DRAFT ENVIRONMENTAL ASSESSMENT

Proposed Minerals Withdrawal and Transfer of Jurisdiction, Cokeville Meadows National Wildlife Refuge

September 18, 2013

National Wildlife Refuge System, Region 6
U.S. Fish and Wildlife Service
P.O. Box 25486
Denver, CO 80225-0486

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Draft Environmental Assessment

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Chapter 1. Purpose of and Need for Action

Introduction

Cokeville Meadows National Wildlife Refuge (Refuge) is located in southwestern Wyoming in Lincoln County, near the Utah and Idaho boundary. The Refuge is just south of the town of Cokeville, which is named after the coal deposits located nearby. The Refuge is within the Bear River watershed, which has a drainage area of about 4.8 million acres in three states, Wyoming, Utah, and Idaho.

Refuge habitats include narrow riparian/riverfront-type forest corridors, robust emergent wetland plants, "wet meadow" sedge and grass communities, and upland sagebrush-grassland communities. Early succession "riverfront" forest species include cottonwood and willow which are present on newly deposited and scoured sand-silt and gravelly soils near the active Bear River channels.

The habitat value and importance to migratory and resident birds of the Bear River floodplain near Cokeville has been recognized for many years. In the late 1970's and early 1980's the U.S. Fish and Wildlife Service (Service) and Wyoming Game and Fish Department (WGFD) reviewed the area with the idea of protecting the habitat. In July 1987, the Service gained conditional support for a Refuge proposal from WGFD. Cokeville Meadows National Wildlife Refuge was established in 1993 to preserve and protect wetland habitat for migratory, summer breeding, resident birds, and other migratory species values; resident big game, small game, furbearers, and upland game birds; public education and interpretation values, and public recreation values (U.S. Fish and Wildlife Service 1990, 1992).

Proposed Action

The U.S. Fish and Wildlife Service (Service) proposes the jurisdictional transfer of approximately 504 acres held by the Bureau of Land Management (BLM), and the withdrawal from the public domain of federally owned mineral interests on approximately 8,000 acres of land within the approved acquisition boundary of the Refuge to conserve the crucial habitats and wildlife of the Bear River Basin (see figures 1-3). The Service will also continue to purchase lands and easements within the authorized acquisition boundary as willing sellers and funding are available.

The proposed withdrawal of public lands from settlement, sale, location, entry, or patent under the United States mining laws for a period of 20 years of approximately 8,000 acres would be in accordance with Sec 204 of the Federal Land Policy Management Act of October 21, 1976 (43U.S.C. 1714 (2000). The withdrawal of these lands is consistent with the

management objectives stated in the Cokeville Meadows National Wildlife Refuge environmental impact statement and record of decision (1992) and Comprehensive Conservation Plan (2013). The proposed action is also consistent with the Bureau of Land Management's Record of Decision and Approved Kemmerer Resource Management Plan (2010) management actions for two Special Management Areas immediately adjacent to the Refuge boundary. The plan states that no new coal (lease by application), sodium, phosphate (exploration or development) fluid mineral development, or wind energy development will be allowed in the Rock Creek-Tunp Management Area to the east, or the Bear River Divide Management Area to the south of the Refuge.

Project Area

Cokeville Meadows National Wildlife Refuge was established in 1993 to preserve and protect wetland habitat for migratory, summer breeding, and resident birds. The Refuge provides important resting and foraging habitat during spring and fall migration for a number of waterfowl, wading, shore and land birds. The Refuge is considered to be an Important Bird Area, with at least 65 species of waterbirds observed in the area, and 32 recorded as nesting species. Numerous conservation priority non-game species (Fish and Wildlife Service 1990, 1992, Nicholoff 2003; Wyoming Game and Fish Department 2010) also use Refuge habitats. To "preserve and enhance the critical wildlife habitats and cultural resources that occur within the area" BLM (2010) has designated the Rock Creek-Tunp (45,863 acres) and Bear River Divide (74,954 acres) as Special Management Areas immediately adjacent to the Refuge on the east and south respectively.

Bald eagles commonly use the area in spring and fall while foraging. Other raptors in the area include golden eagle, northern harrier, peregrine falcon, Swainson's hawk, rough-legged hawk, prairie falcon, and osprey. Other species on the Refuge include: northern pintail, canvasback, redhead, common goldeneye, Canada geese, sandhill crane, trumpeter swan, white-faced ibis, black tern, black-necked stilt, American bittern, spotted sandpiper, willet, mountain plover, long-billed dowitcher, Wilson's phalarope, olive-sided flycatcher, long-billed curlew, short eared-owl and yellow warbler.

Greater sage grouse, horned lark, sage sparrow, sage thrasher, western meadowlark and mourning dove all use upland sagebrush areas for feeding and nesting. Riparian areas provide important feeding sites for grouse broods.

Big game, including pronghorn, moose, mule deer, and 100 to 500 elk also utilize Refuge habitats during the winter and early spring. Cokeville Meadows is within the Bear River/Southern Wyoming Range Habitat Area designated by Wyoming Game and Fish's Strategic Habitat Plan (2009) as crucial winter habitat for elk, mule deer, pronghorn, and moose, big game migration corridors, the Governor's Sage-grouse Implementation Team sage-grouse core breeding area, and numerous species of greatest conservation need listed in the Statewide Action Plan (Wyoming Game and Fish Department, 2010).

The section of the Bear River that flows through Cokeville Refuge is considered to be a Class III stream with a warm water fishery comprised mainly of catfish, carp, bluegill,

perch, and largemouth bass species. Bonneville cutthroat trout, Utah sucker, mottled sculpin, Utah chub, mountain whitefish, bluehead sucker, rainbow, brook, brown and Mackinaw trout can also be found in the river.

Approximately 60 percent of refuge habitat is wetland, with temporarily flooded areas being the dominant type of wetland plant community. Much of the remaining habitat is classified as upland community, comprised mainly of sagebrush/grassland associations. Big sagebrush, rabbitbrush, thickspike wheatgrass, needle-and-thread grass and a number of bluegrasses characterize this community. Grass pasturelands are another component of the upland plant community. The upland habitat is grazed, and pasturelands are hayed annually.

Purpose of and Need for Proposed Action

The purpose of the withdrawal and jurisdictional transfer is to preserve protect, manage and administer public domain lands as part of Cokeville Meadows National Wildlife Refuge. The Service has been actively managing lands for the preservation of endangered and threatened species, migratory birds, and species diversity of flora and fauna on the Refuge, which is a satellite of Seedskadee National Wildlife Refuge, located 83 miles to the east. Cokeville Meadows National Wildlife Refuge currently consists of 9,259 acres of fee title and conservation easement lands (6,466 acres fee title, 1,689 acres conservation easement, 320 acres State leased land, and 784 acres of Farmers Home Administration easement). The State of Wyoming, privately owned and Bureau of Land Management (BLM) land parcels are currently included within the Refuge's approved acquisition boundary which includes 26,657 acres in total, all located in Lincoln County, Wyoming.

The ownership pattern within the Cokeville Meadows NWR boundary has created an inefficient situation for management of wildlife and habitat by the Service. The Refuge has a long and narrow boundary which generally follows the Bear River and the associated riparian corridor. In some areas non-refuge lands are interspersed with important upland areas and cannot be managed for goals the Refuge has determined as necessary to foster conservation and enhancement of important habitats. Fencing that is currently around BLM parcels could be removed could be removed to allow freer movement by wildlife. Additionally, Wyoming Game and Fish (2009) has identified the energy development (including wind farms, oil and gas development, and major energy corridors) as an increasing threat to the world class wildlife values in the area, and has encouraged permanent withdrawals of energy development leases.

Consequently, the Refuge is interested in the acquisition of several key BLM uplands and riparian habitat parcels within the approved boundary through a jurisdictional transfer of approximately 504 acres. A transfer does not represent an increase in the amount of land under Federal ownership, but rather a change in federal agency jurisdiction.

The Service will also continue to purchase private lands from willing sellers within the authorized acquisition boundary to conserve the unique habitats and wildlife of the Bear River Basin (USFWS 1992, 2013).

Decisions to Be Made

The Service's planning team (see appendix A, "List of Preparers and Reviewers") has completed a draft analysis of the protection and management alternatives. Based on the analysis to be documented in the final environmental assessment, the Service's Director of Region 6 will make decision on:

- Whether the Service should request and accept the mineral withdrawal and the jurisdictional transfer of other federally owned lands and interests within the Cokeville Meadows NWR approved acquisition boundary.

- If yes, determine whether the selected alternative would have a significant impact on the quality of the human environment. The National Environmental Policy Act of 1969 requires this decision. If the quality of the human environment would not be significantly impacted, a finding of no significant impact will be signed and made available to the public. If the alternative would have a significant impact, completion of an environmental impact statement would be required to address those impacts.

Issues Identified and Selected for Analysis

The main categories of comments, issues, and questions expressed during the public comment period (September -October, 2013) and the public meeting on September 26, 2013 will be included:

Issues Not Selected for Detailed Analysis

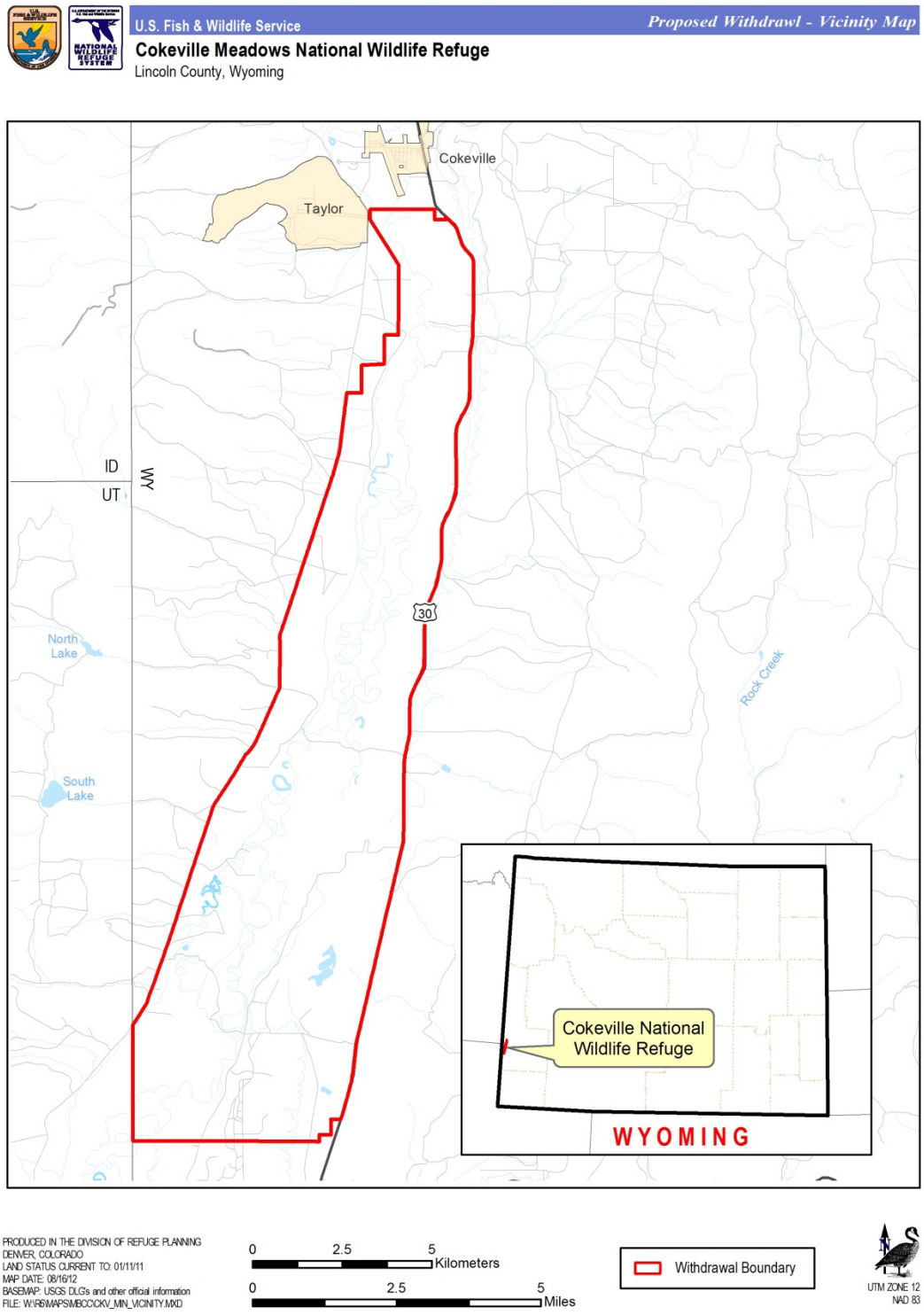

Figure 1. Cokeville Meadows National Wildlife Refuge Vicinity Map.

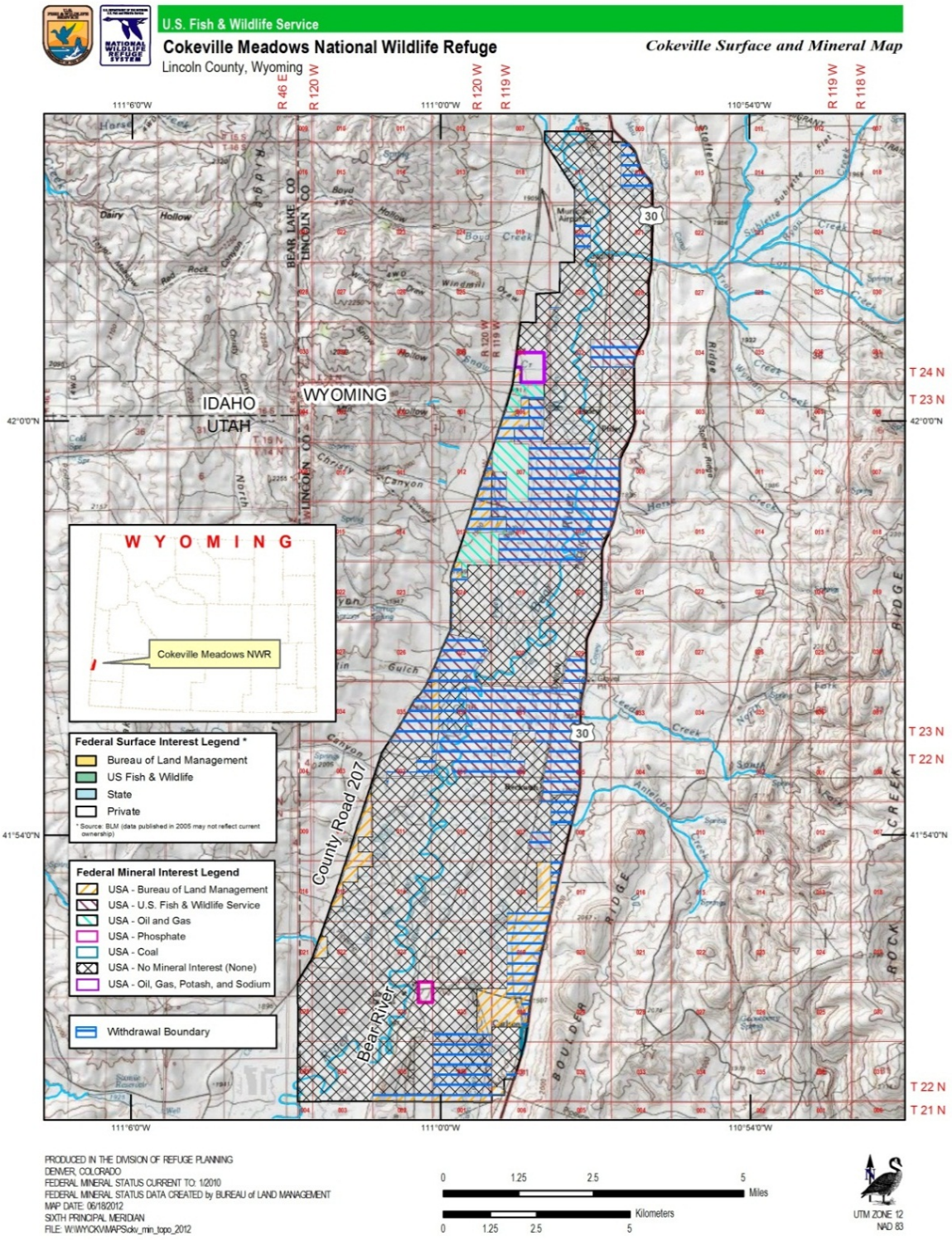

Figure 2. Cokeville Meadows National Wildlife Refuge Topography Map.

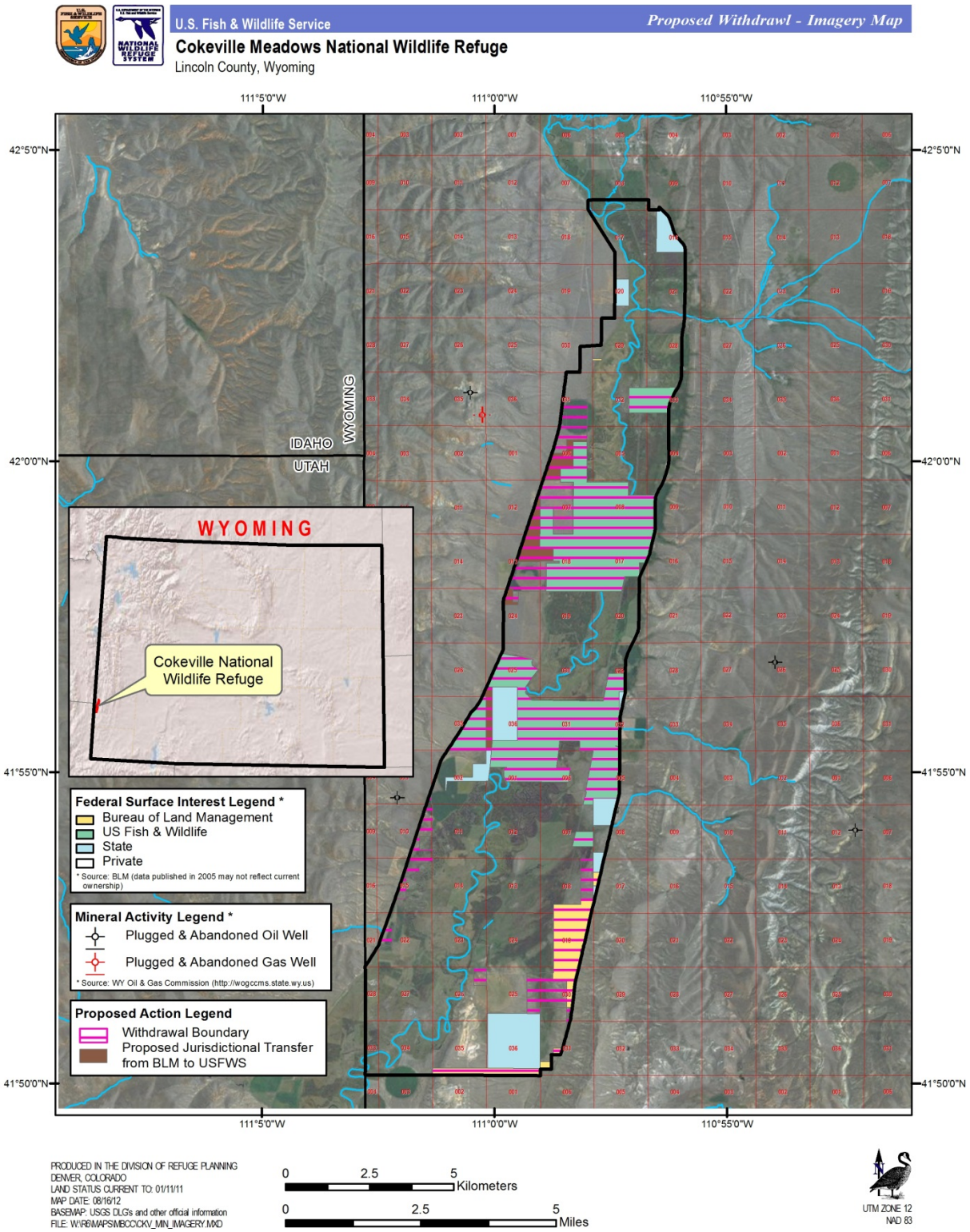

Figure 3. Cokeville Meadows National Wildlife Refuge Imagery Map.

National Wildlife Refuge System and Authorities

The mission of the National Wildlife Refuge System is "to preserve a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." The public lands received through a jurisdictional transfer would be a part of the Cokeville Meadows NWR, and managed in accordance with the National Wildlife Refuge System Administration Act of 1966 and other relevant legislation, executive orders, regulations, and policies.

Conservation of additional wildlife habitat in the Bear River region would also continue in a manner consistent with the following policies and management plans:

- Antiquities Act (1906)
- Migratory Bird Treaty Act (1918)
- Migratory Bird Hunting and Conservation Stamp Act (1934)
- Bald and Golden Eagle Protection Act (1940)
- Fish and Wildlife Act (1956)
- Land and Water Conservation Fund Act (1965)
- National Preservation Act (1966)
- Endangered Species Act (1973)
- Federal Land Management Policy and Management Act (1976)
- Archaeological Resources Protection act (1979)
- North American Waterfowl Management Plan (1994)
- Migratory Non-game Birds of Management Concern in the U.S. (2002)

Related Actions and Activities

Private landowners have worked with the Refuge and state and local agencies on a variety of weed control efforts, habitat and water management efforts that improved wildlife habitat on the Refuge.

Wetland Reserve Program provides a voluntary conservation program for farmers and ranchers that offers financial and technical assistance to help eligible participants install or implement structural improvements and management practices on eligible agricultural land.

Partners for Fish and Wildlife provides a voluntary, cost-share program to fund habitat enhancements with a special emphasis placed on projects that simultaneously benefit agricultural production and wildlife habitat for Service trust species. Past examples include fence and water developments that improve livestock grazing management, irrigation diversion upgrades that allow for traditional water withdrawal and fish passage in streams, and irrigation infrastructure rehabilitation to maintain and enhance created wetlands.

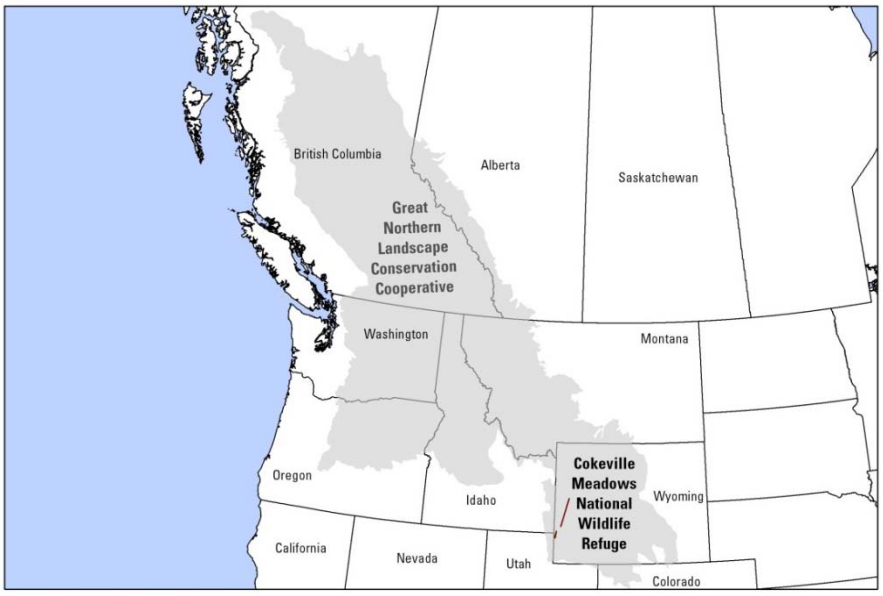

Figure 4. Great Northern Landscape Conservation Cooperative.

Landscape Conservation Cooperatives are public-private partnerships that recognize that natural resource challenges transcend political and jurisdictional boundaries and require a more networked approach to conservation. As a collaborative effort, Landscape Conservation Cooperatives seek to identify best practices, connect efforts, identify gaps, and avoid duplication through improved conservation planning and design. Partner agencies and organizations coordinate with each other while working within their existing authorities and jurisdictions. Cokeville Meadows NWR is within the Great Northern Landscape Conservation Cooperative area (see figure 4).

Mineral Withdrawal and Jurisdictional Transfer of Land Process

The acquisition authority for the proposed jurisdictional transfer of land and mineral withdrawal for Cokeville Meadows National Wildlife Refuge will be through the Federal Land Policy and Management Act of 1976 (Section 204 (c)(2), and the Fish and Wildlife Act of 1956 (16 U.S.C.742 a-742j).

A Notice of Proposed Withdrawal for Cokeville minerals was published in the Federal Register on September 1, 2006 temporarily segregating the public lands within the Refuge's approved administrative boundary for a period of two years while the application was processed. Only one comment was received in response to the Federal Register notice; a letter of support was submitted by the Wyoming Game and Fish Department. The application process was not successfully completed within the two-year temporary segregation period. The Service re-submitted a withdrawal petition and requested the jurisdictional transfer of some of the BLM lands within the Refuge's administrative boundary on July 27, 2010. With the completion of the Mineral Potential Report supplied by the Bureau of Land Management (2012) (see appendix B), environmental assessment and public input, the withdrawal package can be reviewed and processed by BLM. The mineral withdrawal and land transfer public meeting was held in conjunction with the Cokeville Meadows Comprehensive Conservation Plan public meeting to be held September XX, 2013. Public comments received during the comment period will be addressed in the final environmental assessment.

No additional Service funding is anticipated to be required for the mineral withdrawal or jurisdictional transfer of land.

Chapter 2. Alternatives, Including the Proposed Action

Alternative A (No Action)

The federally owned mineral rights on approximately 8,000 acres within the administrative boundary would not be withdrawn from the public domain, and the Bureau of Land Management would not jurisdictionally transfer 504 acres of land to Cokeville Meadows National Wildlife Refuge.

Alternative B (Proposed Action)

The federally owned mineral rights on approximately 8,000 acres within the administrative boundary would be withdrawn from the public domain, and the Bureau of Land Management would jurisdictionally transfer 504 acres of land to Cokeville Meadows National Wildlife Refuge.

Consistent with 43 CFR 3101.5 and 50 CFR 29.32, oil, gas, and mineral development would not be permitted on Refuge lands, or where federally owned subsurface mineral rights have been withdrawn from the public domain.

Alternatives Considered But Not Studied

The proposed alternative is the only alternative that could meet the purpose and need of the proposed action; therefore no other alternatives were studied in detail.

Chapter 3. Affected Environment

Physical Environment

Geology and Soils

Southwestern Wyoming, west of the Green River Basin, is characterized by north-south trending mountain ranges, ridges, and valleys that represent diverse geological formations (Veatch 1907). The north-south belt of mountains and over thrust faults is known as the "Overthrust Belt" Geologic Province of western Wyoming, southeastern Idaho, and northeastern Utah (Blackstone 1977). The Overthrust Belt contains numerous inactive thrust faults, one of which, the Crawford Thrust, reaches the surface within the Refuge boundary and dips west under the Refuge. After retreat of successional cycles of erosion and deposition, the Bear River valley filled with thick alluvium consisting of weakly cemented clay, silt, sand, and gravel (Reheis 2005). 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 pediment deposits, alluvium of side slopes and small intermittent streams, and older terraces and alluvial fans. Elevations on the 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 historic Bear River channel and tributary channel migrations, minor within-floodplain channels, floodplain scouring, and alluvial deposition. Significant topographic features include the numerous abandoned channels of the Bear River, old alluvial and glacial terraces, and alluvial fans.

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 in Rich County, Utah and a preliminary interim soil map prepared by the U.S. Department of Agriculture Natural Resources Conservation Service for the Bear River Valley in Lincoln County, Wyoming provide general description of soil types and their distribution. The arrangement of the 12 major soils types found on the Refuge is complex and reflects the numerous 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 are shallow, with thin veneers of loam, silt and clay overlying deeper sands and gravels.

Hydrology

The Bear River that flows through the Refuge originates in the Uinta Mountains of Utah, moving north through western Wyoming, then west into Idaho, and back south into Utah to its terminus at the Great Salt Lake, a total length of over 500 miles.

The longitudinal profile of the river is steep near its headwaters but flattens quickly as it reaches the Wyoming border near Evanston. At the Refuge, the river gradient is about 2 feet/mile. The Bear River Valley reaches its maximum width (about 3 miles) just north of the southern border of Wyoming, and is narrowest at the Narrows, north of Evanston (< 100 yards wide). The Bear River Valley is about 2 miles wide at Cokeville Meadows but narrows again just north of the town of Cokeville, Wyoming, where it is < ¼-mile wide.

As the river flows north from Evanston, the ridge and swale topography of the floodplain is characterized by a complex association of irrigated meadows, wetlands, and grass uplands that support one of the highest densities of migrating and nesting waterfowl in Wyoming.

Air Quality

Air quality problems in Wyoming are usually related to urban areas in mountain valleys or river valleys that are sensitive to temperature inversions. Particulate matter and carbon monoxide are the air pollutants that have the greatest adverse impact on Wyoming's air quality. In the Cokeville area, carbon from automobiles 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 vehicles traveling on unpaved roads and forest fires.

The Refuge is designated as a Class I air quality area as defined under the Clean Air Act of 1977. Air quality in the area of the Refuge is considered good, with no nearby manufacturing sites or major air pollution sources

Climate

The climate of the Cokeville Meadows region is semi-arid, midcontinental. Most precipitation falling in the region is of Pacific origin; average annual precipitation is about 12 inches, ranging from 9 to 18 inches annually. The area is dry most of the year. About 38% of precipitation occurs as rainfall from April to June. In winter, gusty winds can produce blizzards and drifting snow. Temperatures are often below 0 degrees Fahrenheit in winter and can exceed 90 degrees in midsummer. Annual mean temperature is 38 degrees Fahrenheit. The combined low precipitation, high evaporation, and high summer temperatures lead to scarce occurrence of natural free-standing surface water from summer through winter.

Climate Change

The U.S. Department of the Interior issued an order in January 2001 requiring federal agencies under its direction that have land management responsibilities to consider potential climate change effects as part of 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 loss of carbon currently stored in the terrestrial biosphere. The report defines

carbon sequestration as "the capture and secure storage of carbon that would otherwise be emitted to or remain in the atmosphere."

Vegetated land is a tremendous factor in carbon sequestration. Large, naturally occurring communities of plants and animals that occupy major habitats: grasslands, forests, wetlands, tundra, and desert—are effective both in preventing carbon emission and in acting as biological "scrubbers" of atmospheric CO_2.

Adaptation, Mitigation, and Engagement

The U.S. Fish and Wildlife Service Strategic Plan for Responding to Accelerating Climate Change (2010) involves three progressive strategies: adaptation, mitigation, and engagement. Adaptation involves helping fish, wildlife, and their habitats adapt to climate change by implementing management actions to help reduce the impacts. Maintaining adequate densities of wetlands, robust riparian corridors, open spaces, and connectivity between different habitats will become increasingly important to allow fish and wildlife to adapt to the changing environment. Mitigation involves reducing the carbon footprint by using less energy, consuming fewer materials, and increasing sequestration of biological carbon. Carbon sequestration forms one of the key elements of mitigation. It is as important to protect existing carbon stores from further degradation as it is to sequester atmospheric carbon. Engagement encompasses developing partnerships with local, national, and international partners, key constituencies, and stakeholders to seek solutions to the challenges and threats to fish and wildlife conservation. Regional and coordinated management of shared habitat may be the only way to ensure that some habitat can be maintained in a resilient state while other habitat transitions to another state (Roble 2011).

Biological Environment

Habitat and Wildlife

Wetlands

In a predominantly arid southwestern Wyoming, water is a limiting factor for many species, and highly attractive for most other species. The Bear River provides the water that is a life history requirement for many species, both plant and animal.

Several wetland types occur on Cokeville Meadows NWR: (1) saltgrass meadow, (2) wet meadow, consisting of native or tame grasses, (3) tall emergent wetland, (4) open water, managed impoundments with shallow standing water for most of the growing season, but including small stock ponds and irrigation canals, and (5) riparian corridors. The Bear River wetlands are one of the most productive and diverse bird habitats in Wyoming (Geological Survey 1996).

Although small in proportion to other habitats in the Bear River Valley, riparian corridors are generally more productive in terms of biomass, both plant and wildlife, than the surrounding uplands; and provide a critical source of biodiversity within the surrounding

uplands. It cannot be overemphasized that riparian habitats are essential as a life history requirement for many wildlife species, especially migratory birds (Nicholoff 2003).

Olive-sided flycatcher, western wood peewee, yellow warbler, trumpeter swan, Canada goose, sandhill crane, white-faced ibis, black tern, Forster's tern, common yellowthroat, American bittern and sora can be found in the Refuge's wetland and riparian habitat. Wetlands in the watershed also provide habitat for such mammalian species as American water shrew and northern river otter. The concentration of insects found in and around wetland complexes also attracts a number of bat species; including silver-haired bat, little brown bat, long-eared bat, and long-legged bat.

The Bear River provides habitat for a number of native fish species including migratory Bonneville cutthroat trout, Utah sucker, mottled sculpin, Utah chub, mountain whitefish and bluehead sucker. The Bear River links tributary populations, resulting in what is likely the last connected large river habitat available to Bonneville Cutthroat Trout. Bear River is an important part of the Bonneville Cutthroat Trout Conservation Strategy (Bear Lake Regional Commission 2000, Trout Unlimited 2005).

Upland, Grassland, and Shrubland

Many species, including many long-distance migratory birds, are found only in shrubsteppe habitats (Rich et al. 2005). Most importantly, due to significant population declines, is the greater sage-grouse. Studies referenced in the U.S. Fish and Wildlife Land-Based Wind Guidelines (2012) found that "based primarily on data documenting reduced fecundity (a combination of nesting, clutch size, nest success, juvenile survival, and other factors) in sage-grouse populations near roads, transmissions lines, and areas of oil and gas development/production within 3–5 miles (or more) of active sage-grouse leks may have significant adverse impacts on grouse populations (Holloran 2005, Connelly et al. 2000). Although historically several sage-grouse leks were found within the approved Refuge boundary, only one lek is currently active (personal communication, Erik Norelius 2012).

Other shrubsteppe-obligate birds have also demonstrated significant population declines in recent years include the sage thrasher, Brewer's sparrow, and sage sparrow. The restoration of shrubsteppe habitat and grouse numbers is now the focus of multiple federal and state agencies throughout the western states and provinces. Refuge shrub and grassland habitats are utilized by vesper sparrow, Ferruginous hawk, golden eagle, prairie falcon, mourning dove, western burrowing owl, common nighthawk, Brewer's blackbird and short-eared owl. Many of these species' populations are also declining in numbers.

Upland shrub and grassland habitats support a number of mammals, such as white-tailed prairie dog, pygmy rabbit, Idaho pocket gopher, sagebrush vole, Wyoming ground squirrel, and Preble's shrew.

Connectivity and Corridors In the western United States, human development of open spaces has fragmented the connections between wildlife habitats (Gude et al. 2007). Almost all species rely on more than one habitat type to complete their life cycles, and the availability

of various intact habitats in close proximity is essential to a number of wildlife species found in the watershed.

Sage-grouse in brood habitat. USFWS

Cokeville Meadows habitat provides linkages and migration corridors for seasonal movements of wildlife between various habitats as well as between other protected lands and ecosystems in the region. Crucial wildlife corridors maintain system resiliency in the face of climate change, especially for wide-ranging wildlife species. In particular, large numbers of mule deer, pronghorn, elk, and moose migrate through narrow corridors in the Rocky Point area north of Cokeville Meadows National Wildlife Refuge.

Species of Special Concern

Threatened and Endangered Species. Several federally listed species reside in or have home ranges that overlap with the Refuge boundary.

Grizzly bear, Canada lynx and the Ute Ladies'-tresses are federally listed as threatened. Yellow-billed cuckoo and greater sage-grouse are candidate-status species. With the exception of sage-grouse, which has been documented as historically using lands within the Refuge's acquisition boundary, none of the species of concern have been found on the Refuge to date.

Cultural Resources

Current archaeological evidence indicates that the earliest humans, called the Paleo-Indians, migrated to the region near the close of the last Ice Age approximately 12,000 years ago.

More recently, at the beginning of the Protohistoric Period (AD 1700 and 1750), 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 comprised the dominant Late Prehistoric Period and Protohistoric Period Native Americans in the region. Other Native American tribes, including the Crow, Ute, Comanche, Flathead, 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 related Northern Shoshone-Bannock Tribe inhabited the area with less frequent use occurring by the Ute, Arapahoe and Cheyenne tribes (Bureau of Land Management 2004).

The Historic Period for the Bear River drainage begins with the recurring contact of the Native Peoples with people of European descent and ends in the mid-twentieth century.

Several major trails, sometimes referred to as the Emigrant Trails, crossed the Bear River drainage. The Oregon Trail in this area often followed the route of earlier fur trapper foot and horse trails but did not become a wagon trail until 1836. The trail crosses the Bear River Divide and joins the Bear River just south of the Cokeville Meadows National Wildlife Refuge.

Socioeconomic Environment

Population growth is expected throughout much of the Bear River region (U.S. Census Bureau 2010). In Wyoming, Lincoln County has seen population growth of 24.3 percent over the last decade (U.S. Census Bureau 2010), with about 200 new homes built each year (Royster and Gearino 2006), while nearby Uinta County has experienced a 7 percent population growth over the decade.

Landownership

The Upper Bear River area is located in portions of Summit County, Utah, and Lincoln and Uinta County, Wyoming. The headwaters of the Bear River, near the border of Summit and Uinta Counties, is forested; the remaining land cover in the high-elevation Upper Bear River area is primarily grasslands and shrublands, with about three-quarters of the land used for grazing (Utah Water Research Laboratory 2011). Mining represents a relatively small percentage of total employment for many of the counties in the region, but has increased slightly since 1998 (U.S. Census Bureau 2011b; Headwaters Economics 2011). As of 2006, about 63 percent of the land in the Upper Bear River counties was federally owned, primarily by the Bureau of Land Management and the USDA Forest Service; about 24 percent of the land was privately owned, 4 percent was State owned, and 7 percent was tribally owned (Headwaters Economics 2011). The Upper Bear River area is lightly populated. The largest municipalities in the region are Evanston and Cokeville, Wyoming, and Randolph and Woodruff, Utah (Utah Water Research Laboratory 2011).

Table 2. Population statistics.

	Residents (2012)	*Persons per square mile(2010)*	*Population % change since 2000*
Wyoming	563,626	5.8	14
Lincoln County	17,961	4.4	24

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Property Tax and Revenue sharing

Property taxes are assessed based on the value of property. For most types of properties, county assessors use fair market value to determine property tax liabilities. In many States, however, the assessed value of agricultural land is determined based on the productive value of the land rather than on the fair market value of the property. The fair market value

of land is the estimate of what a property would sell for. This value includes both the productive value of the land and any speculative value associated with the possibility of developing the land.

The Refuge Revenue Sharing Act (16 U.S.C. 715s), as amended, authorizes payments to be made to offset tax losses to counties in which Service fee and withdrawn public domain lands are located. The Act authorizes payments for Service-managed fee lands based on a formula contained in the Act that entitles counties to whatever is the highest of the following amounts: (1) 25 percent of the net receipts; (2) 3/4 of 1 percent of the fair market value; or (3) 75 cents per acre. Appraisals are updated every 5 years to determine the fair market value.

Public Use and Wildlife-Dependent Recreational Activities

People are drawn to areas with abundant wildlife found in southwest Wyoming and Cokeville Meadows National Wildlife Refuge. The 2006 National Survey of Fishing, Hunting and Wildlife Associated Recreation found that in Wyoming, 84 percent of individuals surveyed watched wildlife, 27 percent fished, and 13 percent hunted in 2006. Altogether, state residents and nonresidents spent $1.1 billion on wildlife recreation in Wyoming (U.S. Fish and Wildlife Service, 2008).

Chapter 4. Environmental Consequences

This chapter assesses the environmental impacts that are expected to occur from the implementation of alternatives A and B, as described in chapter 2. Environmental impacts are analyzed by issues for each alternative and appear in the same order as discussed in chapter 2. Several aspects of environmental effects are evaluated including whether the impacts are negative or beneficial, direct, indirect, or cumulative with actions independent of the proposed action. The duration of the effect, whether it is a short term or a long term effect, is also used in the evaluation of the environmental consequences.

Effects on the Physical Environment

Effects Common to Both Alternatives

Existing uses of the proposed lands would continue to have some negative impacts on soils. On lands used for agriculture, soil problems such as compaction, trampling, and erosion caused by farming equipment, cattle grazing, and vehicle use on range lands would continue.

Water, Soil, Air Resources—Alternative A (No Action)

Increased development and disturbance from potential mining and energy development activities could reduce infiltration and groundwater recharge. Development could also result in additional wetland drainage, water diversion, introduction of invasive species, and degradation of the hydrology of some areas, thereby negatively affecting the Refuge.

Air quality could be negatively impacted by mining and energy development on unprotected lands with additional air pollutants and particulate matter being generated.

Water, Soil, Air Resources—Alternative B (Proposed Action)

Water resources would receive some additional protection from increased nonpoint source pollution from mineral and energy development, which would be prohibited on withdrawn and jurisdictionally transferred lands. Limiting development on some prime agricultural and wildlife habitat areas would help to ensure future quality of groundwater supplies.

A long-term commitment to maintenance of vegetative cover with minimal disturbance would help conserve local microclimate patterns and soil processes. The good air quality of the Cokeville area and Refuge (Class I Air as designated under the Clean Air Act of 1977) would not be affected by mining and energy development activities.

Effects on the Biological Environment

This section describes the anticipated effects on wildlife and habitat under alternatives A and B.

Wildlife and Habitat—Alternative A (No Action)

Habitat used by wildlife on some unprotected lands would be negatively impacted with potential mineral and energy development activities, potentially resulting in the decline of migratory birds, native fish, resident wildlife and species of special concern populations utilizing the Refuge. Mineral and energy development would negatively affect riverine, riparian, grassland, and shrubland habitat that a wide variety of wildlife species depend on.

The loss of sagebrush communities is part of particular concern because they provide essential habitat for sagebrush-dependent wildlife species. Long-term monitoring of sage-grouse populations has shown a steady decline across their range since the 1960s (Connelly and Braun 1997, Connelly et al. 2004). Aldridge et al. (2008) suggested that the loss of sagebrush habitat was a critical factor in the extirpation of local sage-grouse populations.

Direct loss from of habitat loss and increased wildlife mortality from vehicle collisions would negatively affect fish and wildlife over the long-term. Oil and gas development could lead to salt water contamination and new road development.

In addition to the direct impacts, roads associated with development would lead to increased and fragmentation of habitat and of migration corridors, soil erosion, wetland degradation, and spreading of invasive weeds. Increased levels of nonnative and invasive species resulting from disturbance would likely further fragment habitat by making it unsuitable for wildlife.

Infrastructure associated with development would fragment wildlife habitat. Vertical structures such as wind towers and oil and gas infrastructure could result in otherwise suitable habitat being avoided by some species, such as greater sage-grouse, sage thrasher, sage sparrow, pronghorn, mule deer, and other sage-dependent species (Holloran 2005, Kaiser 2006, Aldridge and Boyce 2007).

Under the no-action alternative, the likely increase in development in riparian areas would remove corridors of connectivity between wetland and upland habitat types. Stream quality could become degraded from development, and additional barriers to fish passage are likely to be constructed.

Species of Special Concern Effects.

Although there are many species on the Wyoming State list of concern, currently only 7 species possibly occurring within the Cokeville Meadows NWR are federally listed. The no-action alternative could increase the level of threat to endangered, threatened, and candidate species through habitat loss, degradation, and fragmentation.

Wildlife and Habitat—Alternative B (Proposed Action)

The proposed action would improve the ability to conserve upland and wetland habitat that that could otherwise potentially be impacted by mineral and energy development.

The availability of large, intact areas of diverse habitat types is important to provide for the various needs of wildlife species. Habitat connectivity provides a migration corridor for Neotropical birds; between winter and summer ranges for mule deer, pronghorn, and elk; and between breeding, nesting, and brood-rearing areas for birds. Connectivity increases the resiliency of wildlife populations by allowing movement to new areas during environmental challenges such as drought or flooding, and provides for genetic diversity by allowing an exchange of individuals from different subpopulations. Additionally, connectivity between different types of riverine habitat is important for fish access to suitable spawning and rearing grounds while providing adequate habitat for adult growth and survival.

Retaining riparian habitats that provide travel corridors for wildlife would become an increasingly import component of effective mitigation plans for human development as well as climate change (Wyoming State Wildlife Action Plan 2010). Through protection of important migration corridors and habitats, the proposed action would have long-term beneficial effects for fish and wildlife populations.

The proposed action would help maintain healthy riparian areas that currently recharge aquifers, reduce soil erosion, filter chemical wastes, moderate stream temperatures, and help buffer water loss from upland drainages.

Species of Special Concern Effects. Currently, there are relatively few species with Federal status on the Refuge. Protection from development would benefit a variety of species of special conservation concern that are dependent on riparian habitat, such as yellow-billed cuckoo and a number of Neotropical migratory birds. Greater sage-grouse, vesper sparrow, sage sparrow, Brewer's sparrow and the pygmy rabbit would benefit from the protection of upland sagebrush habitats.

Additional land conservation and protection measures are the primary actions identified in the recovery plan for most federally listed species, as well as for species on the State list. With the additional protection measures for the Refuge under the proposed action, there would be a greater habitat protection for species of special concern on the Refuge.

Climate—Alternative A (No Action)

Carbon sequestration capabilities would be slightly reduced with the increased development and disturbance of native vegetation likely to occur under the no-action alternative. There would be slight to moderate negative effects on the resiliency of the Refuge and the ability of ecosystems to adapt to a changing climate and changing land uses. This alternative could also negatively affect local mitigation efforts by reducing options for conserving and storing carbon through land protection and habitat restoration.

Climate—Alternative B (Proposed Action)

By protecting habitat, reducing habitat fragmentation, and increasing connectivity between habitats, the proposed action would help maintain the ability of native species and ecosystems to adapt to a changing climate and land use conditions. There would be a slight

beneficial effect for climate change mitigation efforts with this alternative because carbon sequestration currently provided by vegetation would be conserved.

Effects on the Socioeconomic Environment

This section describes the anticipated effects of alternatives A and B on landownership, land use, public use, development (including mineral and energy), and intact ecosystem values.

Effects Common to Both Alternatives

Neither alternative would have an effect on tribal jurisdiction or tribal rights, since is the proposed withdrawal and transfer areas are outside of reservation lands and would affect only lands within the approved acquisition boundary for the Refuge.

Landownership and Land Use—Alternative A (No Action)

Landownership would not be affected by the no-action alternative.

Predicted trends for future development (Toth et al. 2010) indicate the public would lose some open space, natural aesthetics, the agricultural and ranching heritage and in Cokeville Meadows and throughout the Bear River watershed.

Agricultural activities (such as grazing and haying) would be reduced on lands impacted by increased mineral and energy development.

Landownership and Land Use—Alternative B (Proposed Action)

Open space and the natural aesthetics of the Cokeville area would be maintained. Traditional agricultural uses such as ranching, grazing, and haying could continue on transferred lands.

Public Use—Alternative A (No Action)

With increased mineral and energy development, opportunities for wildlife-dependent recreational activities such as hunting, fishing, and wildlife observation would likely slightly decline, resulting in slightly diminished associated economic benefits to local communities.

Public Use—Alternative B (Proposed Action)

Under the proposed action, wildlife-dependent recreational opportunities such as hunting, fishing, and wildlife observation would not be diminished due to declines in wildlife populations resulting from development impacts.

Development—Alternative A (No Action)

The Cokeville community would lose some open space, agricultural lands, and scenic values with increased development that could potentially occur under this alternative.

The withdrawal of public lands within the Refuge's approved acquisition boundary will restrict future exploration and drilling activities. A No Potential rating was given for locatable mineral resources and a Moderate Potential rating for gravel resources was given on the Mineral Potential Report prepared by the BLM.

Mining and energy development could occur on unprotected lands on the Refuge. Stipulations to protect the surface estate would be governed by existing State regulations.

Development—Alternative B (Proposed Action)

The proposed action would protect approximately 8,000 acres of open space and agricultural land by precluding infrastructure and disturbance associated with mining and energy development activities. As stated in the Mineral Potential Report, the reservation of all mineral resources on the tracts would allow the Federal Government to dispose of those resources in the future should the need arise.

Other Conservation Impacts—Alternative A (No Action)

Under the no-action alternative, the threat of habitat fragmentation would continue on public lands available for mineral and energy development. Some ecosystem services currently such as water purification, nutrient cycling, carbon sequestration, and soil conservation provided on the 8,000 acres could be decreased or eliminated with mining or energy development.

Other Conservation Impacts—Alternative B (Proposed Action)

The proposed action would maintain intact wildlife habitat and ecosystem services such as pollination, water purification, nutrient cycling, carbon sequestration, and soil conservation on 8,000 acres that otherwise could be negatively impacted by potential mining and energy development under alternative A. Refuge habitat resiliency and opportunities for wildlife movement and adaptation will be protected.

The proposed action would eliminate the need for expensive restoration of disturbed land and habitat.

Effects on Cultural Resources

Effects Common to Both Alternatives

Regardless of which agency has ownership, as Federal agencies both the U.S. Fish and Wildlife Service and the Bureau of Land Management are required to comply with numerous laws pertaining to cultural resources, including the National Historic Preservation Act (16 U.S.C. 470 et seq; Public Law 89-665, the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-470mm; Public Law 96-95), as amended, and the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 et seq.; Public Law 101-601).

Cultural Resources—Alternative A (No Action)

Cultural resources on the lands under consideration would remain subject to State and local regulation and permitting. Cultural resources and artifact deposits could be negatively affected by mineral and energy development activities.

Cultural Resources—Alternative B (Proposed Action)

The withdrawal of mineral rights and transfer of land would preclude or limit most forms of surface disturbance. Artifacts and cultural deposits would remain intact; site integrity would be maintained without detrimental impacts that would result from mining.

Unavoidable Adverse Impacts

Any adverse effects that could be unavoidable while carrying out alternatives A and B are described below.

Alternative A (No Action)

The adverse impacts of habitat degradation and fragmentation would be expected to be more widespread and prevalent in the project area. Mining and energy development activities would result in direct wildlife habitat loss. Indirect impacts such as avoidance of habitat use by some wildlife species, spread of invasives, and decreases in water quality related to infrastructure and disturbance would also increase.

Some habitat protection would continue through existing authorities and funding.

Alternative B (Proposed Action)

No direct or indirect unavoidable adverse impacts to the environment would result from the selection of alternative B. The minerals withdrawal and land transfer would not result in unavoidable adverse impacts on the physical or biological environment. Wildlife habitat would benefit, but future mineral and energy development options would be limited.

Mineral interest withdrawal and the jurisdictional transfer of BLM lands to the Service could have unavoidable minimally adverse effects on the local economy by precluding new mining and energy development on withdrawn lands. However, these impacts would be offset in part by protecting these areas from adverse impacts to watersheds, which are important to aquifer recharge and water quality. Also, reducing further degradation or loss of native ecosystems and conversion of prime agricultural lands would provide additional offsets.

Irreversible and Irretrievable Commitments of Resources

Any commitments of resources that could be irreversible or irretrievable as a result of carrying out alternatives A and B are described below.

Alternative A (No Action)

There would be no additional commitment of resources by the Service if no action is taken.

The introduction of new infrastructure and mining disturbance on the Cokeville Meadows National Wildlife Refuge would be considered an irretrievable loss of habitat. The irretrievable loss of habitat caused by the development of mining and energy infrastructure within the Cokeville Meadows National Wildlife Refuge could eventually lead to an irreversible loss of wildlife species. The new infrastructure could effectively cause an irretrievable loss of habitat for certain wildlife species because of their avoidance of infrastructure. Without other suitable habitat being available, there could be an irreversible loss to some of these species.

The connectivity between various habitat types and migration corridors between the Refuge and other large areas of protected lands could be reduced or possibly eliminated.

Alternative B (Proposed Action)

There would not be any irreversible or irretrievable commitments of resources associated with withdrawal of mineral interest from the public domain and jurisdictional land transfer However, any land acquired by the Service would require an irretrievable and irreversible commitment of a minimal amount of resources (such as minimal expenditures for fuel and staff for monitoring) for the long-term administration of the additional lands.

The introduction of new mining infrastructure and disturbance to the Refuge would be greatly restricted on public lands, so this alternative would reduce the likelihood of an irretrievable loss of habitat associated with mineral development. The irretrievable loss of habitat caused by mineral development that would eventually lead to an irreversible loss of both species and habitat could be minimized under the proposed action.

Irreversible impacts to water quality, wetlands and riparian ecosystems related to mining activities could be reduced or avoided.

Short-Term Use versus Long-Term Productivity

This section describes the short-term effects versus long-term productivity under alternatives A and B.

Alternative A (No Action)

Some wetlands and uplands would be negatively impacted from development, and fragmentation of these habitats could occur.

Mineral and energy interests would be developed for short-term gains, but the development would have an adverse effect on the long-term biological and agricultural productivity of the area.

Alternative B (Proposed Action)

Protection of important wetland and upland areas and reducing long-term loss and fragmentation of important habitats would provide a benefit for a variety of wildlife species, including threatened and endangered species.

The proposed mineral withdrawal and land transfer would maintain long-term biological productivity, biological diversity, and habitat connectivity on the Refuge as well as migration corridors to other ecosystems and adjacent large blocks of protected lands.

The nation would gain the protection of these habitat types for the wildlife species that depend on them for future generations of Americans. The public would retain long-term opportunities for wildlife-dependent recreational activities.

Cumulative Impacts

Cumulative impacts are defined by the National Environmental Policy Act as the impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR § 1508.7).

This section describes the cumulative impacts on the environment that could result from the combination of reasonably foreseeable actions under alternatives A and B, together with other biological and socioeconomic conditions, actions, events, and developments.

Past Actions

Previous land protection efforts for the Cokeville Meadows National Wildlife Refuge have included the establishment of the Refuge (currently 9,259 acres, with a total of 26,657 acres included within the approved acquisition boundary). Conservation efforts by the Wyoming Land Trust, and the Wyoming Stock Growers Agricultural Land Trust, and a variety of organizations have provided habitat conservation in the Cokeville Meadows area.

Present Actions

The Service's proposed jurisdictional land transfer of approximately 504 acres from the Bureau of Land Management and withdrawal of minerals from the public domain would protect about 8,000 acres of wildlife habitat from development. The Cokeville Meadows National Wildlife Refuge would continue to preserve and protect wetland habitat for migratory, summer breeding, and resident birds.

Reasonably Foreseeable Future Actions

Reasonably foreseeable actions are actions and activities that are independent of the proposed action but could result in cumulative or additive effects when combined with the proposed action. These actions are anticipated to occur regardless of which alternative is selected. Commercial oil and gas, mining, wind, and residential development; increased

water demands; and future conservation efforts by a variety of organizations are the primary reasonably foreseeable actions occurring in the Cokeville area and the Refuge.

Development. Overall, mining represents a relatively small percentage of total employment for many of the counties in the region, but has increased slightly since 1998 (U.S. Census Bureau 2011b, Headwaters Economics 2011). In particular, employment in nonmetallic mineral mining increased by 124 percent, oil and gas extraction decreased by 64 percent, and metal ore mining decreased to zero by 2009 (U.S. Census Bureau 2011b, Headwaters Economics 2011). One of the most economically significant non-metallic mining activities during the past 50 years has been phosphate extraction; with roughly 40 percent of the U.S. reserves located in southeastern Idaho (Van Every 2004).

Wyoming has a wind development potential at 43.58 percent (National Renewable Energy Laboratory 2011). Most of the land in Wyoming with potential for wind development would still be available under the proposed action.

Lincoln County, home to the Cokeville Meadows National Wildlife Refuge, has grown by 24 percent since 2000, making it the fastest growing county among the Wyoming counties in the conservation area.

Development—Alternative A (No Action). The incremental increases in infrastructure construction resulting from development activities would likely result in the fragmentation of wetland, riparian, grassland, and sagebrush habitats currently used by wildlife. Over the long term, the combined effect of these activities would likely result in the continuation, and possibly the acceleration, of the decline of a number of wildlife populations on the Refuge.

Development—Alternative B (Proposed Action). The proposed action would provide additional long-term protection on 8,000 acres of wildlife habitat from the combined effects of various future development activities and associated infrastructure by precluding surface occupancy and the resultant habitat fragmentation.

Other Conservation Efforts. The USDA Conservation, Grassland, and Wetland Reserve Programs provide ongoing programs in the watershed. Additionally, a number of nongovernmental organizations are active in the area, The Nature Conservancy, Ducks Unlimited, Trout Unlimited, Wyoming Land Conservation Initiative, and Wyoming Stock Growers Agricultural Land Trust. These organizations are expected to continue offering multiple programs to landowners. The proposed action would augment these current conservation efforts by collaborating with landowners to protect wildlife, fisheries, and working agricultural lands. The Service would continue to work with other agencies, organizations, and individuals to ensure conservation of migratory birds, threatened and endangered species, and species of special concern.

The conservation efforts of these groups will result in generally beneficial cumulative effect for the wildlife resources of the watershed.

Bear River Watershed Conservation Area. The (Service) has received approval to establish a voluntary conservation easement program in southeast Idaho, northeast Utah,

and southwest Wyoming. The project boundary encompasses roughly 4.8 million acres, within which the Service would work with interested landowners to strategically acquire conservation easements on up to 920,000 acres of privately owned land from willing sellers only.

Conservation Efforts—Alternative A (No Action). Current Service programs such as Partners for Fish and Wildlife would continue on private lands within the Refuge approved acquisition boundary. The Service would continue to work cooperatively with landowners to voluntarily improve habitat on private land.

Conservation Efforts—Alternative B (Proposed Action). Through the proposed alternative wetland, riparian, grassland, and shrubland habitats on approximately 8,000 acres within the Refuge boundary would have protection from mineral and energy development. This would have long-term positive impacts on wildlife habitat, and the conservation of migratory birds, threatened and endangered species, resident wildlife species and native plants found on the Refuge.

Chapter 5. Coordination and Environmental Review

The Service has discussed the proposal with landowners; conservation organizations; other Federal agencies; tribal, State, and local governments; and other interested groups and individuals.

Agency Coordination

The Service has coordinated within the agency as well as with each of the three State wildlife agencies in developing this environmental assessment. Field and regional Service staffs conducted the analysis and prepared the documentation (refer to appendix A, "List of Preparers and Reviewers"). The Service will hold a public open-house meeting in Cokeville to provide information and to discuss the proposal with landowners and other interested citizens.

Information on the proposed project was provided in combination with the Comprehensive Conservation Plan outreach to 12 tribes with interest in the area.

Contaminants and Hazardous Materials

A Level I pre-acquisition site assessment would be conducted on individual tracts by qualified Service personnel before any land interest transfer.

National Environmental Policy Act

The Service conducted this environmental analysis under the authority of and in compliance with the National Environmental Policy Act, which requires an evaluation of reasonable alternatives that will meet stated objectives and an assessment of the possible effects on the human environment.

Environmental Assessment

This environmental assessment will be the basis for determining whether implementation of the proposed action would constitute a major Federal action significantly affecting the quality of the human environment. National Environmental Policy Act planning for this environmental assessment involved other government agencies and the public in the identification of issues and alternatives for the proposed project.

Distribution and Availability

The Service is distributing this environmental assessment to the project mailing list, which includes Federal and State legislative delegations, tribes, agencies, landowners, private groups, and other interested individuals. After they have been released for public review,

the Service will hold public meetings to talk about the environmental assessment and draft land protection plan.

Copies of the environmental assessment and information about public meetings are available by visiting the project website or by contacting the Service by email, postal mail, telephone, or in person.

- Project email: *http://www.fws.gov/seedskadee*

- Amy Thornburg, Planning Team Leader
  Attn: Proposed Bear River Watershed Conservation Area
  Division of Refuge Planning
  U.S. Fish and Wildlife Service
  134 Union Boulevard
  Lakewood, Colorado 80228
  303/236 4345

- U.S. Fish and Wildlife Service
  Cokeville Meadows National Wildlife Refuge
  P.O. Box 700
  Green River, WY 82935
  307/875 2187

Strategic Habitat Conservation

It is important to incorporate the elements of strategic habitat conservation to ensure effective conservation. Strategic habitat conservation uses an ongoing cycle of strategic biological planning and conservation design, integrated conservation delivery, monitoring, and research at ecoregional scales (see figure 9).

Figure 9. Elements of strategic habitat conservation.

Biological Planning

Biological planning requires the identification of priority species, development of population objectives, and identification of landscape-level limiting factors that are keeping the populations of priority trust species below desired levels.

The need and opportunity for strategic conservation to benefit fish and wildlife on Cokeville Meadows National Wildlife Refuge is articulated in the following regional plans reviewed by the Refuge personnel planning team: the Conservation Action Plan (CAP) for the Bear

River Watershed; Wyoming State Wildlife Action Plan, Partners in Flight, and Intermountain West Joint Venture.

In addition to the importance of breeding habitat, the quality and availability of spring migration habitat has direct implications for the survival and breeding productivity of the migratory birds passing through the Refuge each year.

Conservation Design

Most wildlife species require more than one type of habitat during their life history. The wetland, riparian, grassland, and shrubland habitats found in the Cokeville Meadows NWR allow multiple groups of species to meet their needs.

The connectivity between the refuge and other adjacent areas of protected lands maintains migration corridors for migratory and resident wildlife species and increases the resiliency of wildlife resources of the region.

Integrated Conservation Delivery

The Refuge staff has worked with a wide variety of agencies, nongovernmental organizations, and private landowners on wildlife conservation issues and opportunities on the Refuge. The ongoing involvement of the Partners for Fish and Wildlife program, Landscape Conservation Cooperatives, and many partner organizations and agencies will be essential for the effective delivery of sustainable conservation program. Application of the strategic habitat conservation framework will build on existing partnerships and support the development of new partnerships for conservation.

Monitoring and Research

Although the importance of the Refuge for migratory birds is widely recognized, there are gaps in knowledge about the area's resources. The contributions of management actions toward meeting population goals for priority trust species will be evaluated using spatially explicit models that allow for estimation of population size on conservation easements and other land parcels of interest. Such models will allow the Service and its conservation partners to evaluate the contribution of the program to meeting population goals and to refine conservation delivery to ensure maximum efficiency. Spatially explicit models will also enable the Service to demonstrate the contribution to national and continental population goals for priority species.

Landscape Conservation Cooperatives

Cokeville Meadows is within the Great Northern Landscape Conservation Cooperative (see figure 4). The Landscape Conservation Cooperatives involve many partners and function at a scale necessary to address wildlife adaptation in response to climate change. In carrying out Refuge conservation actions the Service would use the efforts of the Landscape Conservation Cooperatives to refine priority acquisitions and to address current and future issues and opportunities related to landscape-scale conservation.

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