to hunting season activities.

Haying and grazing practices do occur on the refuge and in the hunting area for management purposes. Permittees would be made aware of the conflicts that may occur during the hunting season.

Public Review and Comment

This compatibility determination was prepared concurrently with the draft CCP and EA for the refuge. Public review and comment will be achieved concurrently with the public review and comment period for the draft CCP and EA.

Determination

Hunting is a compatible use with the following stipulations.

Stipulations Necessary to Make Sure That There is Compatibility

Stipulations for the hunting program would be made available in the refuge's hunting brochure.

Justification

Hunting is a traditional and legislated wildlife-dependent, priority public use. Use would be properly managed in cooperation with the Wyoming Game and Fish Department. Hunting at the refuge is a legitimate and necessary wildlife management tool that can be used to keep wild animal populations at healthy levels.

Allowing hunting on the refuge would be consistent with established refuge goals. Hunting is 1 of the 6 wildlife-dependent public uses that are to be supported within units of the National Wildlife Refuge System when compatible. This use is not expected to conflict with any proposed habitat management or reclamation projects on the refuge provided the refuge uses closures as necessary to protect public safety and to allow habitat management actions.

Mandatory 15-Year Reevaluation Date: 2028

Fishing

Description of Use

Cokeville Meadows National Wildlife Refuge was established in 1993. Fishing occurred on this private property before refuge establishment and fishing has not been authorized to occur on the refuge since establishment.

Fishing is 1 of the 6 legislated wildlife-dependent, priority public uses of the National Wildlife Refuge System. Fishing would occur within designated fishing areas on the refuge throughout the year, within Wyoming Game and Fish Department and established fishing seasons. Fishing would be subject to Federal, State and refuge-specific regulations.

Because Cokeville Meadows National Wildlife Refuge is a newer refuge, the exact number of users is unknown. Based on fishing that occurs on the adjacent private and public lands, we would anticipate up to 20 people and 8 vehicles to use the public hunting area each day of the weekend during the peak of fishing season. We expect approximately 8 people and 4 vehicles on a weekday during the summer months.

Fishing activities include shore or bank fishing and fishing from a boat or canoe. Fishing at Cokeville Meadows National Wildlife Refuge would occur only on the Bear River, wetland and wet meadow pools are closed to public fishing access.

Fishing would be in compliance to Federal, State (Wyoming Game and Fish Department), and refuge-specific regulations and occur within designated fishing areas on the Bear River that are in refuge boundaries. Ice fishing is not permitted on the refuge. As more areas are acquired they would be evaluated to figure out their suitability for this activity. Access is limited because of ongoing refuge acquisition. Access to the refuge for this activity would be

achieved through walking or by nonmotorized boats. As refuge acquisition is completed, more access could be provided. Camping, littering, fires and use of all-terrain vehicles would not be allowed.

Fishing is proposed to offer the public recreation opportunities that are identified as the priority wildlife-dependent public uses of the National Wildlife Refuge System.

Availability of Resources

The fishing program would be reviewed yearly, and necessary changes would be incorporated accordingly. Law enforcement would consist of random fishing license and creel limit checks as well as aggressive investigation and prosecution of flagrant offenses. A first and second year emphasis would be placed on fishing compliance through educational efforts with a progressively higher emphasis placed on enforcement in subsequent years. Operational and maintenance costs to conduct the Cokeville Meadows National Wildlife Refuge fishing program are not yet projected with the bulk of those costs budgeted toward infrastructure and law enforcement hours. Some overtime can be anticipated, with more hours worked by collateral law enforcement and full-time officers. Local budget costs may be defrayed in part by our regional law enforcement officer overtime budget. Added costs are anticipated for signs, brochures, parking lots and access points, which would be constructed and reviewed.

Anticipated Effects of This Use

Biological Conflicts

The proposed fishing would cause few biological conflicts with other wildlife species. Some disturbance of other animals is unavoidable when people are recreational fishing on the refuge. However, most of the current and potential refuge lands were, or are, open for private or public fishing, and are open to the public for hiking, birdwatching and similar activities now. Birds or mammals feeding or resting may be disturbed by anglers fishing from the bank. Public fishing on refuge lands would not change the situation much unless fishing pressure increases markedly. If that happens, we would take measures—such as having a permit system or allowing fishing only on certain days of the week—to reduce the number of anglers. Refuge staff would make every effort to maximize protection of endangered species and other nontarget wildlife.

High-visibility law enforcement activities, as well as covert operations, would be conducted to dissuade anglers from affecting wildlife other than the target species. Special Refuge Regulations would be, in effect, to reduce disturbance and to protect flora and fauna in the area.

Public Use Conflicts

No conflicts of consequence are expected between sport anglers, big game and upland or small game hunters. Overlap of recreational activities between sportfishing, migratory bird hunters, and big game hunters may occur, but is expected to be minimal because of the dissimilar nature of these activities and the areas of the refuge where these activities may be expected to occur.

The demand for nonconsumptive wildlife-oriented use on Cokeville Meadows National Wildlife Refuge continues to grow. Conflicts between fishing and nonconsumptive users may occur. Providing nonconsumptive users access to wildlife viewing areas as described in this plan, notifications of when users are entering a fishing area and even closing a fishing area to nonconsumptive users if proper would reduce conflicts. Should serious conflicts arise, considerations would be given to changes in time and space scheduling or zoning. Decisions would be based on minimizing changes to various used groups, and best management practices for wildlife.

Cokeville Meadows National Wildlife Refuge area has been a popular fishing area for many years. Our fishing program is designed to provide for the use of refuge lands within a framework designed to protect wildlife populations and provide for public safety. The continuance of these traditional uses has been widely supported by the public both before and after the establishment of the refuge. It is expected that this support would continue.

Administrative Conflicts

At this time, little administrative conflicts are anticipated. Existing refuge staff would be used to administer recreational fishing activities. Our refuge manager would set station priorities to assure that required support staff is adequate. As recreational fishing evolves over the years, refuge-specific regulations, access limitations, fees may occur or change at the refuge manager's discretion.

Some research activities may occur during the peak fishing months and into the fall and would be separated from fishing areas when possible.

Maintenance activities that occur during fishing seasons may include prescribed burns, maintenance of fences, gates, signs, water control structures, and roads. These activities can be managed so that they will not interfere with fishing opportunity while allowing needed work to be accomplished.

Waterfowl surveys, water level checking, and other habitat surveys may occur during fishing seasons.

Haying and grazing practices do occur on the refuge along the Bear River for management purposes. Permittees would be made aware of the conflicts that may occur during the hunting season.

Public Review and Comment

This compatibility determination was prepared concurrently with the draft CCP and EA for the refuge. Public review and comment will be achieved concurrently with the public review and comment period for the draft CCP and EA.

Determination

Fishing is a compatible use with the following stipulations.

Stipulations Necessary to Make Sure That There is Compatibility

- The designated areas (Bear River) for fishing may need stabilization to prevent erosion before being opened and or to curb erosion after use of these areas has begun.
- Enforcement would be conducted to help curb illegal fires, disorderly conduct and littering, also commercial guiding would not be permitted on the refuge.
- Enforcement would also help to make sure that there is that fishing regulations are observed, reduce creation of unauthorized trails and serve as a direct contact to the fishing public.
- Public meetings with local fishing clubs and interested parties would also be required to reinforce refuge regulations. If these measures do not curb unauthorized activities, other measures would be carried out to control activities and anglers.
- Law enforcement patrol of public use areas should reduce the above-mentioned types of violations.

Justification

The National Wildlife Refuge System Improvement Act identifies six legitimate and proper uses of wildlife refuges: hunting, fishing, wildlife observation, photography, interpretation, environmental education. These priority public uses are dependent on healthy wildlife populations. Where these uses are found to be compatible, they are to receive enhanced consideration over other uses in planning and management.

According to the Improvement Act, fishing is a wildlife-oriented activity that provides substantial recreational opportunities to the public (USFWS 1992). Fishing is a traditional form of outdoor recreation.

These activities would not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established. This use is not expected to conflict with any proposed

habitat management or reclamation projects on the refuge provided we use closures as necessary to protect public safety and to allow for habitat management actions.

Mandatory 15-Year Reevaluation Date: 2028

Trapping

Description of Use

Trapping is not a priority wildlife-dependent public use of the National Wildlife Refuge System as defined by the Improvement Act. Trapping would occur in and around locations where wildlife (such as beaver or muskrat) are hampering efforts to achieve refuge land and water management objectives. Typically, along roads, levees, and water control structures. Trapping may occur around refuge buildings where wildlife becomes a nuisance. Trapping would be used, at the refuge manager's discretion, whenever necessary to remove nuisance wildlife that is hampering efforts to achieve refuge land and water management objectives. Trapping could occur whenever a problem arises. Live trapping and relocation is the first preference when dealing with nuisance animals. If lethal trapping is necessary it would occur during Wyoming furbearer season if possible, but may occur at other times if necessary to meet refuge management objectives.

The use would occur whenever necessary and at the discretion of the refuge manager through issuance of a special use permit to a qualified trapper or trappers. Trapping would be used only in specific locations to remove wildlife hampering refuge management objectives. This work would be done by Service employees or through contract with qualified individuals. Animals would be relocated to other outlying fee-title properties or to other sites with willing landowners and suitable habitat. The use of snares on the refuge is prohibited. The approved trapping methods are qualified under State regulation as to trap size and types of allowable sets to protect nontarget species, and provide for the safe use of the area by others. Some furbearers cause damage to dikes and water control structures through burrowing and, in the case of beavers, through dam building or associated flooding. Trapping is used as a management tool to remove wildlife hampering refuge management activities.

Availability of Resources

Sufficient staff exists to issue the required permits, and oversee this periodic use. Facilities and staff are available to provide access, support roads, parking lots, and secondary access roads.

Anticipated Effects of This Use

The refuge was established to provide for the needs of migratory birds and other wildlife. Trapping does not adversely affect our ability to fulfill this purpose, and is employed as a tool to help accomplish refuge management objectives. National wildlife refuges are managed first and foremost for wildlife (USFWS 2001). However, the focus is on wildlife populations not individuals (USFWS 1992). Trapping causes mortality of individual animals, but at Cokeville Meadows National Wildlife Refuge its use is limited to instances where wildlife are hampering refuge management objectives, and it does not threaten the perpetuation of wildlife populations.

Trapping would be done in support of refuge management objectives and is expected to improve or help support habitats of many wildlife species. Any lethal trapping would cause mortality of targeted species and, in some cases, is likely to cause mortality of nontargeted species. In either case, mortality of individuals is not expected to affect wildlife populations adversely on the refuge. Trapping is expected to help refuge habitats in those areas where wildlife (such as beaver and muskrat) are hampering refuge management objectives. The use occurs at the discretion of the refuge manager and is limited to specific locations and times when problems occur.

Periodic trapping to remove nuisance wildlife is not expected to adversely affect wildlife populations that occur on the refuge and would likely help to support the biological integrity, diversity, and environmental health of the refuge.

Trapping is not expected to affect other refuge uses or public safety adversely, and cumulative effects are not anticipated.

Public Review and Comment

This compatibility determination was prepared concurrently with the draft CCP and EA for the refuge. Public review and comment will be achieved concurrently with the public review and comment period for the draft CCP and EA.

Determination

Trapping is a compatible use with the following stipulations.

Stipulations Necessary to Make Sure That There is Compatibility

- Trapping is only permitted via a special use permit issued by the refuge manager.
- Permittee must adhere to all special conditions listed in the special use permit.
- Whenever possible, trapping would be done in compliance with WGFD regulations.
- When necessary the permittee would provide a map and report in writing, on the number, age, and sex of animal taken and numbers of trapping days and nights. Report and maps would be provided to our refuge office after completion of trapping.
- Failure to comply with any terms of the special use permit or other refuge regulations may result in revocation of the permit.

Justification

In view of the above and with the stipulations described before, trapping would not materially interfere with or detract from the National Wildlife Refuge System mission or purposes of the refuge. Trapping is a tool used to control nuisance wildlife and help fulfill refuge management objectives. Its use is regulated and at the discretion of the refuge manager. It is not expected to adversely affect wildlife populations or their habitats, or conflict with other refuge uses.

Mandatory 10-Year Reevaluation Date: 2023

Wildlife Observation and Photography

Description of Use

This use would provide opportunities that support wildlife-dependent recreation. Wildlife observation and photography would be allowed on most of the refuge year-round. This CCP proposes to continue the above uses and add the following to improve wildlife observation and photography: update and improve refuge signs and create brochures to our graphic standards. Most of the refuge would be open for wildlife observation and photography. Their supporting use would be controlled and regulated through the publication of refuge factsheets and brochures and through information posted at the kiosks. Wildlife observation and photography are two of the six wildlife-dependent, priority public uses specified in the Improvement Act. These uses and their supporting access-related uses can be allowed at the refuge without interfering with the migratory bird resource.

Wildlife observation and photography are major visitor services at the refuge. The beauty and uniqueness of the area combined with the abundance of various bird and mammal species draw a variety of visitors each year. We would continue to support and enhance opportunities related to wildlife observation and photography. Supporting uses to help visitors in wildlife observation and photography are vehicle access, foot access (including hiking trails), and nonmotorized boat. Passenger vehicles, motorcycles and bicycles would be restricted to county and other public roads. Snowmobiles are not permitted on refuge roads and are restricted to county roads. ATV's are not allowed on refuge roads and must be licensed for highway use to be able to use county roads.

Nonmotorized boat access is allowed on the Bear River. Sailing is not permitted.

Horses, mules, llamas, and other animals used for riding or packing are not permitted on the refuge. We would update and improve refuge signs and brochures, develop an auto tour route, update kiosks and interpretive panels, and add an interpretive kiosk, and investigate the development of accessible habitat specific wildlife-viewing and photography areas, infrastructure or trails.

Availability of Resources

Facilities and staff are available to provide access, support roads, parking lots, secondary access roads, and signage. Supporting the public use facilities is part of routine management duties and staff and money is available. Kiosks and interpretive trail signs may be added to improve visitor information, but are not necessary to support the use.

Anticipated Effects of This Use

Temporary disturbance may exist to wildlife near the activity. Direct, short-term changes may include minor damage from traffic to roads and trails when wet and muddy, minor damage to vegetation, littering, increased maintenance activity, and potential conflicts with other visitors. These activities would have only minor effects on wildlife and would not detract from the primary purposes of the refuge.

At this time there are no anticipated long-term effects on the refuge.

The cumulative disturbance caused by wildlife observation and photography and all other public uses occurring on the refuge is not expected to adversely affect fish and wildlife populations or their habitats. Several factors including suitable site conditions, presence of facilities, access limitations, and seasonal restrictions or other regulations tend to concentrate uses. At any one time, much of the refuge is unaffected by these uses and is free of disturbance.

Wildlife observation and photography are not expected to affect other refuge uses or public safety adversely. As public use levels on Cokeville Meadows National Wildlife Refuge expand across time, unanticipated conflicts between user groups may occur. Our visitor services programs would be adjusted as needed to remove or reduce each problem and provide a quality wildlife-dependent recreational opportunity, which includes promoting public safety. Experience on many national wildlife refuges has proven that time and space zoning (for example, establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups. Overall, the cumulative effect of wildlife observation and photography on other wildlife-dependent recreation or public safety at Cokeville Meadows National Wildlife Refuge is expected to be minor.

Public Review and Comment

This compatibility determination was prepared concurrently with the draft CCP and EA for the refuge. Public review and comment will be achieved concurrently with the public review and comment period for the draft CCP and EA.

Determination

Wildlife observation and photography are compatible uses with the following stipulations.

Stipulations Necessary to Make Sure That There is Compatibility

- Our refuge manager would check use patterns and densities and make adjustments in timing, location, and duration as needed to limit disturbance.
- Use would be directed to public use facilities (both existing and in the future), which are not in or near sensitive areas. Trail layout and design would continue to make sure that there is adequate adjacent cover for wildlife and avoid sensitive wildlife areas or habitat.
- Interpretive signs would include messages on minimizing disturbance to wildlife. Certain modes of access such as motorized vehicles would be limited to designated roads and parking lots.
- Stipulations about the public use program would be made available in published refuge brochures. Dates, closed areas, and other information would be specified.
- We would restrict vehicles to designated roads and trails and check vehicle use for wildlife disturbance and law enforcement violations and would also watch use, regulate access, and support necessary facilities to prevent habitat degradation and reduce wildlife disturbance.

Justification

The Improvement Act identifies six legitimate and proper uses of wildlife refuges: hunting, fishing, wildlife observation, photography, interpretation, environmental education. These priority public uses are dependent on healthy wildlife populations. Where these uses are found to be compatible, they are to receive enhanced consideration over other uses in planning and management.

Wildlife observation and photography are wildlife-oriented activities that provide substantial recreational opportunities to the public (USFWS, 1992 and USFWS, 1997). Wildlife observation and photography are traditional forms of outdoor recreation.

These activities would not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established. This use is not expected to conflict with any proposed habitat management or reclamation projects on the refuge provided we use closures as necessary to protect public safety and to allow for habitat management actions.

Mandatory 15-Year Reevaluation Date: 2028

Environmental Education and Interpretation

Description of Use

Environmental education and interpretation are both defined as wildlife-dependent recreational uses under the Improvement Act. These programs have been opportunistic as time and staff allows. School group participation in environmental education is severely limited because of available staff and distance from communities. A few organized groups request tours and talks during the spring and summer months. Interpretation is limited to information panels at the visitor contact station, three standalone panels, and kiosks. In addition, the refuge does not have an auto tour route and has limited interpretation along designated trails. The CCP proposes to continue with the above uses, and add the following to improve environmental education and interpretation.

Hire a seasonal technician to develop and carry out interpretive programs, update and improve refuge signs and refuge trails identification, develop and interpret an auto tour route, and update existing kiosks, interpretive panels, and add an interpretive kiosk.

Availability of Resources

Money for these activities is provided solely from annual operation and maintenance budgets. Resources are stretched to continue providing environmental education and interpretation at the refuge. Installing new facilities outlined in the CCP is closely tied to money requests in the form of refuge operation needs system and maintenance management system projects. Existing programs such as current refuge directional signs and developing brochures can be updated with available resources.

Anticipated Effects of This Use

Temporary disturbance may exist to wildlife near the activity. Direct, short-term effects may include minor damage from traffic to roads and trails when wet and muddy, minor damage to vegetation, littering, increased maintenance activity, and potential conflicts with other visitors. These activities would have only minor effects on wildlife and would not detract from the primary purposes of the refuge.

At this time there are no anticipated long-term effects on the refuge.

The cumulative disturbance caused by environmental education and interpretation and all other public uses occurring on the refuge is not expected to adversely affect fish and wildlife populations or their habitats. Several factors including suitable site conditions, presence of facilities, access limitations, and seasonal restrictions or other regulations tend to concentrate uses. Environmental education and interpretation are not expected to affect public safety adversely. As public use levels on Cokeville Meadows National Wildlife Refuge expand across time, unanticipated conflicts between user groups may occur. Our visitor services programs would be adjusted as needed to remove or reduce each problem and provide a quality wildlife-dependent recreational opportunity, which includes promoting public safety. Experience on many national wildlife refuges has proven that time and space zoning (for example, establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups. Overall, the cumulative effect of wildlife observation and photography on other wildlife-dependent recreation or public safety at Cokeville Meadows National Wildlife Refuge is expected to be minor.

Public Review and Comment

This compatibility determination was prepared concurrently with the draft CCP and EA for the refuge. Public review and comment will be achieved concurrently with the public review and comment period for the draft CCP and EA.

Determination

Environmental education and interpretation are a compatible uses with the following stipulations.

Stipulations Necessary to Make Sure That There is Compatibility

- Visitors participating in environmental education and Interpretation programs would follow all refuge regulations. On-site activities should be held where minimal changes would occur.
- Our refuge manager would watch use patterns and densities and make adjustments in timing, location, and duration as needed to limit disturbance. Use would be directed to public use facilities (both existing and in the future), which are not in or near sensitive areas.
- Trail layout and design would continue to make sure that there is adequate adjacent cover for wildlife and avoid sensitive wildlife areas or habitat.
- Interpretive signs would include messages on minimizing disturbance to wildlife.
- Certain modes of access such as motorized vehicles would be limited to designated roads and parking lots.

- Stipulations about the public use program would be made available in published refuge brochures. Dates, closed areas, and other information would be specified.
- We would restrict vehicles to designated roads and trails and watch vehicle use for wildlife disturbance and law enforcement violations and would also watch use, regulate access, and support necessary facilities to prevent habitat degradation and reduce wildlife disturbance.

Justification

One of the secondary goals of the National Wildlife Refuge System is to provide opportunities for the public to develop an understanding and appreciation for wildlife when it is found compatible with other goals. The above uses are identified as priority visitor services in the National Wildlife Refuge System Improvement Act and would help meet the above secondary goal with only minimal conflicts.

Environmental education and interpretation are used to encourage an understanding in citizens of all ages to act responsibly in protecting wildlife and its habitat. These are tools used in building land ethics, developing support for the refuge, and decreasing wildlife violations.

Environmental education at the refuge is incidental to other programs because there is only one full-time staff to conduct these activities. However, the program is important and provides visitors with an awareness of refuge-specific issues such as wetland ecology, migratory bird management, and issues relating to the entire National Wildlife Refuge System.

Based on anticipated biological effects and on the EA, it is found that environmental education and interpretation on the refuge would not interfere with refuge habitat goals and objectives or the purposes for which it was established. Limits to access and monitoring can help mitigate any adverse effects.

Mandatory 15-Year Reevaluation Date: 2028

Research

Description of Use

We receive requests to conduct scientific research on the refuge every year. Priority would be given to studies that contribute to the enhancement, protection, preservation, and management of the refuge's native plant, fish, and wildlife populations and their habitats. Research applicants must submit a proposal that outlines (1) objectives of the study; (2) justification for the study; (3) detailed study methods and schedule; and (4) potential effects on refuge wildlife and habitat, including disturbance (short and long term), injury, or mortality. This includes a description of measures the researcher would take to reduce disturbances or changes; (5) staff required and their qualifications or experience; (6) status of necessary permits (scientific collecting permits, endangered species permits); (7) costs to refuge and refuge staff time requested, if any; and (8) anticipated progress reports and end products (such as reports or publications). Refuge staff or others, as proper, would review research proposals and issues special use permits if approved. Evaluation criteria would include, but not be limited to, the following:

- Research that would contribute to specific refuge management issues would be given higher priority over other requests.
- Research that would conflict with other ongoing research, monitoring, or management programs would not be approved.
- Research projects that can be conducted off of the refuge are less likely to be approved.

- Research that causes undue disturbance or is intrusive would likely not be approved. The degree and type of disturbance would be carefully weighed when evaluating a research request.
- Research evaluation would decide if any effort has been made to reduce disturbance through study design, including adjusting location, timing scope, number of permittees, study methods, and number of study sites.
- If staff or logistics make it impossible for us to watch researcher activity in a sensitive area, this may be reason to deny the request, depending on the specific circumstances.
- The length of the project would be considered and agreed on before approval. Projects would be reviewed annually. We have an active land acquisition program. If newly acquired property includes areas of research interest, the same special use permit process and evaluation criteria described above would be followed.

Availability of Resources

Adequate money and staff exist to manage for a limited amount of research at the Cokeville Meadows National Wildlife Refuge. As always, discretionary use of staff time would be weighed through a cost-benefit analysis. It is anticipated that approximately \$2,000 per year would be required to administer and manage these research activities. Administration would include, but not be limited to, evaluation of applications, management of permits, and oversight of research projects.

Anticipated Effects of This Use

Some degree of disturbance is expected with all research activities because most researchers would be entering areas that are seasonally closed or conducting research in remote areas of the refuge that have limited visitation by the public, and some research requires collection of samples or handling of wildlife. However, minimal effects on refuge wildlife and habitats is expected with research studies because special use permits would include conditions to make sure that effects to wildlife and habitats are kept to a minimum.

Public Review and Comment

This compatibility determination was prepared concurrently with the draft CCP and EA for the refuge. Public review and comment will be achieved concurrently with the public review and comment period for the draft CCP and EA.

Determination

Research is a compatible use with the following stipulations.

Stipulations Necessary to Make Sure That There is Compatibility

- Extremely sensitive wildlife habitat areas and wildlife species would be provided sufficient protection from disturbance by limiting proposed research activities in these areas.
- All refuge rules and regulations must be followed unless otherwise exempted by refuge management.
- Our staff would use the criteria for evaluating a research proposal, as outlined above under “Description of Use” when determining whether to approve a proposed study on the refuge. If proposed research methods are evaluated and found to have potential effects on refuge resources (habitat or wildlife), it must be shown that the research is necessary for refuge resource conservation management.
- Measures to reduce potential effects would need to be developed and included as part of the study design. In addition, these measures would be listed as conditions on the special use permit.
- Our staff would watch research activities for compliance with conditions of the special use permit. At any time, refuge staff may accompany the researchers to figure out potential effects. Staff may decide that

approved research and special use permits should be terminated because of observed effects. The refuge manager would also have the ability to cancel a special use permit if the researcher is out of compliance or to make sure that there is wildlife and habitat protection.

Justification

The program as described is found to be compatible. Potential effects of research activities on refuge resources would be reduced because sufficient restrictions would be included as part of the study design and research activities would be watched by our refuge staff. Research projects would contribute to the enhancement, protection, preservation, and management of the refuge's wildlife populations and their habitats.

Mandatory 10-Year Reevaluation Date: 2023

A.4 SIGNATURES

Submitted by:

Tom Koerner
Project Leader
Seedskaadee National Wildlife Refuge Complex
Green River, Wyoming

Date

Reviewed by:

W. Dean Rundle, Refuge Supervisor
U.S. Fish and Wildlife Service, Region 6
National Wildlife Refuge System
Lakewood, Colorado

Date

Approved by:

Matt Hogan, Assistant Regional Director
U.S. Fish and Wildlife Service, Region 6
National Wildlife Refuge System
Lakewood, Colorado

Date

Appendix B

Intra-Service Section 7 Biological Evaluation

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Persons: Tom Koerner

Telephone Numbers: (307) 875-2187 x 16

Date: June 28, 2013

I. Region: 6

II. Service Activity (Program): Refuges & Wildlife, Cokeville Meadows National Wildlife Refuge

III. Pertinent Species and Habitat:

A. Listed species and/or their critical habitat within the action area:

Black-footed ferret, *Mustela nigripes* (listed endangered)

Ute ladies' - tresses orchid, *Spiranthes diluvialis* (listed threatened)

There is no federally designated critical habitat on the action area (Seedskaadee NWR)

B. Proposed species and/or proposed critical habitat within the action area:

No proposed species

C. Candidate species within the action area:

Yellow-billed cuckoo, *Coccyzus americanus*

Greater Sage-grouse, *Centrocercus urophasianus*

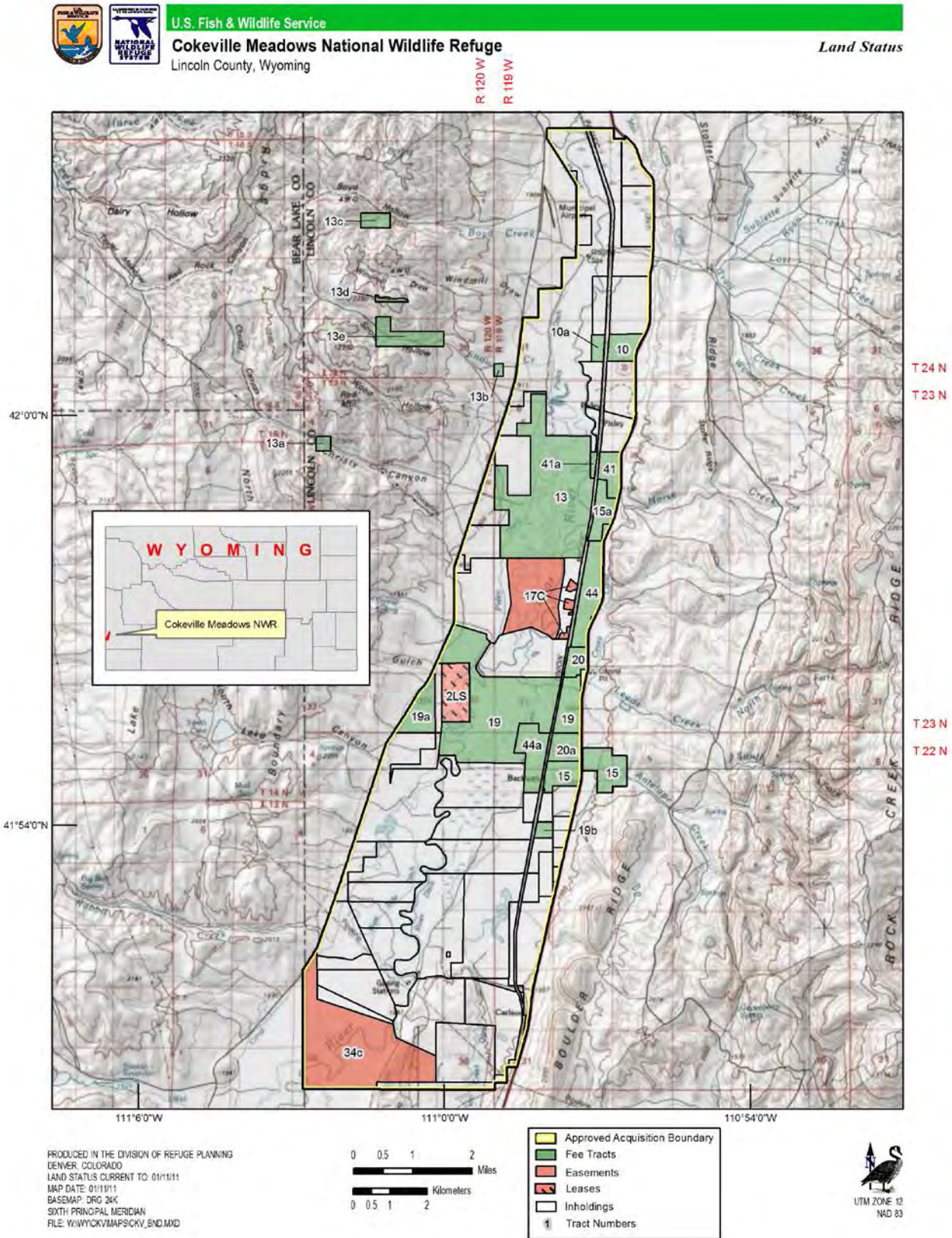
D. Include species/habitat occurrence on a map: see attachment

IV. Geographic area or station name and action:

Station: Cokeville Meadows Wildlife Refuge (Bear River basin in southwestern Wyoming)

Action: Approve and implement the Draft Comprehensive Conservation Plan

V. Location (map attached):



E. Ecoregion Number and Name: Cokeville Meadows NWR is located within the Service's Region 6, Mountain-Prairie Region, and specifically in the Bear River Ecosystem (Bear River Basin)

F. County and State: Lincoln County, Wyoming

G. Section, township, and range:

Cokeville Meadows NWR includes parts or all of Sections 4, 5, 6, & 7, Township 22 North, Range 119 West; Sections 6, 7, 8, 9, 16, 17, 18, 20, 29, 31 & 32, Township 23 North, Range 119 West; Sections 31, 32 & 33, Township 24 North, Range 119 West; Section 1 Township 22 North, Range 120 West; Sections 10, 25, 35 & 36, Township 23 North, Range 120 West; Sections 22, 23, 26, 35 & 36, Township 24 North, Range 120 West.

H. Distance & direction to nearest town: Cokeville Meadows NWR is approximately 10 miles south of Cokeville, WY

I. Species/habitat occurrence:

Black-footed ferret: The Refuge lies within the historical range of this listed species, however it has never been documented. The Refuge has very limited white-tailed prairie dog colonies. At present it is unknown what is the prairie dog density at the Refuge. It is unlikely that a large enough population of prairie dogs exists to support black-footed ferrets.

Ute ladies-tresses orchid: While the Refuge lies in between areas known to have populations of this listed species (Colorado and Montana), there are no known populations of this species on the Refuge. An orchid survey, within suitable orchid habitat, performed during the blooming period of this species in the Refuge (2000) failed to locate this plant within the Refuge.

Greater Sage-grouse: The Greater Sage-grouse is a candidate species that occupies the refuge from Mid-Summer through late to early winter. In Mid-Summer adults with young broods come to the refuge in search of their early life cycle needs. They winter on adjacent private and Federal (BLM) big sagebrush stands.

Yellow-billed Cuckoo: The Yellow-billed Cuckoo is a candidate species that has not been documented on the refuge. The refuge lies within the historical range of this species. The cuckoo relies on riparian habitat types which include cottonwoods with a shrub understory. A limited amount of this habitat is found within Cokeville Meadows National Wildlife Refuge.

VI Description of proposed action

See attached draft Comprehensive Conservation Plan and Environmental Assessment.

VII Determination of effects:

A. Explanation of effects of the action on species and critical habitats in items III. A, B & C

black-footed ferret:	Implementing the CCP “May Affect but Not Likely to Adversely Affect” this mammal. The continued preservation and management of Service lands for the benefit of wildlife species, including white-tailed prairie dogs which are a primary prey species, should preserve an opportunity for this species to return in the future. This species is considered endangered and is protected both federally and by the state. Implementation of the actions listed in the Comprehensive Conservation Plan should not have negative effects to the habitats and/or prey species of this federally listed species.
Ute ladies’-tresses orchid:	Implementing the CCP “May Affect but Not Likely to Adversely Affect” this plant species. It has never been found on the Refuge despite an orchid-specific survey (2000) within suitable habitats. If this species is found in the Refuge in the future, the Service will establish and enforce measures to protect this listed plant and its habitats. Implementation of the actions listed in the Comprehensive Conservation Plan should not have negative effects to the habitats of this federally listed species.
Greater Sage-grouse:	Implementing the CCP will have “No Affect” on this candidate species. The continued preservation and management of Service lands for the benefit of wildlife species, including sagebrush obligates such as greater sage grouse, will provide more opportunities to preserve existing habitat and restore habitat in the future.
Yellow-billed Cuckoo:	Implementing the CCP will have “No Affect” on this candidate species. The continued preservation and management of Service lands for the benefit of wildlife species, including species requiring woody riparian habitat, will provide more opportunities to preserve existing habitat and restore habitat in the future. This species relies on healthy riparian habitats and actions listed in the CCP will work to improve the habitat conditions.

There is no federally designated critical habitat on the action area (Cokeville Meadows NWR) and there is no need to propose designating critical habitat within the Refuge at this time.

A. Explanation of actions to be implemented to reduce adverse effects:

See attached draft Comprehensive Conservation Plan and Environmental Assessment.

VIII Effect determination and response requested: [* = optional]

A. Listed species/designated critical habitat:

<u>Determination</u>	<u>Response requested</u>
no effect/no adverse modification	_____ *Concurrence

(species: NONE)

may affect, but is not likely to adversely affect
species/adversely modify critical habitat
(species: black-footed ferret, Ute ladies'-tresses orchid)

_____ Concurrence

likely to jeopardize the continued existence of species
and adversely modify or destroy their critical habitat
(NONE)

_____ Formal Consultation

B. Proposed species/proposed critical habitat: NONE

Determination

no effect on proposed species/no adverse
modification of proposed critical habitat
(species: NONE)

Response requested

_____ *Concurrence

Is likely to jeopardize proposed species/
adversely modify proposed critical habitat
(species: NONE)

_____ Conference

C. Candidate Species:

Determination

no effect (species: Greater sage grouse
and yellow billed cuckoo)

Response requested

_____ *Concurrence

likely to jeopardize candidate species
(species: NONE)

_____ Conference

Tom Koerner, Project Leader,
Cokeville Meadows National Wildlife Refuge

Date

IX Reviewing ESO Evaluation:

- A. Concurrence _____
B. Formal Consultation required: ____
C. Conference required: ____
D. Informal conference required: ____
E. Remarks:

Nonconcurrence _____

Mark Sattelberg
Wyoming Field Supervisor, U.S. Fish & Wildlife Service

Date

Appendix C

Public Involvement

A notice of intent to prepare the draft CCP and EA was published in the Federal Register on November 5, 2009. We compiled a mailing list of more than 80 names during preplanning. The list includes private citizens; local, regional, and State government representatives and legislators; other Federal agencies; and interested organizations. Public scoping began immediately after publication of the notice of intent and was announced through news releases and issuance of the first planning update to the mailing list.

The planning update provided information on the history of the refuge and the CCP process, along with an invitation and schedule to upcoming public open houses to be held throughout the planning area. Each planning update included a comment form to give the public an opportunity to provide written comments. Emails were also accepted at the Seedskaadee National Wildlife Refuge Complex's email address: seedskaadee@fws.gov.

Open houses were announced to local newspapers and radio stations. Flyers were posted, and announcements were made via email and at meetings of local organizations.

Two public open houses were held in local communities in the refuge area including Cokeville and Kemmerer, Wyoming, November 17–18, 2007. At the meetings informational posters, maps, and handouts, along with a power point presentation provided a history of the Refuge System, orientation to the planning area, and an overview of the CCP and NEPA processes. The draft vision statement developed for the refuge was also presented at the open houses. Service staff was available to answer questions on a variety of topics about refuge management and the CCP process. Attendees were encouraged to ask questions and offer comments. Verbal comments were recorded and each attendee was given a comment form to submit thoughts or questions in writing. The turnout was high at the Cokeville meeting, with 50–55 people attending and turnout was low at the Kemmerer meeting.

All written comments were due December 31, 2009. Several comments were received during the scoping effort. Input obtained from public meetings, letters, emails, and comment forms was considered in developing the draft CCP. These comments identified biological, social, and economic concerns about refuge management.

The planning team's response to public comments will be completed before final approval of the CCP. The mailing list for the CCP and EA follows.

C.1 FEDERAL OFFICIALS

U.S. Representative Cynthia Lummis, Washington, DC
U.S. Senator John Barrasso, Washington, DC
U.S. Senator Mike Enzi, Washington, DC

C.2 FEDERAL AGENCIES

BLM, Kemmerer, Wyoming
BLM, Rock Springs, Wyoming
National Park Service, Fossil Butte National Monument, Kemmerer, Wyoming
USDA National Resources Conservation Service, Cokeville, Wyoming
USDA Forest Service, Kemmerer, Wyoming
USGS, Bozeman, Montana

C.3 TRIBES

Assiniboine and Sioux Tribes of Fort Peck, Poplar, Montana
Cheyenne River Sioux Tribe, Eagle Butte, South Dakota
Crow Creek Sioux Tribal Council, Fort Thompson, South Dakota
Eastern Shoshone Business Council, Fort Washakie, South Dakota
Lower Brule Sioux Tribal Council, Lower Brule, South Dakota
Northern Arapaho Business Committee, Fort Washakie, Wyoming
Northern Cheyenne Tribal Council, Lame Deer, Montana
Northwestern Band of Shoshoni Nation of Utah, Brigham City, Utah
Oglala Sioux Tribal Council, Pine Ridge, South Dakota
Rosebud Sioux Tribal Council, Rosebud, South Dakota
Santee Sioux Tribal Council, Niobrara, Nebraska
Standing Rock Sioux Tribal Council, Fort Yates, North Dakota

C.4 STATE OFFICIALS

Governor Dave Freudenthal, Cheyenne, Wyoming
Representative Kathy Davison, Kemmerer, Wyoming
Representative Allen M. Jaggi, Lyman, Wyoming
Representative Robert M. McKim, Afton, Wyoming
Representative Owen Petersen, Mountain View, Wyoming
Representative Jim Roscoe, Wilson, Wyoming
Wyoming State Senator Stan Cooper, Kemmerer, Wyoming
Wyoming State Senator Dan Dockstader, Afton, Wyoming

Idaho Department of Fish and Game, Boise, Idaho
State Historic Preservation Office, Cheyenne, Wyoming
State Historic Preservation Office, Laramie, Wyoming
Utah Division of Wildlife Resources, Ogden, Utah
WGFD, Cheyenne, Wyoming
WGFD, Cokeville, Wyoming
WGFD, Green River, Wyoming
WGFD, Jackson, Wyoming
WGFD, Lander, Wyoming
WGFD, Pinedale, Wyoming

Board of County Commissioners, Lincoln County, Kemmerer, Wyoming
City of Afton, Wyoming
City of Cokeville, Wyoming
City of Evanston, Wyoming
City of Kemmerer, Wyoming
City of Montpelier, Idaho
Green River Chamber of Commerce, Green River, Wyoming
Lincoln County Planning Office, Kemmerer, Wyoming
Lincoln County Weed and Pest, Afton, Wyoming
Randolph City Office, Randolph, Utah

C.7 LOCAL BUSINESSES

Hideout Motel, Cokeville, Wyoming

C.8 ORGANIZATIONS

American Bird Conservancy, Mountain Green, Utah
 Audubon Public Policy Office, Washington, DC
 Audubon Wyoming, Laramie, Wyoming
 The Conservation Fund, Jackson, Wyoming
 Defenders of Wildlife, Washington, DC
 Ducks Unlimited, Fort Collins, Colorado
 Hawkwatch International, Salt Lake City, Utah
 International Crane Foundation, Baradoo, Wisconsin
 International Migratory Bird Day, Boulder, Wyoming
 Mule Deer Foundation, Salt Lake City, Utah
 National Trappers Association, Bedford, Indiana
 National Wildlife Refuge Association, Washington, DC
 The Nature Conservancy, Evanston, Wyoming
 North American Pronghorn Foundation, Rawlins, Wyoming
 Rocky Mountain Elk Foundation, Missoula, Montana
 Trout Unlimited, Logan, Utah
 Water for Wildlife Foundation, Lander, Wyoming
 The Wildlife Society, Bethesda, Maryland
 Wyoming Native Plant Society, Laramie, Wyoming
 Wyoming Outdoor Council, Lander, Wyoming
 Wyoming Stock Growers Association, Cheyenne, Wyoming
 Wyoming Wildlife Federation, Cheyenne, Wyoming
 Wyoming Wildlife Federation, Lander, Wyoming

Bear Lake County Library, Montpelier, Idaho
 Cokeville Public Library, Cokeville, Wyoming
 Lincoln County Library, Kemmerer, Wyoming
 Star Valley Branch Library, Cokeville, Wyoming
 Uinta County Library, Evanston, Wyoming

C.10 UNIVERSITIES AND SCHOOLS

University Wyoming, Laramie, Wyoming
 Utah State University, Logan, Utah
 Western Wyoming Community College, Rock Springs, Wyoming

C.11 MEDIA

Green River Star, Green River, Wyoming
 Kemmerer Gazette, Kemmerer, Wyoming
 The News Examiner, Montpelier, Idaho
 Rocket Miner Newspaper, Rock Springs, Wyoming
 Uinta County Herald News, Evanston, Wyoming

C.12 INDIVIDUALS

12 private individuals

Appendix D

Key Legislation and Policy

This appendix briefly describes the guidance for the Refuge System and other key legislation and policies that guide management of the Cokeville Meadows National Wildlife Refuge.

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where proper, 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. (Improvement Act)

D.1 GOALS OF THE NATIONAL WILDLIFE REFUGE SYSTEM

- Conserve a variety of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered.
- Develop and support 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 take part 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.

D.2 GUIDING PRINCIPLES

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 take part in decisions about acquisition and management of our national wildlife refuges.

D.3 LEGAL AND POLICY GUIDANCE

Management actions on national wildlife refuges are circumscribed by many mandates including laws and Executive orders. Regulations that affect refuge management the most are listed in alphabetical order below.

American Indian Religious Freedom Act (1978)—Directed agencies to consult with native traditional religious leaders to figure out proper policy changes necessary to protect and preserve Native American religious cultural rights and practices.

Americans with Disabilities Act (1992)—Prohibited discrimination in public accommodations and services.

Antiquities Act (1906)—Authorized 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)—Directed the preservation of historic and archaeological data in Federal construction projects.

Archaeological Resources Protection Act (1979), as amended—Protected 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)—Required federally owned, leased, or financed buildings and facilities to be accessible to persons with disabilities.

Clean Water Act (1977)—Required consultation with the U.S. Army Corps of Engineers (404 permits) for major wetland modifications. Section 404—Authorized the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearing, for discharge of dredged or fill material into navigable waters of the United States, including wetlands, at specified disposal sites. Required choice of disposal sites be in accordance with guidelines developed by the Administrator of the Environmental Protection Agency in conjunction with the Secretary of the Army. Stated that the Administrator can prohibit or restrict use of any defined area as a disposal site whenever she or he decides, after notice and opportunity for public hearings, that discharge of such materials into such areas will have an unacceptable adverse effect on municipal water supplies, shellfish beds, fishery areas, wildlife, or recreational areas.

Consolidated Farm and Rural Development Act (1961)—amended January 23, 2004: provides loans for soil and water conservation and protection, water treatment and many other agricultural related activities.

Dingell–Johnson Act (1950)—Authorized the Secretary of the Interior to provide financial help for State fish restoration and management plans and projects. Financed by excise taxes paid by manufacturers of rods, reels, and other fishing tackle. Known as the Federal Aid in Sport Fish Restoration Act.

Emergency Wetlands Resources Act (1986)—Promoted wetland conservation for the public benefit to help fulfill international obligations in various migratory bird treaties and conventions. Authorized the buying of wetlands with Land and Water Conservation Fund monies.

Endangered Species Act (1973), as amended—Required all Federal agencies to carry out programs for the conservation of threatened and endangered species.

Environmental Education Act of 1990—Established the Office of Environmental Education within the Environmental Protection Agency to develop and administer a Federal environmental education program. Responsibilities of the office include developing and supporting programs to improve understanding of the natural and developed environment and the relationships between humans and their environment, supporting the dissemination of educational materials, developing and supporting training programs and environmental education seminars, managing a Federal grant program, and administering an environmental internship and fellowship program. Required the office to develop and support environmental programs in consultation with other Federal natural resource management agencies including the Service.

Executive Order 11644, Use of Off-road Vehicles on Public Lands (1972)—Provided policy and procedures for regulating off-road vehicles.

Executive Order 11988, Floodplain Management (1977)—Required Federal agencies to provide leadership and take action to reduce the risk of flood loss, reduce the effect of floods on human safety, and preserve the natural and beneficial values served by the floodplains. Prevented Federal agencies from contributing to the “adverse impacts associated with occupancy and modification of floodplains” and the “direct or indirect support of floodplain development.” In the course of fulfilling their respective authorities, Federal agencies “shall take action to reduce the risk of flood loss, to reduce the effect of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains.”

Executive Order 11990, Protection of Wetlands (1977)—Directed Federal agencies to (1) reduce destruction, loss, or degradation of wetlands, and (2) preserve and enhance the natural and beneficial values of wetlands when a practical alternative exists.

Executive Order 12996, Management and General Public Use of the National Wildlife Refuge System (1996)—Defined the mission, purpose, and priority public uses of the Refuge System; presented four principles to guide management of the Refuge System.

Executive Order 13007, Indian Sacred Sites (1996)—Directed Federal land management 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 proper, support the confidentiality of sacred sites.

Executive Order 13443, Facilitation of Hunting Heritage and Wildlife Conservation (2007)—Directed Federal agencies that have programs and activities that have a measurable effect on public land management, outdoor recreation, and wildlife management, including the U.S. Department of the Interior and the U.S. Department of Agriculture, to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat.

Federal Noxious Weed Act (1990)—Required 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)—Required the preservation of evidence of the Government’s organization, functions, policies, decisions, operations, and activities, as well as basic historical and other information.

Federal Water Pollution Control Act of 1972—Required any applicant for a Federal license or permit to conduct any activity that may result in a discharge into navigable waters to obtain a certification from the State in which the discharge originates or will originate, or, if proper, from the interstate water pollution control agency having jurisdiction over navigable waters at the point where the discharge originates or will originate, that the discharge will comply with applicable effluent limitations and water quality standards. Required that a certification obtained for construction of any facility must also pertain to subsequent operation of the facility.

Fish and Wildlife Act (1956)—Directed the Secretary of the Interior to develop the policies and procedures necessary for carrying out fish and wildlife laws and to research and report on fish and wildlife matters. Established the U.S. Fish and Wildlife Service within the U.S. Department of the Interior, as well as the positions of Assistant Secretary for Fish and Wildlife and Director of the Service.

Fish and Wildlife Coordination Act (1958)—Allowed the U.S. Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes.

Fish and Wildlife Improvement Act of 1978—Improved the administration of fish and wildlife programs and amends several earlier laws including the Refuge Recreation Act, the National Wildlife Refuge System Administration Act of 1966, and the Fish and Wildlife Act of 1956. Authorized the Secretary to accept gifts and bequests of real and personal property on behalf of the United States. Authorized the use of volunteers for Service projects and appropriations to carry out volunteer programs.

Historic Sites, Buildings and Antiquities Act (1935), known as the Historic Sites Act, as amended (1965)—Declared a national policy to preserve historic sites and objects of national significance, including those located at refuges and districts. Provided procedures for designation, acquisition, administration, and protection of such sites and for designation of national historic and natural landmarks.

Land and Water Conservation Fund Act of 1965—Provided money from leasing bonuses, production royalties, and rental revenues for offshore oil, gas, and sulfur extraction to the Bureau of Land Management, the USDA Forest Service, the U.S. Fish and Wildlife Service, and State and local agencies for purchase of lands for parks, open space, and outdoor recreation.

Migratory Bird Conservation Act (1929)—Established 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)—Authorized the opening of part of a refuge to waterfowl hunting.

Migratory Bird Treaty Act (1918)—Designated the protection of migratory birds as a Federal responsibility and enabled the setting of seasons and other regulations including the closing of areas, Federal or non-Federal, to the hunting of migratory birds.

Mineral Leasing Act (1920), as amended—Authorized and governed leasing of public lands for development of deposits of coal, oil, gas and other hydrocarbons, sulfur, phosphate, potassium and sodium. Section 185 provided for granting of rights-of-way over Federal lands for pipelines.

National Environmental Policy Act of 1969—Required all agencies including the Service to examine the environmental effects of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Required Federal agencies to integrate this act with other planning needs and prepare proper documents to facilitate better environmental decisionmaking (40 CFR 1500).

National Historic Preservation Act of 1966, as amended—Established 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 of 1966—Defined the National Wildlife Refuge System and authorized the Secretary of the Interior to allow 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 of 1997—Set the mission and administrative policy for all refuges in the National Wildlife Refuge System. Mandated comprehensive conservation planning for all units of the Refuge System. This act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

National Wildlife Refuge System Volunteer and Community Partnership Enhancement Act of 1998—Encouraged the use of volunteers to help the Service in the management of refuges within the Refuge System. Facilitated 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 those resources. Encouraged donations and other contributions by persons and organizations to the Refuge System.

Native American Graves Protection and Repatriation Act (1990)—Required Federal agencies and museums to inventory, figure out ownership of, and repatriate cultural items under their control or possession.

North American Wetlands Conservation Act (1989)— Provided for the conservation of North American wetland ecosystems, waterfowl and other migratory birds, fish, and wildlife that depend on such habitats.

Pittman–Robertson Act (1937)—Taxed the purchase of ammunition and firearms and earmarks the proceeds to be distributed to the States for wildlife restoration. Known as the Federal Aid in Wildlife Restoration Act or P–R Act.

Refuge Recreation Act (1962)—Allowed the use of refuges for recreation when such uses are compatible with the refuge's primary purposes and when sufficient money is available to manage the uses.

Refuge Revenue Sharing Act, section 401 (1935)—Provided for payments to counties in lieu of taxes using revenues derived from the sale of products from refuges.

Refuge Trespass Act of June 28, 1906—Provided the first Federal protection for wildlife at national wildlife refuges. Made it unlawful to hunt, trap, capture, willfully disturb, or kill any bird or wild animal, or take or destroy the eggs of any such birds, on any lands of the United States set apart or reserved as refuges or breeding grounds for such birds or animals by any law, proclamation, or Executive order, except under rules and regulations of the Secretary. Protected Government property on such lands.

Rehabilitation Act (1973)—Required programmatic accessibility in addition to physical accessibility for all facilities and programs paid for by the Federal Government to make sure that any person could take part in any program.

Salt Cedar and Russian Olive Control Demonstration Act (2006)—Furthered the purposes of the Reclamation Projects Authorization and Adjustment Act of 1992 by directing the Secretary of the Interior, acting through the Commissioner of Reclamation, to carry out an assessment and demonstration program to control saltcedar and Russian olive trees and for other purposes.

Transfer of Certain Real Property for Wildlife Conservation Purposes Act of 1948—Provided that, on determination by the Administrator of the General Services Administration, real property no longer needed by a Federal agency can be transferred without reimbursement to the Secretary of the Interior if the land has particular value for migratory birds or to a State agency for other wildlife conservation purposes.

U.S. Department of the Interior Order Number 3226 (2001)—Directed bureaus and offices of the Department to analyze the potential effects on climate change when undertaking long-range planning, setting priorities for scientific research, and making major decisions about use of resources.

Volunteer and Community Partnership Enhancement Act (1998)—Encouraged the use of volunteers to help in the management of refuges within the Refuge System. Facilitated 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 encouraged donations and other contributions.

Wilderness Act of 1964—Directed the Secretary of the Interior, within 10 years, to review every roadless area of 5,000 or more acres and every roadless island (regardless of size) within the Refuge System and National Park Service for inclusion in the National Wilderness Preservation System.

Appendix E

Preparers and Contributors

This document is the result of the extensive, collaborative, and enthusiastic efforts by the members of the Cokeville Meadows Refuge planning team below. Many others contributed insight and support.

Core Planning Team

<i>Team Member</i>	<i>Position</i>	<i>Work Unit</i>
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Appendix F

Species List

Birds

The following bird species are known or suspected to occur at Cokeville Meadows Refuge, Lincoln County, Wyoming. This list is not all inclusive. A thorough inventory has yet to be carried out.

Ducks, Geese, and Swans

snow goose *Chen caerulescens*
Ross's goose *Chen rossii*
Canada goose *Branta canadensis*
trumpeter swan *Cygnus buccinator*
tundra swan *Cygnus columbianus*
gadwall *Anas strepera*
American wigeon *Anas americana*
mallard *Anas platyrhynchos*
blue-winged teal *Anas discors*
cinnamon teal *Anas cyanoptera*
northern shoveler *Anas clypeata*
northern pintail *Anas acuta*
green-winged teal *Anas crecca*
canvasback *Aythya valisineria*
redhead *Aythya americana*
ring-necked duck *Aythya collaris*
greater scaup *Aythya marila*
lesser scaup *Aythya affinis*
bufflehead *Bucephala albeola*
common goldeneye *Bucephala clangula*
Barrow's goldeneye *Bucephala islandica*
hooded merganser *Lophodytes cucullatus*
common merganser *Mergus merganser*
red-breasted merganser *Mergus serrator*
ruddy duck *Oxyura jamaicensis*

Partridges, Grouse, Turkeys

greater sage-grouse *Centrocercus urophasianus*

Loons

common loon *Gavia immer*

Grebes

pied-billed grebe *Podilymbus podiceps*
horned grebe *Podiceps auritus*
red-necked grebe *Podiceps grisegena*
eared grebe *Podiceps nigricollis*
western grebe *Aechmophorus occidentalis*
Clark's grebe *Aechmophorus clarkii*

Cormorants

double-crested cormorant *Phalacrocorax auritus*

Pelicans

American white pelican *Pelecanus erythrorhynchos*

Bitterns, Herons, and Egrets

American bittern *Botaurus lentiginosus*
great blue heron *Ardea herodias*
great egret *Ardea alba*
snowy egret *Egretta thula*
cattle egret *Bubulcus ibis*
green heron *Butorides virescens*
black-crowned night-heron *Nycticorax nycticorax*

Ibises and Spoonbills

white-faced ibis *Plegadis chihi*

New World Vultures

turkey vulture *Cathartes aura*

Hawks, Kites, and Eagles

osprey *Pandion haliaetus*
bald eagle *Haliaeetus leucocephalus*
northern harrier *Circus cyaneus*
sharp-shinned hawk *Accipiter striatus*
Cooper's hawk *Accipiter cooperii*
northern goshawk *Accipiter gentilis*
common black-hawk *Buteogallus anthracinus*
Swainson's hawk *Buteo swainsoni*
red-tailed hawk *Buteo jamaicensis*
ferruginous hawk *Buteo regalis*
rough-legged hawk *Buteo lagopus*
golden eagle *Aquila chrysaetos*

Caracaras and Falcons

American kestrel *Falco sparverius*
merlin *Falco columbarius*
peregrine falcon *Falco peregrinus*

prairie falcon *Falco mexicanus*

Rails, Gallinules, and Coots

Virginia rail *Rallus limicola*

sora *Porzana carolina*

American coot *Fulica americana*

Cranes

sandhill crane *Grus canadensis*

whooping crane *Grus americana*

Plovers

black-bellied plover *Pluvialis squatarola*

American golden-plover *Pluvialis dominica*

snowy plover *Charadrius nivosus*

killdeer *Charadrius vociferus*

mountain plover *Charadrius montanus*

Stilts and Avocets

black-necked stilt *Himantopus mexicanus*

American avocet *Recurvirostra americana*

Sandpipers and Phalaropes

spotted sandpiper *Actitis macularius*

solitary sandpiper *Tringa solitaria*

greater yellowlegs *Tringa melanoleuca*

willet *Tringa semipalmata*

lesser yellowlegs *Tringa flavipes*

upland sandpiper *Bartramia longicauda*

long-billed curlew *Numenius americanus*

marbled godwit *Limosa fedoa*

red knot *Calidris canutus*

sanderling *Calidris alba*

semipalmated sandpiper *Calidris pusilla*

western sandpiper *Calidris mauri*

least sandpiper *Calidris minutilla*

Baird's sandpiper *Calidris bairdii*

pectoral sandpiper *Calidris melanotos*

stilt sandpiper *Calidris himantopus*

long-billed dowitcher *Limnodromus scolopaceus*

Wilson's snipe *Gallinago delicata*

common snipe *Gallinago gallinago*

American woodcock *Scolopax minor*

Wilson's phalarope *Phalaropus tricolor*

red-necked phalarope *Phalaropus lobatus*

Gulls and Terns

Bonaparte's gull *Chroicocephalus philadelphia*

Franklin's gull *Leucophaeus pipixcan*

ring-billed gull *Larus delawarensis*

California gull *Larus californicus*

herring gull *Larus argentatus*

Caspian tern *Hydroprogne caspia*

black tern *Chlidonias niger*

common tern *Sterna hirundo*

Forster's tern *Sterna forsteri*

Pigeons and Doves

rock pigeon *Columba livia* (Introduced)

Eurasian collared-dove *Streptopelia decaocto* (Introduced)

white-winged dove *Zenaida asiatica*

mourning dove *Zenaida macroura*

Cuckoos, Roadrunners, and Anis

yellow-billed cuckoo *Coccyzus americanus*

Barn Owls

barn owl *Tyto alba*

Typical Owls

western screech-owl *Megascops kennicottii*

great horned owl *Bubo virginianus*

snowy owl *Bubo scandiacus*

burrowing owl *Athene cunicularia*

long-eared owl *Asio otus*

short-eared owl *Asio flammeus*

Nighthawks and Nightjars

common nighthawk *Chordeiles minor*

common poorwill *Phalaenoptilus nuttallii*

Swifts

white-throated swift *Aeronautes saxatalis*

Hummingbirds

calliope hummingbird *Stellula calliope*

broad-tailed hummingbird *Selasphorus platycercus*

rufous hummingbird *Selasphorus rufus*

Kingfishers

belted kingfisher *Megaceryle alcyon*

Woodpeckers

Lewis's woodpecker *Melanerpes lewis*

red-headed woodpecker *Melanerpes erythrocephalus*

red-naped sapsucker *Sphyrapicus nuchalis*

downy woodpecker *Picoides pubescens*

hairy woodpecker *Picoides villosus*

American three-toed woodpecker *Picoides dorsalis*

northern flicker *Colaptes auratus*

Tyrant Flycatchers

olive-sided flycatcher *Contopus cooperi*

western wood-pewee *Contopus sordidulus*

willow flycatcher *Empidonax traillii*

least flycatcher *Empidonax minimus*

Hammond's flycatcher *Empidonax hammondii*

gray flycatcher *Empidonax wrightii*

dusky flycatcher *Empidonax oberholseri*

Cordilleran flycatcher *Empidonax occidentalis*

Say's phoebe *Sayornis saya*

ash-throated flycatcher *Myiarchus cinerascens*
 Cassin's kingbird *Tyrannus vociferans*
 western kingbird *Tyrannus verticalis*
 eastern kingbird *Tyrannus tyrannus*
 scissor-tailed flycatcher *Tyrannus forficatus*

Shrikes

loggerhead shrike *Lanius ludovicianus*
 northern shrike *Lanius excubitor*

Vireos

plumbeous vireo *Vireo plumbeus*
 blue-headed vireo *Vireo solitarius*
 warbling vireo *Vireo gilvus*
 red-eyed vireo *Vireo olivaceus*

Crows and Magpies

black-billed magpie *Pica hudsonia*
 American crow *Corvus brachyrhynchos*
 common raven *Corvus corax*

Larks

horned lark *Eremophila alpestris*

Swallows

tree swallow *Tachycineta bicolor*
 violet-green swallow *Tachycineta thalassina*
 northern rough-winged swallow *Stelgidopteryx serripennis*
 bank swallow *Riparia riparia*
 cliff swallow *Petrochelidon pyrrhonota*
 barn swallow *Hirundo rustica*

Titmice and Chickadees

black-capped chickadee *Poecile atricapillus*
 mountain chickadee *Poecile gambeli*

Nuthatches

red-breasted nuthatch *Sitta canadensis*
 white-breasted nuthatch *Sitta carolinensis*

Creepers

brown creeper *Certhia americana*

Wrens

rock wren *Salpinctes obsoletus*
 Bewick's wren *Thryomanes bewickii*
 house wren *Troglodytes aedon*
 winter wren *Troglodytes hiemalis*
 marsh wren *Cistothorus palustris*

Old World Warblers and Gnatcatchers

blue-gray gnatcatcher *Poliophtila caerulea*

Dippers

American dipper *Cinclus mexicanus*

Kinglets

golden-crowned kinglet *Regulus satrapa*
 ruby-crowned kinglet *Regulus calendula*

Thrushes

mountain bluebird *Sialia currucoides*
 Townsend's solitaire *Myadestes townsendi*
 veery *Catharus fuscescens*
 Swainson's thrush *Catharus ustulatus*
 hermit thrush *Catharus guttatus*
 American robin *Turdus migratorius*

Mimic Thrushes

gray catbird *Dumetella carolinensis*
 northern mockingbird *Mimus polyglottos*
 sage thrasher *Oreoscoptes montanus*

Starlings

European starling *Sturnus vulgaris*

Wagtails and Pipits

American pipit *Anthus rubescens*
 Sprague's pipit *Anthus spragueii*

Waxwings

Bohemian waxwing *Bombycilla garrulus*
 cedar waxwing *Bombycilla cedrorum*

Longspurs and Buntings

Lapland longspur *Calcarius lapponicus*
 McCown's longspur *Rhynchophanes mccownii*
 snow bunting *Plectrophenax nivalis*

Wood Warblers

ovenbird *Seiurus aurocapilla*
 black-and-white warbler *Mniotilta varia*
 Tennessee warbler *Oreothlypis peregrina*
 orange-crowned warbler *Oreothlypis celata*
 Nashville warbler *Oreothlypis ruficapilla*
 Virginia's warbler *Oreothlypis virginiae*
 MacGillivray's warbler *Geothlypis tolmiei*
 common yellowthroat *Geothlypis trichas*
 hooded warbler *Setophaga citrine*
 American redstart *Setophaga ruticilla*
 magnolia warbler *Setophaga magnolia*
 Blackburnian warbler *Setophaga fusca*
 yellow warbler *Setophaga petechia*
 chestnut-sided warbler *Setophaga pensylvanica*
 black-throated blue warbler *Setophaga caerulescens*
 yellow-rumped warbler *Setophaga coronata*
 black-throated gray warbler *Setophaga nigrescens*
 Townsend's warbler *Setophaga townsendi*

Wilson's warbler *Cardellina pusilla*
yellow-breasted chat *Icteria virens*

Sparrows and Towhees

green-tailed towhee *Pipilo chlorurus*
American tree sparrow *Spizella arborea*
chipping sparrow *Spizella passerina*
Brewer's sparrow *Spizella breweri*
vesper sparrow *Poocetes gramineus*
lark sparrow *Chondestes grammacus*
sage sparrow *Amphispiza belli*
lark bunting *Calamospiza melanocorys*
Savannah sparrow *Passerculus sandwichensis*
grasshopper sparrow *Ammodramus savannarum*
fox sparrow *Passerelia iliaca*
song sparrow *Melospiza melodia*
Lincoln's sparrow *Melospiza lincolni*
white-crowned sparrow *Zonotrichia leucophrys*
dark-eyed junco *Junco hyemalis*

Tanagers

western tanager *Piranga ludoviciana*

Cardinals, Grosbeaks, and Allies

black-headed grosbeak *Pheucticus melanocephalus*

lazuli bunting *Passerina amoena*

Blackbirds and Orioles

red-winged blackbird *Agelaius phoeniceus*
western meadowlark *Sturnella neglecta*
yellow-headed blackbird *Xanthocephalus xanthocephalus*
Brewer's blackbird *Euphagus cyanocephalus*
common grackle *Quiscalus quiscula*
brown-headed cowbird *Molothrus ater*
Bullock's oriole *Icterus bullockii*

Finches

gray-crowned rosy-finch *Leucosticte tephrocotis*
black rosy-finch *Leucosticte atrata*
Cassin's finch *Carpodacus cassinii*
house finch *Carpodacus mexicanus*
red crossbill *Loxia curvirostra*
common redpoll *Acanthis flammea*
pine siskin *Spinus pinus*
American goldfinch *Spinus tristis*
evening grosbeak *Coccothraustes vespertinus*

Old World Sparrows

house sparrow *Passer domesticus* (introduce

Reptiles, Amphibians, Fish, and Freshwater Mussels

The following reptile, amphibian, fish, and freshwater mussel species are known or suspected to occur at Cokeville Meadows Refuge, Lincoln County, Wyoming. This list is not all inclusive. A thorough inventory has yet to be carried out.

Amphibians

tiger salamander *Ambystoma tigrinum*
Great Basin spadefoot *Scaphiopus intermontanus*
northern leopard frog *Rana pipiens*
boreal chorus frog *Pseudacris triseriata*

Reptiles

Great Basin skink *Eumeces utahensis*
northern sagebrush lizard *Sceloporus graciosus*
greater short-horned lizard *Phrynosoma hernandesi*
Great Basin gopher snake *Pituophis melanoleucas*
wandering garter snake *Thamnophis elegans*
valley garter snake *Thamnophis fitchi*

Fish

Bonneville cutthroat trout *Oncorhynchus utah*

mountain whitefish *Prosopium williamsoni*
mottled sculpin *Cottus bairdi*
Utah sucker *Catostomus ardens*
common carp *Cyprinus carpio*
Utah chub *Gila atraria*
redside shiner *Richardsonius balteatus*
speckled dace *Rhinichthys osculus*
bluehead sucker *Catostomus discobolus*
yellow perch *Perca flavescens*

Freshwater Mussels

California floater *Anodonta californiensis*
western pearlshell *Margaritifera falcata*

Mammals

The following mammal species are known or suspected to occur at Cokeville Meadows Refuge, Lincoln County, Wyoming. This list is not all inclusive. A thorough inventory has yet to be carried out.

Order Insectivora—Insectivores

Family Soricidae—Shrews

cinereus or masked shrew *Sorex cinereus*
 Merriam's shrew *Sorex merriami*
 dusky or montane shrew *Sorex monticolus*
 American water shrew *Sorex palustris*
 vagrant shrew *Sorex vagrans*

Family Vespertilionidae—Vesper Bats

long-eared myotis *Myotis evotis*
 little Brown myotis *Myotis lucifugus*
 long-legged myotis *Myotis volans*
 silver-haired bat *Lasionycteris noctivagans*

Family Leporidae—Hares and Rabbits

pygmy pabbit *Brachylagus idahoensis*
 desert cottontail *Sylvilagus audubonii*
 black-tailed jackrabbit *Lepus californicus*
 white-tailed jackrabbit *Lepus townsendii*

Family Sciuridae—Squirrels

least chipmunk *Neotamias minimus*
 Uinta chipmunk *Neotamias umbrinus*
 yellow-bellied marmot *Marmota flaviventris*
 Uinta ground squirrel *Spermophilus armatus*
 Wyoming ground squirrel *Spermophilus elegans*
 golden-mantled ground squirrel *Spermophilus lateralis*
 thirteen-lined ground squirrel *Spermophilus tridecemlineatus*
 white-tailed prairie dog *Cynomys leucurus*

Family Geomyidae—Pocket Gophers

northern pocket gopher *Thomomys talpoides*
 plains pocket gopher *Geomys bursarius*

Family Heteromyidae—Pocket Mice and Kangaroo Rats

Great Basin pocket mouse *Perognathus parvus*

Family Castoridae—Beavers

American beaver *Castor canadensis*

Family Muridae—Mice, Rats, and Voles

deer mouse *Peromyscus maniculatus*
 bushy-tailed woodrat *Neotoma cinerea*

southern red-backed vole *Clethrionomys gapperi*
 western heather vole *Phenacomys intermedius*
 long-tailed vole *Microtus longicaudus*
 montane vole *Microtus montanus*
 meadow vole *Microtus pennsylvanicus*
 sagebrush vole *Lemmiscus curtatus*
 common muskrat *Ondatra zibethicus*

Family Zapodidae—Jumping Mice

Western jumping mouse *Zapus princeps*

Family Erethizontidae—New World Porcupines

North American porcupine *Erethizon dorsatum*

Order Carnivora—Carnivores

Family Canidae—Dogs, Foxes, and Wolves

coyote *Canis latrans*
 red fox *Vulpes vulpes*

Family Procyonidae—Raccoons, Ringtails, and Coatis

northern raccoon *Procyon lotor*

Family Mustelidae - Weasels, Otters, and Badgers

ermine or short-tailed weasel *Mustela erminea*
 long-tailed weasel *Mustela frenata*
 American mink *Mustela vison*
 American badger *Taxidea taxus*
 northern river otter *Lontra canadensis*

Family Mephitidae - Skunks

striped skunk *Mephitis mephitis*

Family Felidae - Cats

bobcat *Lynx rufus*

Family Cervidae - Deer

wapiti or elk *Cervus canadensis*
 mule deer *Odocoileus hemionus*
 white-tailed deer *Odocoileus virginianus*
 moose *Alces alces*

Family Antilocapridae - Pronghorn

pronghorn *Antilocapra americana*

Plants

The following plant species are known or suspected as occurring at Cokeville Meadows Refuge, Lincoln County, Wyoming. This list is not all inclusive. A thorough inventory has yet to be carried out.

Narrow Riparian- or Riverfront-type Forest Corridors

black cottonwood *Populus trichocarpa*
 narrowleaf cottonwood *Populus angustifolius*
 coyote willow *Salix exigua*
 Bebb willow *Salix bebbiana*

Semipermanent, Flooded Floodplain, Wetland Depressions

cattail *Typha latifolia*
 hardstem bulrush *Schoenoplectus acutus*
 coontail *Ceratophyllum demersum*
 naiads *Najas* sp.
 pondweed *Potamogeton* sp.
 marsh buttercup *Ranunculus aquatilis*
 arrowhead *Sagittaria latifolia*
 sedges *Carex* sp.
 rushes *Juncus* sp.

Wet Meadow Sedge and Grass Communities

meadow foxtail *Alopecurus partensis*
 arrowhead *Sagittaria latifolia*

sedges *Carex* sp.
 rushes *Juncus* sp.
 wheat grass *Agropyron* sp.
 saltgrass *Distichlis stricta*
 basin wild rye *Elymus cinereus*
 greasewood *Sarcobatus vermiculatus*
 nuttail alkali grass *Puccinellia airoides*
 alkali sacaton *Sporobolus airoides*
 alkali cordgrass *Spartina gracilis*

Upland Sagebrush or Grassland Communities

Wyoming sagebrush *Artemisia tridentate* spp
wyomingensis
 big sagebrush *Artemisia tridentate*
 thickspike wheatgrass *Agropyron dasystachyum*
 western wheatgrass *Agropyron smithii*
 needle and thread *Stipa comate*
 rabbit-brush *Chrysothamnus nauseosus*
 galletta grass *Hilaria rigida*
 bottlebrush squirreltail *Sitanion hystrix*
 bluegrasses *Poa* sp.

Appendix G

Collection of Shed Antlers, Finding of Appropriateness

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Cokeville Meadows National Wildlife Refuge

Use: Collection of shed antlers

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	<input type="checkbox"/>	<input type="checkbox"/>
(d) Is the use consistent with public safety?	<input type="checkbox"/>	<input type="checkbox"/>
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	<input type="checkbox"/>	<input type="checkbox"/>
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	<input type="checkbox"/>	<input type="checkbox"/>
(g) Is the use manageable within available budget and staff?	<input type="checkbox"/>	<input type="checkbox"/>
(h) Will this be manageable in the future within existing resources?	<input type="checkbox"/>	<input type="checkbox"/>
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 803 FW 1, for description), compatible, wildlife-dependent recreation into the future?	<input type="checkbox"/>	<input type="checkbox"/>

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ☒ No ☐

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ☒

Appropriate ☐

Refuge Manager: _____

Date: 06/28/2013

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____

Date: _____

A compatibility determination is required before the use may be allowed.

FWS Form 3-2319
02/06

Appendix H

Predator Management Activities



United States Department of the Interior

FISH AND WILDLIFE SERVICE Mountain-Prairie Region



IN REPLY REFER TO:
FWS/R6
Mail Stop 60130

MAILING ADDRESS:
P.O. Box 25486, DFC
Denver, Colorado 80225-0486

STREET LOCATION:
134 Union Boulevard
Lakewood, Colorado 80228-1807

DEC 13 2011

Memorandum

To: Refuge Project Leaders, Region 6

From: ARD, NWRS/PFW, Region 6

Subject: Predator Management Activities on Region 6 Refuges

We recently received a request from the Wildlife Services program of USDA, Animal and Plant Health Inspection Service (APHIS) to conduct damage control operations directed at gray wolves on a Montana Refuge. Many refuges have dealt individually with Wildlife Services, or with state predator control agencies, and stockmen associations regarding coyote control, for a number of years.

The Refuge Supervisors collected data from refuges that had received requests for on-refuge predator management/animal damage control (hereinafter referred to as ADC) work and reviewed that information. While all responses seemed to be locally reasonable, our responses have not always been consistent across the Region.

Refuge Managers are responsible for authorizing or denying requests for third-party uses of the refuges they administer, and for complying with Service policies that govern authorization for refuge uses (e.g. compatibility). Within that framework, the following guidelines are provided to assist you in responding to requests from Wildlife Services or from state or local predator/animal damage control agencies/organizations:

1. Region 6 refuges will generally not allow "population management" activities on refuges. "Population management" activities are those where Wildlife Services or another ADC organization routinely/annually kills predators to reduce/control predator populations as a prophylactic measure. Population management in Region 6 is generally directed at coyotes.
2. Region 6 refuges generally will authorize Wildlife Services or state ADC agencies to target specific predators/family groups when it is determined that those specific animals are likely responsible for documented livestock depredation on neighboring/nearby lands. The level of documentation and evidence deemed appropriate is determined by the Refuge Manager. Wildlife Services may be asked to provide NEPA and Section 7 compliance documents, as appropriate.

3. Region 6 refuges will generally grant USDA Wildlife Service requests to enter refuges for non-lethal activities such as surveillance, live-trapping and marking or applying radio collars to predators.
4. Region 6 refuges will generally restrict any authorized lethal ADC activities to ground activities (e.g. trapping/shooting), and we will not authorize aerial gunning of predators on refuge lands.

Final decision authority for on-refuge predator management lies with the Refuge Manager/Project Leader. You are encouraged to discuss decisions outside the above guidelines with your Refuge Supervisor.

cc:
Wayne King
David Lucas

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