

Chapter 4—Management Direction



Tom Koerner / FWS

Leopard Frog

This CCP will serve as the primary management document for Cokeville Meadows Refuge until it is formally revised. We will carry out the actions identified herein with help from existing and new partner agencies, organizations, and the public. There are no assurances that projects identified in this 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.

It is important to note that we place the highest priority on two groups of species—together known as trust species—and hold special responsibility in managing and conserving them. The first group contains those that are State or federally listed as endangered or threatened. The second group contains those listed as migratory birds, and a long list of these can be found in the Migratory Bird Treaty Act. For the

most part, migratory birds include all bird species that occur in the U.S. with the exception of nonnative birds like European starling, English sparrow, and Eurasian collared dove and nonmigratory birds like sage-grouse. Objectives in this chapter are written with trust species in mind.

According to Section 3, Subsection 7, of Service Director's Order 172, "Responsibilities of Federal Agencies to Protect Migratory Birds," many Service programs are actively involved in bird conservation activities. Our objective for migratory bird management and conservation is to reduce the potential adverse effects of migratory bird take, with the goal of ending take, while implementing our mission. All Service programs strive to take an ecosystem approach to the protection and restoration of species and their associated habitats. As migratory birds is one of our trust resources, all programs must emphasize an interdisciplinary, collaborative approach to

migratory bird conservation in cooperation with other Service programs, in addition to other governments, State and Federal agencies, and non-Federal partners. However, we recognize that direct or indirect actions taken by our employees in the execution of their duties and activities as authorized by Congress may result in the take of migratory birds. In many instances, short-term negative impacts on migratory birds are balanced by long-term benefits. We will incorporate ecosystem integrity, reduction of invasive species, and long-term adaptive management in migratory bird management, using the best available scientific information (FWS 2004).

4.1 Management Focus

We will manage the refuge to improve resources and refuge operations and increase wildlife and habitat productivity within, and outside of, the refuge boundary. We will focus on managing lands within a greater landscape footprint by using partnerships to enhance habitats throughout the Bear River watershed in Wyoming. We recognize that great wildlife habitat exists outside of the refuge in private ownership or managed by other government agencies, and we would broaden our scope to work with partners throughout the Wyoming portion of the Bear River watershed where opportunities exist to improve and conserve wildlife habitat. 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.

We will continue to acquire land and easements to round out the acquisition boundary. We will restore and manage wet meadow and upland habitats to increase wildlife productivity and diversity. We will specifically gear agricultural practices to enhance refuge habitats for wildlife both on and off refuge lands. We will emphasize developing visitor resources such as access and opportunities for wildlife-dependent uses like 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.

We propose that greater attention be given to Cokeville Meadows Refuge by the staff of the Seeds-kadee National Wildlife Refuge Complex 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.

4.2 Summary of the CCP

The issues discussed in this CCP were derived from the input of local citizens and communities, cooperating agencies, conservation organizations, and refuge staff. We developed four unique management alternatives to address the issues, concerns, and opportunities expressed during the scoping process (chapter 1). Once we assessed the environmental consequences of the implementation of each of the four alternatives, we identified alternative D as the proposed action after deciding that it would accomplish the following:

- best achieve the purposes, vision, and goals of the refuge
- help fulfill the Refuge System mission
- maintain and, where appropriate, restore the ecological integrity of the refuge and the Refuge System
- address identified significant issues and mandates
- be consistent with the principles of sound fish and wildlife management

We developed objectives in support of the goals identified in chapter 2 to carry out the proposed action. Strategies to achieve those objectives; rationales supporting the goals, objectives, and strategies; and the assumptions used in developing the CCP are described in this chapter. A description of refuge resources that will be affected by the proposed action may be found in chapter 3.

The Administration Act (appendix E) requires the Secretary of the Interior to make sure that public uses are compatible with refuge purposes before they are permitted. The CCP process requires a compatibility determination for all existing and proposed uses. Compatibility determinations for the refuge (appendix B) include cooperative farming, hunting, fishing, trapping, wildlife observation and photography, environmental education and interpretation, prescribed haying and grazing, and research.

4.3 Overview of Goals and Objectives

This section discusses 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.

We base many goals and objectives on habitats rather than on wildlife because wildlife often respond to factors beyond the control of local refuge management. Managing migratory birds is a good example. And our management practices, such as fire, grazing, haying, tree planting, 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 responses to habitat management.

Habitat and Wildlife Management Goals

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 appropriate throughout the refuge; keep a variety of seasonal to semi-permanent flooding regimes to encourage the nesting and feeding of indicator species.

Table 7 shows the vegetation needs of indicator or focal species in the wet meadow habitat.

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. Make sure that wet meadow habitat is moderately dominated by native graminoids (sedges, rushes and grasses).

Wet Meadow Habitat Objective 1—Specific Strategies

- Determine 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 disturbances to nesting areas during the breeding season (mid-April through July 10) in wet meadows and wetlands.

proper area and seasonal closures; the careful placement of public parking lots, roads, and trails; and continued coordination with cooperators.

Wet Meadow Habitat Objective 2—Specific Strategy

- Reduce human disturbances in nesting colonies during the breeding season through

Wet Meadow Habitat Objective 3

Within 5 years, make sure that at least 10 acres of contiguous wet meadow habitat scattered throughout the refuge are dominated by water depths of between 6 to 36 inches and emergent vegetation that creates a

Table 7. Indicator species in wet meadows habitat 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>
American bittern	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 >= 10 centimeters (4 inches), nests above water 4–24 inches deep
Redhead	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
Northern pintail	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
White-faced ibis	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.

mosaic of relatively short (less than 1 foot) to moderately tall (1–2 feet) cover conducive for brood rearing and foraging habitat.

Strategies Common to All Wet Meadow Habitat Objectives

- Use a combination of prescribed fire, prescriptive livestock grazing, and mechanical or chemical treatments to determine 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 the Lincoln County Weed and Pest District, 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.
- Determine baseline waterfowl, waterbird, and shorebird nesting status in wet meadow habitats.
- 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 of emergent vegetation cover either visually or by 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 determine the distribution, abundance, and nesting success of wet meadow species.
- Conduct water quality sampling to determine amounts of salinity and total dissolved solids.
- Issue special use permits exceeding 5 years but for 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 permit is intended to offset the substantial financial costs associated with carrying out long-term restoration projects that a cooperators would accept to improve refuge habitats.



Todd Gallion / FWS

Cub scouts looking for wildlife on the refuge.

Wet Meadow Habitat Objectives Rationale

Healthy wet meadows on the refuge are essential because they provide habitat for a large variety of wetland-dependent species, which 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 wet meadow habitats for the greatest number and variety of species possible. Using all management techniques and the best science available, we would find methods to control invasive plant species and restore native wet meadow vegetation.

Upland Habitat and Wildlife Goal

Manage and, where appropriate, enhance 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 Wyoming 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.

Upland Habitat Objective 1

Within 4 years and for the duration of this plan, reestablish native grassland vegetative cover made up of an understory of western wheatgrass, thick-spike wheatgrass, bluebunch wheatgrass, basin wild-rye, Indian rice grass, and other native grasses and native forb species to help upland-nesting and brood-rearing species such as dabbler, 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.

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 wild-life 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 WGF, 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 the Lincoln County Weed and Pest District, 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.
- Find and rank future areas for restoring to native species.
- Examine potential revegetation choices based on the surrounding native plant communities.
- Issue special use permits exceeding 5 years, but for 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 for the health of wildlife species that depend on them. Some 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 would provide a key habitat type that is missing for many 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 upland habitats for the greatest number and variety of species possible. Using all management techniques and the best science available, we will find methods for controlling invasive plant species and restoring native upland vegetation. After restoration, a range assessment will be conducted to figure out stocking rates for livestock. This will help make sure that grazing used as a management tool will 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 appropriate throughout the refuge, to provide the adequate variety and structure of plant species needed to encourage the nesting of indicator species and to attract and support adequate food sources.

Table 8 shows the vegetation needs of the indicator and focal species of riparian and river habitats.

Table 8. 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

Support, protect, and enhance existing 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

- Cordon off segments of the riparian corridor with electric and wildlife-friendly fencing during the establishment of woody species.
- Using adaptive management, find and apply effective methods, including planting native vegetation, to restore the riparian corridor composition of the Bear River watershed.

- Manage livestock grazing to make sure that riparian habitat is allowed to establish and that willows are not removed or that canopy is not reduced.

River Habitat Objective 1 (find and improve river habitat types)

Within 7 years, develop partnerships to help find, 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, WGF, and the Lincoln County Conservation District, 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.
- Replace or update irrigation diversion structures and culverts that create barriers and entrapment issues for fish species.



Bernardo Garza / FWS

A panorama of Cokeville Meadows Refuge looking west.

- Work with the Partners for Fish and Wildlife program to find private landowners who 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 the Lincoln County Weed and Pest District, permittees, and other stakeholders to control invasive plant species.
- 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.
- Determine 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 determine 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;



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A panorama of Cokeville Meadows Refuge looking east.

- sparse woody vegetation for use by song-birds 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, we will fence willow plantings. Haying and grazing practices in the riparian zone will be modified to encourage willow establishment, and hydrological needs will be considered. Monitoring will be needed to document our efforts and to note any significant changes to existing willow communities.

We also recognize that there are 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 riffles, runs, glides, and shading from 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 3 years, 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 3 years, 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 would provide a better understanding of the refuge and how it deals with infestations and disease issues. It should also provide an advanced directive on how to deal with such issues.

Integrated Pest Management Objective

Within 7 years, 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. While the potential for disease transmission is low, having plans in place would allow us to apply measures to address a problem in order 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

Cokeville Meadows Refuge will be in a restoration phase for several years on areas identified to be reseeded to native vegetation. We will have grain crops in advance of native seeding to reduce weed seed buildup in those 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 will find areas on the

refuge that could be used 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. A wildfire can be managed for suppression in one area and managed to achieve benefits in another. As conditions change, these objectives can 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 has been reduced mostly because of 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 will be suppressed.

Region 6 has identified fire management zones. 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.

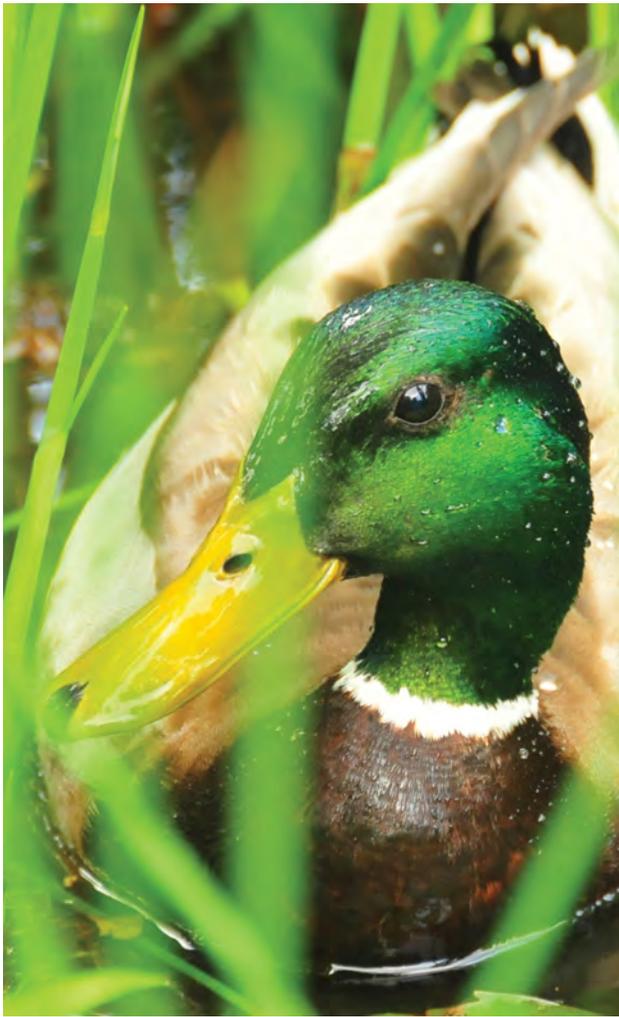
Realizing that fire management staff and equipment may be placed anywhere within a fire management zone, using our refuge staff as well as other Federal and non-Federal partners to aid in wildfire suppression is a priority. We will attempt to keep and encourage more fire qualifications for our refuge 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 fire management plan (FMP) that reflects the goals and objectives identified in this CCP. Within 3 years, begin carrying out a prescribed fire program at the refuge.



Mallard Ducklings



Tom Koerner / FWS

Mallard Drake

Wildland Fire Management Objective 2

Rationale

Our policy requires that every refuge 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 in 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 native plant communities, 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 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 fires have occurred. Local residents have periodically burned lands now within the refuge acquisition boundary.

Wildland Fire Management Objective 4

Within 3 years, 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 Seedskafee National Wildlife Refuge Complex. Help from partners is needed to fully carry out a prescribed fire program 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, if funding allows, treat 20 percent of our lands that are close to places where values are at risk.

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 1 year of wildfire containment. Burned Area Rehabilitation treatments are non-emergency efforts done within 3 years of wildfire containment to improve fire-damaged lands that are unlikely to recover to management-approved condi-

tions 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 Seedskafee National Wildlife Refuge Complex staff.
- 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, 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 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, 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, 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, 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 points.
- Apply for EVS money.

- 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 wildlife-dependent activities.

Visitor Safety Objective 1

Within 2 years, establish the 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, 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

Carry out the refuge hunt plan, once it is approved, before the 2014 Wyoming hunting season.

Hunting Objective 2

Develop a hunt map before the 2014 Wyoming hunting season to guide refuge users to designated hunting areas and access points and to inform of refuge hunting regulations and hunting opportunities for people of all abilities (see figure 14).

Hunting Objective 3

Upon hunt plan approval, 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 chal-

lenges and opportunities for taking species that have harvest objectives and create minimal conflict with other priority wildlife-dependent recreational uses or with 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 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.
- 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 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

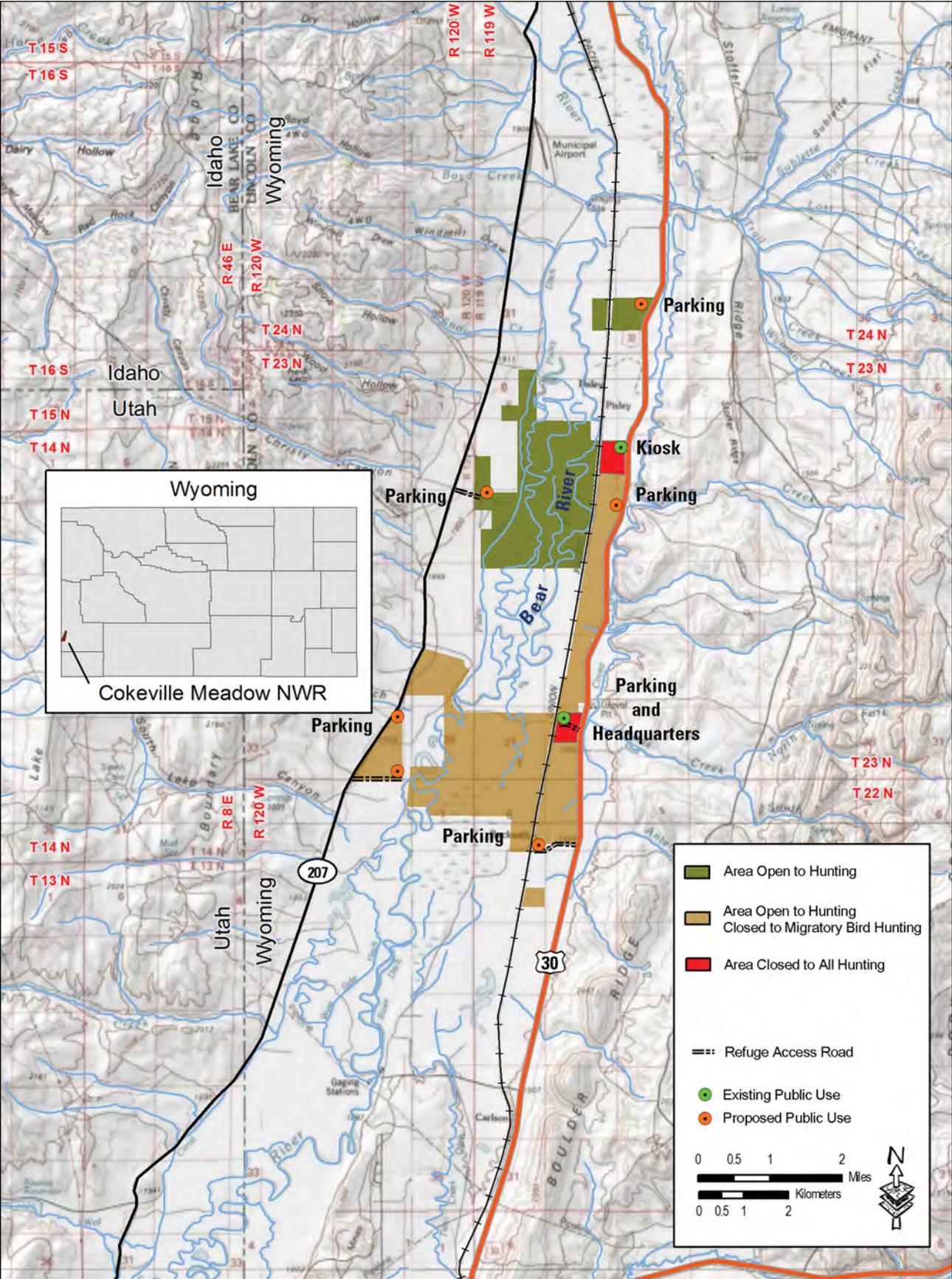


Figure 14. Proposed public uses at Cokeville Meadows National Wildlife Refuge, Wyoming.



Tom Koerner / FWS

Pronghorn

plan. We will work with the State to promote sound hunting practices as a wildlife management tool.

Fishing Objective 1

Within 10 years, determine 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 also be served.

Fishing Objective 3

Develop an 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 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 a trapping program on the refuge by issuing special use permits to qualified trappers who will serve to:
 - observe mammal populations;
 - remove portions of the annual surplus of furbearing mammals;
 - reduce mammals that cause damage to 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, 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 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 their adverse effects.

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 will be described in a stepdown management plan to this CCP. For compatibility reasons, the use of motorized vehicles will be restricted to designated roads.

Wildlife Observation and Photography Objective 1

Within 5 years, 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, 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 sports-women 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. The refuge is part of an intermontane ecosystem that typically has been used for farming and ranching. It offers a unique opportunity to view plants and animals in a natural 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. Developing an auto tour route and areas to interpret to visitors are also 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 enhance opportunities for wildlife viewing and photography.

Environmental Education and Interpretation Objective 1

Within 5 years, 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, 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

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.

A visitor services plan should be developed to find areas 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 pull-out 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 (see figure 9).

Public Information Objective 1

Within 2 years, 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, update the refuge's Web site to include pertinent, up-to-date information, such as hunting and fishing guidance 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 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.
- Post printed and Web site press releases, at least monthly, 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 learn about the refuge 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 development and restoration activities begin.
- Submit potential prescribed fire treatments and management activities for clearance, such as Section 106 clearance, before they begin.
- Use the most up-to-date techniques for surveys, documentation, preservation, restoration, and research through coordination with Region 6's archaeologists, the 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 man-

agement 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 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

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 that promote habitat health and wildlife productivity across the Bear River watershed.

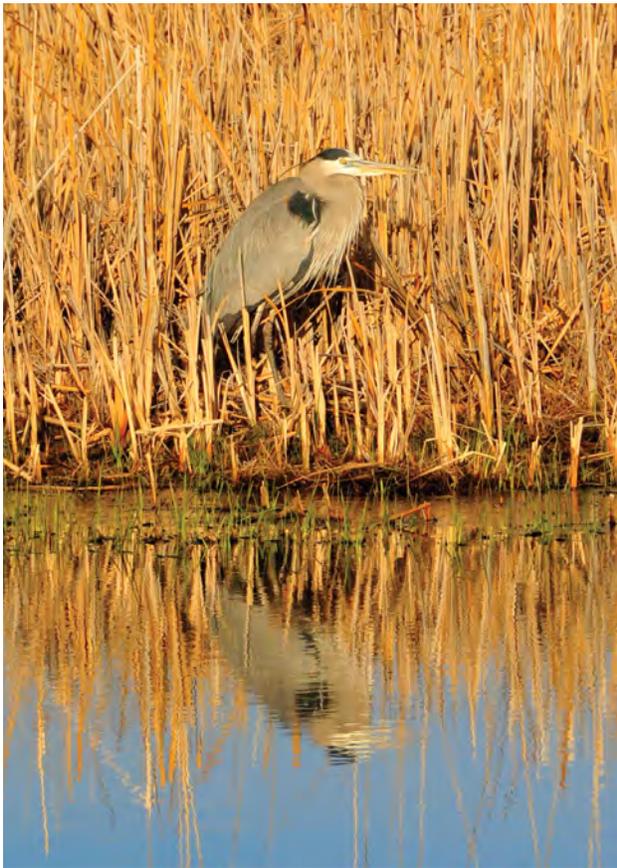
Partnerships Objective Strategies

- Coordinate with State agencies and private conservation organizations on projects that directly help wildlife and their habitats.
- 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.
- 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, coor-



Indian Ricegrass.



Tom Koerner / FWS

Great Blue Heron

dinate, and support working relationships with those who deliver private lands projects.

Partnerships Objective 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, WGF, the 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 individual groups working alone within their organizational 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, habitat improvements, and other land protection opportunities with willing sellers and interested land owners within the approved refuge acquisition boundary and within the Bear River watershed.

This section discusses our 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 six 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 6 in chapter 3 lists these positions along with one new, full-time equivalent position assigned to Cokeville Meadows Refuge that is needed to carry out 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.
- 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, 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.

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 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.



Mike Artmann / FWS

The Pixley Dam is in need of replacement.

- 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, 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 tracks 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.



Mike Artmann / FWS

Rip rap, used to reduce bank erosion, made its way onto the refuge before acquisition by the Service. A substantial amount of junk and debris has been removed by our partners and by refuge staff.

Junk and Debris Removal Objective

Within 5 years, 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 clear debris piles.
- Work with partners and cooperators to find ways to keep junk and debris materials 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 and are eyesores.

Small mammals, especially animals that depredate on migratory bird nests, often burrow under or dwell inside them. It is important that the staff and its partners find ways to promptly and properly dispose of all debris and junk piles to protect humans and wildlife and to restore a pristine look.

Water Rights and Resources Objective

Within 3 years, 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 water rights important for habitat management on the refuge that need to be identified, understood, and used to show that we are properly managing them.

Land Protection Objective

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 pose major threats to wildlife habitat in the Cokeville Valley. Steps need to be taken to protect habitat conditions and connectivity through fee-title acquisition and 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 that depend on them from onsite and offsite mineral and energy development and transportation activities.

Refuge Mineral Rights and Energy

Development Objective Strategies

- Work with the BLM and other agencies and partners to secure mineral rights on refuge lands as opportunities arise.
- Work with partners to identify existing and future mineral and energy development and

transportation activities that could adversely affect refuge habitats and resources and 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 have the potential to adversely affect habitats and the plants and wildlife that depend on them. 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 15).

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 identify 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 9).

Monitoring Objective 1

Within 5 years, 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, 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 data gathering and scientific studies by 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 baselines.

Research Objectives Rationale

The refuge needs baseline data for habitat and wildlife. 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.
- 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

Our landscape-level plan can only be carried out by working cooperatively with our neighbors both on and off the refuge. Thus, our staff needs to make sure that animals that cross boundaries and become problems or a nuisances to the refuge and its neighbors are dealt with properly.

Volunteers Programs Objective 1

Within 1 year, 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, 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 become scarce. It is important for our staff to select which refuge activities can be delegated to volunteers.

4.4 Monitoring and Evaluation

We believe that the uncertainty surrounding habitat management can be dealt with most efficiently

within the paradigm of adaptive resource management (see figure 15) (Holling 1978, Kendall 2001, Lancia et al. 1996, Walters and Holling 1990). This approach provides a framework within which we can make objective decisions and reduce the uncertainty surrounding those decisions. The key components of an adaptive resource management plan follow:

- clearly defined management goals and objectives
- a set of management actions with associated uncertainty as to their outcome
- predictions of various alternative responses to management strategies
- monitoring or assessing select natural resource conditions of interest, largely directed by objectives
- communicating and using new information to direct future decisionmaking

The adaptive management framework facilitates an iterative process, whereby our understanding of the effectiveness of strategies and the response and conditions of natural resources on the refuge is improved over time. Reducing the uncertainty of habitat management via adaptive resource manage-

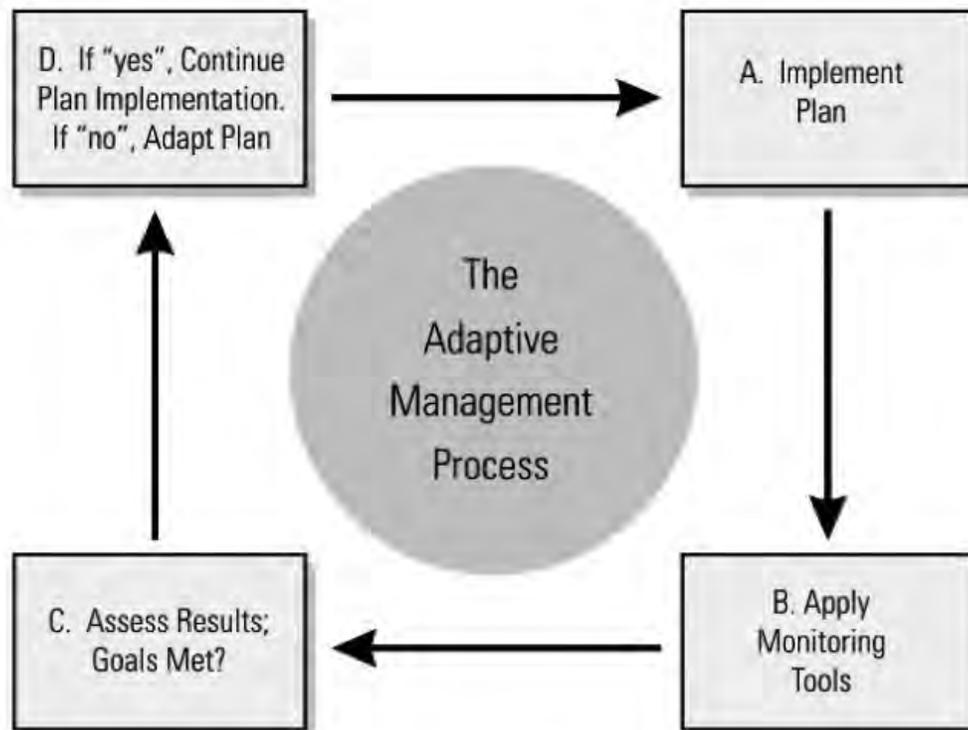


Figure 15. The adaptive resource management process.

ment helps in the continual development of long-term habitat management plans.

4.5 Plan Amendment and Revision

This CCP will 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. This CCP will also 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 CCP will be evaluated every 5 years and revised after 15 years.

Table 9 shows the timeline for stepdown management plans for Cokeville Meadows Refuge.

Table 9. 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	—	2019
Fire management	2002	2014
Disease contingency	2006	2016
Wilderness management	1986	2012
Refuge safety	2002	2010
Visitor services	1986	2019
Wildlife inventory and monitoring	—	2020
Spill prevention control and countermeasures	2006	2012
Hunting plan	2014	—
Trapping plan	—	2017
Fishing plan	—	2017
Predator and nuisance animal management plan	—	2017
Water and drought management plan	—	2017
Integrated pest management plan	—	2017



“Snow angels” made by magpies.

