

# Appendix A

## *Record of Decision*

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## Record of Decision for the Final Comprehensive Conservation Plan and Environmental Impact Statement

### *San Luis Valley National Wildlife Refuge Complex*

October 2015

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#### Introduction

This record of decision (ROD) for the final comprehensive conservation plan (CCP) and environmental impact statement (EIS) for the San Luis Valley National Wildlife Refuge Complex, Colorado, provides the basis for management decisions made by the U.S. Fish and Wildlife Service (we, Service). The CCP was prepared along with an EIS in compliance with the National Environmental Policy Act (NEPA) and relevant planning policies. We propose to adopt and implement the plan, which will provide guidance on managing the refuges for a 15-year period.

The final CCP and EIS (FR 80 (155): 48328-31) described our proposal for management of the San Luis Valley National Wildlife Refuge Complex (refuge complex), specifically for Alamosa, Monte Vista, and Baca National Wildlife Refuges. These three national wildlife refuges are part of the National Wildlife Refuge System (Refuge System), and they are managed as part of the larger refuge complex from its headquarters located in Alamosa, Colorado. As part of the Refuge System, the three national wildlife refuges are managed for wildlife conservation above all else.

In preparing the final CCP and EIS, we worked closely with several cooperating agencies and partners including the Bureau of Land Management, Bureau of Reclamation, USDA Forest Service, National Park Service, Natural Resources Conservation Service, Colorado Parks and Wildlife, and Colorado Division of Water Resources. Other tribal governments, State and local governmental agencies, nongovernmental organizations, businesses, and private citizens contributed substantial input to the plan.

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#### Background

The primary planning area for this decision is for the Alamosa, Monte Vista, and Baca National Wildlife Refuges, which are located in Alamosa, Rio Grande, and Saguache counties in the San Luis Valley, Colorado. While not directly related to this decision, the refuge complex also has management responsibility for the Sangre de Cristo Conservation Area in Costilla County, Colorado, and Taos County, New Mexico. A land protection plan for the Sangre de Cristo Conservation Area was finalized in 2012.

Wildlife habitat in the three national wildlife refuges includes diverse wetlands and playas, riparian areas, grasslands, and shrublands that provide important resources for many migratory birds, Rocky Mountain elk, deer, and a variety of other resident wildlife. About 18,000–20,000 greater sandhill cranes migrate through the valley every spring and fall, where they spend several weeks resting and foraging for food on and around the Monte Vista National Wildlife Refuge. The southwestern willow flycatcher, which is federally listed as endangered, breeds along the Rio Grande on the Alamosa National Wildlife Refuge. Baca National Wildlife has one of two aboriginal (natural) populations of Rio Grande sucker found in the State.

Visitors take part in a variety of wildlife-dependent recreational activities on the refuge complex. Every year, the Monte Vista Crane Festival attracts thousands of visitors who come to see sandhill cranes and waterfowl. The Monte Vista and Alamosa National Wildlife Refuges are also open for waterfowl and limited small game hunting, wildlife observation, photography, interpretation, and environmental education. As part of this CCP and EIS process, we have considered opening the Baca National Wildlife Refuge for similar opportunities.

Over 12,000 years of prehistory and history have been recorded in the San Luis Valley, and all three national wildlife refuges contain significant cultural resources.

We could not accomplish our conservation mission without the many partner organizations who we work with in the valley, including the Friends of the San Luis Valley National Wildlife Refuges; The Nature Conservancy; local land trusts; schools; Federal, State and local governmental agencies; Native American tribes; and interested citizens.

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## Purpose and Need for the Plan

The purpose of this final CCP and EIS is twofold: to describe the role of each refuge in the complex in supporting the mission of the Refuge System and to provide long-term guidance for the management of refuge programs and activities. The CCP is needed to help us achieve the following:

- communicate with the public and other partners in efforts to carry out the mission of the Refuge System;
- provide a clear statement of direction for management of the refuge complex;
- ensure that the refuges within the refuge complex continue to conserve fish, wildlife, and ecosystems in the face of ongoing drought, water shortages, and climate change;
- provide neighbors, visitors, and government officials with an understanding of our management actions on and around the refuge;
- ensure that our management actions are consistent with the mandates of the National Wildlife Refuge Improvement Act of 1997;
- ensure that management of the refuge considers other Federal, State, and local government plans;
- provide a basis for development of budget requests for the operation, maintenance, and capital improvement needs of the refuge.

We are committed to sustaining the Nation's fish and wildlife resources together through the com-

bined efforts of governments, businesses, and private citizens.

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## National Wildlife Refuge System

Like all national wildlife refuges, Alamosa, Monte Vista, and Baca National Wildlife Refuges are administered under the National Wildlife Refuge System Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997.

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

### Refuge Purposes

Each national wildlife refuge is managed to fulfill the mission of the National Wildlife Refuge System as well as the specific purposes for which that refuge was established.

Monte Vista and Alamosa Refuges were set aside under the same authority and consequently have identical purposes. They were established under the authority of the 1929 Migratory Bird Conservation Act (45 Stat. 1222; 16 U.S.C. §715d) “...for use as inviolate sanctuaries, or for any other management purposes, for migratory birds.”

Monte Vista National Wildlife Refuge was established in 1952, and Alamosa National Wildlife Refuge was established in 1962. Today, Monte Vista National Wildlife Refuge is about 14,834 acres and Alamosa National Wildlife Refuge is about 12,026 acres.

Baca National Wildlife Refuge was authorized by Public Law 106-530 on November 22, 2000, as part of the Great Sand Dunes National Park and Preserve Act of 2000. In 2009, the Act was amended to explain the purpose and provide for the administration of the refuge (Public Law 111-8; Omnibus Appropriation Act, March 11, 2009). The purpose of the Baca National Wildlife Refuge is to “restore, enhance, and maintain wetland, upland, riparian, and other habitats for native wildlife, plant, and fish species in the San Luis Valley.” In administering the Baca National Wildlife Refuge, the Secretary shall, to the maximum extent practicable, “(A) emphasize migratory bird conservation; (B) take into consideration the role of the Refuge in broader landscape conservation efforts; and (C) [subject to any agreement in existence as of the date of enactment of this paragraph, and to the extent consistent with the purposes of the

refuge], use decreed water rights on the refuge in approximately the same manner that the water rights have been used historically.” We have acquired about 85,941 acres of the authorized 92,500 acre area.

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## Vision

We developed a vision for the refuge complex at the beginning of the planning process which describes the focus of refuge management and portrays a picture of the refuge complex in 15 years. It reads:

*The San Luis Valley National Wildlife Refuge Complex, set in a high expansive desert valley, is cradled between the snowcapped peaks of the San Juan and Sangre de Cristo Ranges. Mountain snowmelt feeds the Rio Grande, numerous streams, and a dynamic ground water system, creating a diverse mix of playas, wet meadows, and willow and cottonwood riparian corridors that are in stark contrast with the surrounding arid landscape. As reflected by 12,000 years of human history in the valley, the refuge complex attracts many people. Visitors experience the ancient song of the sandhill crane, witness evening flights of thousands of waterfowl, and listen to bugling elk. Through ever-changing conditions like climate change, the refuges support and foster a collaborative spirit between their neighbors and partners to conserve the valley's treasured resources.*

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## Goals

We developed six goals for the final CCP.

### **Habitat and Wildlife Goal**

Conserve, restore, and enhance the ecological diversity and function of the San Luis Valley ecosystem to support healthy populations of native fish and wildlife, with an emphasis on migratory birds.

### **Water Resources Goal**

As climate patterns change, protect, acquire, and manage surface and ground water resources to maintain and support management objectives.

### **Visitor Services Goal**

Provide safe, accessible, and quality wildlife-dependent recreation and perform outreach to visitors and local communities to nurture an appreciation and understanding of the unique natural and cultural resources of the refuge complex and the San Luis Valley.

### **Partnerships and Refuge Complex Operations Goal**

Secure and effectively use funding, staffing, and partnerships for the benefit of all resources in support of the refuge complex purposes and the mission of the National Wildlife Refuge System.

Actively pursue and continue to foster partnerships with other agencies, organizations, the water community, and private landowners to conserve, manage, and provide for the long-term sustainability of working landscapes within the San Luis Valley.

### **Cultural Resources Goal**

Protect significant cultural resources within the San Luis Valley National Wildlife Refuge Complex.

### **Research, Science, and Wilderness Review Goal**

Use sound science, applied research, monitoring, and evaluation to advance the understanding of natural resource functions, changing climate conditions, and wilderness values in the management of the habitats within the San Luis Valley ecosystem.

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## Significant Issues

In the EIS, we disclosed the effects of four management alternatives derived from significant issues that were identified during the scoping process. The significant issues addressed in the final CCP and EIS include:

- Habitat and wildlife management
- Water resources
- Landscape conservation and wilderness review
- Visitor services
- Partnerships and refuge complex operations
- Partnerships and collaboration
- Cultural resources and tribal coordination

## Decision (Alternative B)

We selected for implementation alternative B – Wildlife Populations, Strategic Habitat Restoration, and Enhanced Public Uses. Alternative B was selected because it is the alternative that best meets our vision and planning goals for this project. It will enable us to maintain or restore the composition, structure, and function of the natural and modified habitats within the refuge complex. We will consider the ecological site characteristics and wildlife species needs on our refuge lands by developing sound and sustainable management strategies that preserve and restore ecological (biological) integrity, productivity, and biological diversity. We will apply strategic habitat conservation principles (a structured, science-driven, and adaptive approach) in determining how to best manage our lands for native fish, wildlife, and plant species, with a particular emphasis on migratory birds, waterfowl, and declining species listed under the Endangered Species Act (listed species). Compatible wildlife-dependent public uses will be enhanced and expanded to include all three refuges. We will facilitate the protection, restoration, and conservation of important water resources through partnerships, public education, and stewardship.

### **Habitat and Wildlife**

We will manage wetland areas within the refuge complex to achieve a variety of wetland types and conditions to support a diversity of migratory birds and other wildlife, with a specific focus on focal species that represent the Service's and other partners' larger conservation goals. To maintain the biological integrity, productivity, and function of our wetland habitat, we will restore historical water flow patterns in specific areas through more effective water management practices. Our top priority will be to restore riparian habitat along streams in the Baca National Wildlife Refuge as well as specific areas along the Rio Grande in the Alamosa National Wildlife Refuge. We will manage our upland habitats to create a variety of seral stage conditions that provide habitat for a diverse array of wildlife species, particularly nesting and migratory focal birds. To manage our habitats, we will continue using tools such as prescriptive grazing, haying, fire, mowing, and herbicides.

We will use public hunting to complement the State's management, working together to keep elk populations at levels that will allow us to sustain healthy plant communities both in the refuge complex and on neighboring lands. This will include opening portions of Baca National Wildlife Refuge to public hunting and opening parts of Alamosa and

Monte Vista National Wildlife Refuges to a limited public hunt. We will work with our agency partners (Colorado Parks and Wildlife, National Park Service, USDA Forest Service, Bureau of Land Management) and other conservation organizations to manage elk populations.

We will also work with other Federal and State agencies and other conservation partners to improve habitats for threatened and endangered species and other species of concern. Particular focus will be on riparian areas, which provide essential habitat for southwestern willow flycatcher, and riverine systems, which are habitat for Rio Grande sucker and Rio Grande chub. In addition, habitats for other native species of concern such as Gunnison's prairie dog and northern leopard frog will be protected, restored, and enhanced where practical and necessary.

The existing arrangement with The Nature Conservancy for bison management on former State lands within the Baca National Wildlife Refuge will be phased out. Since bison are important to other stakeholders and partners, we will research the feasibility, potential, and suitability of introducing semi-free-ranging bison year-round to effectively maintain and enhance certain refuge habitats.

We will continue to grow limited amounts of small grain on the Monte Vista National Wildlife Refuge (about 190 acres) to provide necessary food for the Rocky Mountain population of greater sandhill cranes, as specified in the management plan of the Pacific and central flyways for the Rocky Mountain greater sandhill cranes.

We will control and reduce the incidence of invasive weeds such as tall whitetop, Russian knapweed, Canada thistle, saltcedar, and reed canarygrass through more effective management and by using prescribed fire and chemical, mechanical, and biological control methods. We will make every effort to increase weed control in sensitive habitats or where there is a risk of weeds spreading to neighboring private land.

We will strengthen the fire program within the refuge complex by improving fire management planning and by increasing coordination with partners. We will use prescribed fire to achieve habitat management objectives, and we will conduct prescribed fires at a more acceptable and reliable frequency. We will pursue more funding to protect property and human safety under the wildland-urban interface guidelines, and, where possible, we will reduce the number of individual facilities that will require fire protection.

## **Water Resources**

We will continue to work with other landowners and agencies throughout the watershed to maintain flexibility as well as to protect and, if necessary, augment our water rights as State regulations evolve. Water quality standards will be established, and studies will be initiated to help protect water rights, prioritize habitat management and planning, and develop concise water use reporting methods. Our ground water use will comply with new State ground water rules and regulations through augmentation plans or by working with others and contracting with ground water management subdistricts.

We will achieve our habitat management objectives while providing for quality visitor experiences. Our water infrastructure, delivery, and efficiencies will require upgrades to make sure that habitat and visitor services objectives are met.

## **Visitor Services**

We will continue to offer waterfowl and limited small game hunting on the Monte Vista and Alamosa National Wildlife Refuges. We will open the Baca National Wildlife Refuge for big game and limited small game hunting, and we will offer limited big game hunting on the Monte Vista and Alamosa National Wildlife Refuges. This will provide recreational opportunities while enabling us to manage the numbers and distribution of elk and other ungulate species. Access points and parking areas will be developed on the Baca National Wildlife Refuge.

General public access will be improved on the Monte Vista and Alamosa National Wildlife Refuges and established on the Baca National Wildlife Refuge. On the Monte Vista and Alamosa National Wildlife Refuges, we will allow for additional access outside the critical breeding period from about mid-July to the end of February for wildlife viewing and interpretation on roads or trails that are currently open to hunters during the hunting season. We will allow for modes of travel such as cross-country skiing, snowshoeing, and bicycling in order to facilitate opportunities to experience wildlife on all three refuges. Portions of the Baca National Wildlife Refuge will be opened for limited public use, and nonmotorized access, including walking, biking, and horseback riding, will be allowed during hunting season. An auto tour route will be built on the Baca National Wildlife Refuge. The construction of more trails or viewing platforms on the Monte Vista and Alamosa National Wildlife Refuges will be carefully planned to avoid impacts to threatened and endangered species as well as for species of concern. Limited commercial opportunities such as photography will be considered. We will seek funding to build a visitor

center and refuge complex staff offices at either Monte Vista or Alamosa National Wildlife Refuge to better serve the public, provide for safer access to our offices, and provide a modern work environment for our employees. In coordination with the Friends of the San Luis Valley National Wildlife Refuges, which leads this event, we will continue to host the Kid's Fishing Day on the Monte Vista National Wildlife Refuge. On Alamosa Refuge, we will allow limited fishing access on the banks of the Rio Grande just above and below the Chicago Dam.

## **Cultural Resources**

Most of our actions will be similar to alternative A, which is described below, plus we will increase our efforts toward identifying and protecting significant resources.

## **Partnerships and Refuge Operations**

When the Baca National Wildlife Refuge was established under the Great Sand Dunes National Park and Preserve Act of 2000, operations funding did not come with the added management responsibilities. We absorbed these added responsibilities across the refuge complex, which has affected our operations. In order to meet our needs, we will seek more funding for the refuge complex for habitat conservation, visitor services, and maintenance. Overall, refuge complex offices are inadequate and provide for little visitor contact. We will seek to increase our staff levels of both full-time and seasonal employees, as well as seek funding for safe access and accessible offices for our staff and visitors.

We will continue to collaborate with Colorado Parks and Wildlife and other agencies to effectively manage elk, which will hopefully result in an improved distribution across the local game management units. We will continue to work closely with the San Luis Valley Interagency Fire Unit to achieve habitat management objectives while minimizing risk to sensitive habitats and human structures. We will seek funding for a more dependable prescribed fire program. We will develop working relationships with neighboring landowners and others to address interface issues such as invasive species control, shared fence management, elk management, and other concerns.

On the Baca National Wildlife Refuge, we will work extensively with owners and developers of third party-owned mineral rights to find ways to reduce the effects of any future exploration activities on visitors and wildlife and to locate exploration and production facilities away from visitors.

## **Research, Science, and Wilderness Review**

We will increase monitoring efforts, in part to gain an increased understanding of the effects of our management actions on habitat conditions, wildlife populations, and water resources, but also to learn more about the effects of drought and climate change on our wildlife and habitat resources. We will recommend protection of the wilderness values and characteristics found along the eastern boundary of Baca National Wildlife Refuge and adjacent to proposed wilderness on Great Sand Dunes National Park and Preserve (about 13,800 acres). We will manage this area as a wilderness study area to be considered for eventual wilderness designation.

### **Rationale for Selecting Alternative B**

This alternative balances the significant management issues of this project with the purposes, missions, and management policies of the Service, as well as with the interests and perspectives of many agencies, organizations, tribes, and the public.

Overall, we received substantial support for many of the elements in alternative B from our cooperating agencies, local agencies, conservation organizations, and the public. We acknowledge the differing individual views with respect to bison conservation on the Baca National Wildlife Refuge, public hunting, and expanding public use opportunities by opening Baca National Wildlife Refuge.

In the Final CCP and EIS, alternative B was revised from the proposed action in the draft CCP and EIS after consideration of many comments received from agencies, tribes, other stakeholder organizations, and the public during the comment period.

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## **Other Alternatives Considered**

The final CCP and EIS evaluated a no-action alternative (A) and two other action alternatives (C and D), which are briefly summarized below. We developed all the alternatives to meet the planning goals we set for the project. Some of the alternatives met specific elements of our planning goals better than others, and we considered this in our decision.

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## **Alternative A: No Action**

Under the no-action alternative, we would make few changes in how we manage the various habitats and wildlife populations throughout the refuge complex. We would continue to manage habitats on the Monte Vista and Alamosa National Wildlife Refuges through the manipulation of water as described in the 2003 CCP. Water management on the Baca National Wildlife Refuge would continue under the guidance found in the conceptual management plan for the Baca National Wildlife Refuge. All the refuges would adhere to new State rules and regulations through augmentation plans or by working with others and contracting with ground water management subdistricts. There would be few added public uses outside of those that already occur on the Monte Vista and Alamosa National Wildlife Refuges. The Baca National Wildlife Refuge would remain closed to public use except for potential access to a refuge office or contact station. We would continue to collaborate with our partner agencies and organizations to achieve our conservation goals.

### **Habitat and Wildlife Resources**

On all three refuges, we would continue to manage wetland areas and wet meadows to provide habitat for a variety of waterbirds. We would continue to produce small grains at current levels on the Monte Vista National Wildlife Refuge (up to 270 acres, depending on water availability and crop rotation) to provide food for spring-migrating sandhill cranes.

There would be few changes made in managing big game populations on the refuge complex. Population distribution and control would be limited to non-lethal dispersal, agency culling, and public dispersal hunts (hunters accompanied by agency personnel on a hunt designed to disperse animals) on the former State lands of the Baca National Wildlife Refuge.

We would continue to protect populations of, and manage habitats for, threatened and endangered species as well as for species of concern. We would phase out the existing arrangement with The Nature Conservancy for season-long bison grazing on lands that are within the Baca National Wildlife Refuge acquisition boundary, and we would not use bison as a management tool in the future.

We would continue to use prescriptive livestock grazing and haying, and we would continue to control invasive and noxious weeds.

### **Water Resources**

We would keep our ability to use our water rights within the refuge complex. The use of ground water

would continue, except as modified by changing State rules, regulations, and policies. We will augment water supplies in accordance with State law.

### **Visitor Services**

Compatible wildlife-dependent public uses, including waterfowl and limited small game hunting, would continue to be allowed on the Monte Vista and Alamosa National Wildlife Refuges, but we would not seek to establish elk hunting on any of the refuges other than the authorized distribution hunts on the Baca National Wildlife Refuge.

The auto tour routes and the existing nature and walking trails on the Alamosa and Monte Vista National Wildlife Refuges would continue to provide some wildlife observation, interpretation, and photography opportunities. Public access via trails or a tour route would not be established on the Baca National Wildlife Refuge, and the refuge would remain closed to the public except for occasional staff-led tours and access to an office or visitor contact station.

### **Cultural Resources**

Under Section 106 of the National Historic Preservation Act, we would continue to conduct cultural resource reviews for projects that may disturb the ground or affect buildings or structures over 50 years of age. We would avoid disturbing significant cultural resources unless disturbance is required by unusual circumstances. In addition, we would continue to conduct law enforcement patrols and monitor sensitive sites. As required, we would consult with the Colorado State Historic Preservation Office and Native American tribes and adhere to cultural resource laws.

### **Partnerships and Refuge Complex Operations**

We would continue to work with a variety of other agencies and non-profit organizations, including the Friends of the San Luis Valley National Wildlife Refuges, to achieve our goals for habitat and wildlife management. Refuge complex operations would continue within existing funding levels. As such, there would be few new financial resources available to increase programs or services. We would continue to coordinate and work with adjacent landowners to reduce potential conflicts.

In accordance with the provisions of the interim elk management plan, we would work with Colorado Parks and Wildlife to coordinate dispersal hunts, hazing, and lethal removal of elk by agency staff to

reduce damage to the lands next to the refuges and riparian habitats on the refuges.

We would continue to be active and contributing partners in the San Luis Valley Interagency Fire Management Unit. This partnership includes the USDA Forest Service, National Park Service, Bureau of Land Management, the State of Colorado, and the Service.

### **Research, Science, and Wilderness Review**

Within existing funding levels, we would continue to inventory and monitor habitat and wildlife resources with existing refuge staff as well as by working with the U.S. Geological Survey and other agencies and organizations.

In keeping with current management, we would not recommend additional protection for any areas having wilderness characteristics or values.

### **Rationale for Not Selecting Alternative A**

Alternative A was not selected for implementation because it would not meet our stated planning goals for the CCP for habitat and wildlife management, visitor services, or cultural resources and tribal coordination. Alternative A would only partially satisfy the planning goals we developed for water resources; partnerships and refuge complex operations; and research, science, and wilderness review.

Alternative A would not meet the stated goals for restoring and improving biological integrity, environmental health, and habitat diversity across the refuge complex.

Although we would continue to protect and manage habitat on Alamosa National Wildlife Refuge for riverine, riparian-dependent, and other species, we have no control over the hydrological conditions of the Rio Grande, where willow habitat has been negatively affected due to declining water levels.

On the Baca National Wildlife Refuge, we would continue to address obvious signs of degradation of the five creek corridors using our existing resources (limited monitoring, fencing, and dispersal). However, other than the actions we identified in an interim elk management plan, which includes limited dispersal hunts on the Baca Refuge in the areas formerly owned by the State, few other tools would be available for addressing ongoing elk management concerns within the refuge complex.

Under alternative A, we would continue to provide wetland and roost habitat for migrating sandhill cranes and waterfowl when water is available. Anticipated changes in State water law (ground water rules and regulations) would likely affect the future

volume and timing of available water on the refuge. In the long term, our wetland habitats would not be able to support the migrating and nesting populations of wildlife species that they have in the past.

Alternative A would not satisfy the visitor services goal. There is a lack of dedicated resources for providing visitor services and outreach, and there are relatively few opportunities for most visitors to participate in wildlife-dependent recreation activities on the refuge complex. Baca National Wildlife Refuge would remain closed to public access.

Under the existing CCP and the 2005 conceptual management plan for the Baca Refuge, protection of cultural resources was not identified as a specific goal. Within the existing staff levels, it is difficult to increase protection, monitoring, outreach, interpretation, or partnerships beyond basic adherence to cultural resource laws before implementing new projects. Therefore, alternative A does not satisfy the cultural resources goal or it does so only minimally.

Alternative A would only partially satisfy the research, science, and wilderness review goals of the CCP. No areas would be recommended for protection of wilderness values that are found on Baca National Wildlife Refuge.

As detailed in the Final CCP and EIS, Appendix G, Responses to Comments on the Draft CCP and EIS, we received little public support for continuing to manage the refuge complex under the no-action alternative.

However, some commenters opposed allowing for big game hunting or hunting of any kind either as a management tool or a recreational opportunity. Under alternative A, only the existing waterfowl and limited small game hunting programs would continue on Alamosa and Monte Vista National Wildlife Refuges, but big game hunting would not be used to manage elk. Some felt there should be a 5-year moratorium before implementing a big game hunt. This view was not shared by our cooperating agencies, other conservation organizations, or individuals who support big game hunting on the refuge complex.

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## **Alternative C—Habitat Restoration and Ecological Processes**

We would take all feasible actions to restore or mimic, where needed, the native vegetation community based on ecological site characteristics, ecological processes (hydrologic conditions and other natural disturbances such as grazing and fire), and other abiotic factors. We would continue to provide compatible wildlife-dependent public uses, but they

would be adapted in response to changes in area management. Our partnership efforts would be broadened and geared toward restoring native vegetation communities and mimicking natural hydrologic conditions.

### ***Habitat and Wildlife Resources***

We would restore vegetative communities in the refuge complex to mimic the ecological conditions that existed before Euro-American settlement of the area. For example, we would restore the function of both the riparian areas and playas on the Baca National Wildlife Refuge and identify potential habitat conditions for the three refuges.

We would apply natural disturbance regimes such as prescribed grazing and fire in other habitats. Where practical, we would restore natural waterflow patterns. We would end production of small grains for migrating sandhill cranes on the Monte Vista National Wildlife Refuge.

We would use hunting to manage the populations and distribution of elk and improve the long-term health of riparian habitat. Similar to alternative B, our priority would be to improve habitat for all native species, but particularly threatened and endangered species and other species of concern. For example, we would actively restore additional cottonwood and willow riparian areas for southwestern willow flycatcher along the Rio Grande on the Alamosa National Wildlife Refuge and reintroduce Rio Grande chub and Rio Grande sucker along creeks on the Baca National Wildlife Refuge where they historically occurred.

As with alternative B, we would phase out the existing arrangement with The Nature Conservancy for bison on former State lands. Knowing that bison occurred historically to some extent in the San Luis Valley, we would attempt to periodically (not every year) use bison on the Baca National Wildlife Refuge to mimic the ecological benefit they may have once provided.

### ***Water Resources***

We would manage water to restore the hydrologic conditions with less focus on habitat management for specific species or for providing wildlife viewing. We would evaluate the need to supplement existing water supplies while considering restoration of historic hydrology, especially on the Monte Vista and Alamosa Refuges. In some years, water may not be available to meet life cycle needs for some waterfowl species. We would remove or modify existing water infrastructure as needed. Water quality monitoring would also be increased.

## **Visitor Services**

We would continue to allow waterfowl and limited small game hunting on the Monte Vista and Alamosa Refuges. Similar to alternative B, we would open the Baca Refuge for big game and limited small game hunting. On the Monte Vista and Alamosa Refuges, we would rely on public hunting or limited big-game methods for elk management.

On Alamosa and Monte Vista Refuges, there could be changes in public use, depending on the habitat management action. Some areas could be closed. Current public access would be evaluated on the Alamosa and Monte Vista Refuges. If existing roads or trails are not needed or if these facilities fragment habitat, they could be removed or altered. Viewing areas for sandhill cranes could be moved, depending on restoration efforts. Service participation in the Monte Vista Crane Festival could be adjusted, depending on changes in the location and concentration of sandhill cranes. We would provide on-site interpretation and environmental education programs on the Alamosa and Monte Vista Refuges as funding allows, and our key messages would relate to our restoration efforts.

Except for limited hunting access to achieve management objectives, there would be no facilities or programs on the Baca Refuge. For example, an auto tour route, nature trails, and restrooms would not be developed.

## **Cultural Resources and Tribal Coordination**

Actions would be similar to those under alternative B but more structures could be removed and there would be less educational outreach.

## **Partnerships and Refuge Complex Operations**

We would seek to increase partnerships with a variety of agencies, organizations, and universities to achieve management objectives, restore ecological processes, and improve the efficiency of overall refuge management operations. On all refuges, roads would be evaluated, and roads that are not needed or that are fragmenting habitat would be removed.

## **Research, Science, and Wilderness Review**

Similar to alternative B, we would increase efforts in studying habitats and wildlife, particularly

with respect to climate change as well as to land and water protection.

Also similar to alternative B, we would recommend that about 13,800 acres along the southeastern boundary of the Baca Refuge be managed as a wilderness study area.

## **Rationale for Not Selecting Alternative C**

Alternative C was not selected for implementation. Although alternative C could be the best alternative for restoring the long-term biological health and ecological function of the refuge complex, there would likely be fewer wetlands and subsequently fewer waterfowl and other waterbirds, including sandhill cranes, that could be supported on the refuge complex.

Alternative C would partially satisfy our visitor services goal by opening the Baca Refuge to public hunting. We would add more staff for visitor services programming on the refuge complex. The elimination of grain production for cranes and the loss of at least one roost area could have a major negative effect on wildlife viewing on Monte Vista Refuge. Alternative C would provide for the least amount of accessible facilities on the refuge complex.

Alternative C would partially achieve our goals for cultural resources and tribal coordination. Insignificant structures that are not needed for refuge operations could be removed, and new cultural resource priorities would be established. With more management focus on restoration of vegetative communities, there would not be the educational outreach and volunteer and interpretive opportunities that were identified under alternatives B and D that were related to cultural resources. Alternative C would satisfy our goals for partnerships; refuge complex operations; and research, science, and wilderness review.

Overall, we received only a few comments in support of alternative C. None of our cooperating agencies supported alternative C. One tribe supported alternative C, primarily because of the desire for fewer public use opportunities. Several commenters expressed concerns about eliminating grain production on Monte Vista Refuge and the potential effects it would have on greater sandhill cranes. Several commenters supported the idea of rotating water through the playas more frequently than under alternative B.

## **Alternative D—Maximize Public Use Opportunities**

We would manage wildlife and habitats on the refuge complex consistent with our mission and the purposes of the refuges while emphasizing quality visitor experiences and compatible wildlife-dependent public uses. Partnerships that complement our efforts to accommodate and provide for the priority public uses would be strengthened.

### ***Habitat and Wildlife Resources***

Similar to alternative A, we would manage wetlands to maximize waterbird production at the Monte Vista and Alamosa National Wildlife Refuges. We would also irrigate areas that are closer to public access and viewing areas at the Baca Refuge to enhance wildlife viewing. Riparian and upland habitats would be conserved for migratory birds. We would increase the agricultural production of small grains for sandhill cranes on the Monte Vista National Wildlife Refuge (about 230 acres), and grain production could also be used in a specific place or time to enhance wildlife viewing. A key difference from alternatives A and C, but similar to alternative B is that we would improve public education about the role that the refuge complex plays in the San Luis Valley and across the Refuge System.

We would offer opportunities for elk hunting and viewing. Elk numbers would be managed at levels that would restore and foster the long-term health of native plant communities.

We would collaborate with other agencies for public access, law enforcement, and management of elk. Similar to alternative B, habitats for native species, listed species, and other species of concern would be improved, but we would emphasize public education in our restoration efforts.

Similar to alternatives B and C, the existing arrangement with The Nature Conservancy for bison management on former State lands at the Baca National Wildlife Refuge would be phased out. We would introduce and manage a small bison herd on a confined area of the Baca National Wildlife Refuge. Wildlife viewing and interpretation opportunities would be emphasized and incorporated into this program.

Similar to all the other alternatives, invasive and noxious weeds would be controlled using chemical, mechanical, or manual methods or through the use of livestock grazing. Under this alternative, however, public education and awareness of the effects that invasive weeds have on native plant communities would be a key message for interpretation.

As under all alternatives, prescribed fire would be used. There would be a concerted effort to talk with the public about the role of fire on the landscape and garner support for strengthening the fire program. Similar to alternative B, we would pursue more funding for the protection of human safety following local, State, and national guidelines and strategies, but would limit having to maintain facilities that could increase the Service's legal obligations on and off the site.

### ***Water Resources***

We would manage water in a manner similar to alternative B except that more effort would be given to making sure there is water in specific areas or at specific times to enhance wildlife viewing. The spatial distribution of water would be managed to make the visitor's experience richer. A high priority would be placed on maintaining operation of wells that provide important wildlife viewing habitat. All of our wells would be augmented and would comply with Colorado water law. More water could also improve wildlife viewing opportunities. Ground water and surface water could be used to enhance areas used by sandhill cranes or provide more opportunities to see wildlife rather than merely providing for the life cycle needs of species less important to public uses. Similarly, we would improve infrastructure in areas that are highly valued by visitors to better facilitate wildlife observation. Water quality monitoring would be increased, and collaboration with a citizen scientist group or with schools or universities would be sought out.

### ***Visitor Services***

Alternative D would provide for the widest variety of compatible wildlife-dependent recreation. We would encourage and provide for big game and limited small game hunting on the Baca National Wildlife Refuge, with public dispersal hunts on the Monte Vista and Alamosa National Wildlife Refuges and limited small game hunting opportunities for all, including youth hunts and considerations for accessibility. Similar to alternative B, access would be expanded for all refuges, including opening the Baca National Wildlife Refuge for public uses. More trails, viewing blinds, restrooms, parking areas, and access points would be constructed.

Although our responsibilities for habitat and wildlife management come first, we would also consider and emphasize visitor experience when designing or locating visitor access or using existing infrastructure. With more staff and volunteers to support a wider range of compatible programs and facilities, we would increase interpretation and educational oppor-

tunities. Limited fishing access would be allowed on the Alamosa National Wildlife Refuge. Commercial uses, such as photography or art groups, would be considered. Public education and interpretation would highlight how visitor behavior can be modified to reduce wildlife disturbance.

### **Cultural Resources**

Actions would be similar to alternative B, except there would be a greater emphasis on using students or volunteers to survey areas with high potential for cultural resources.

### **Partnerships and Refuge Complex Operations**

Actions would be similar to alternative B, except we would pursue more partnerships and funding for priority public uses as well as securing resources to protect, enhance, and interpret significant cultural resources.

### **Research, Science, and Wilderness Review**

Similar to alternative B, we would increase efforts to study habitats and wildlife, particularly with respect to understanding the effects of climate change and its effects on the resources of the San Luis Valley. How climate change affects the resources on the refuge complex would be incorporated into public use themes and messages.

Similar to alternatives B and C, we would recommend that wilderness values on the Baca National Wildlife Refuge be protected.

### **Rationale for Not Selecting Alternative D**

Alternative D was not selected for implementation. Alternative D would partially meet our goals for habitat and wildlife management. Similar to alternatives B and C, we would prioritize restoration of the creek corridors on the Baca National Wildlife Refuge; however on Alamosa National Wildlife Refuge, it would be more difficult to achieve our riparian objectives given that the overall water management strategy would not change to any significant degree. This alternative would require the most investment in providing for visitor services, and fewer resources could be used for habitat improvements.

Some stakeholder agencies, or organizations, and members of the public expressed support for some elements of alternative D, but overall it was not widely supported by agencies, organizations, or the

public. Many organizations and stakeholders felt it went too far in providing for economic uses, in spite of the fact that all public and economic uses are subject to compatibility requirements.

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## **Tribal Involvement and Consultation**

The Service sent letters of notification about the planning process including an invitation to participate on the planning team to the following tribes:

- Jicarilla Apache Nation, Dulce, NM
- Navajo Nation, Window Rock, AZ
- Pueblo of Acoma, Acoma, NM
- Pueblo of Cochiti, Cochiti, NM
- Pueblo of Jemez, Jemez Pueblo, NM
- Pueblo of Laguna, Laguna, NM
- Pueblo of Picuris, Penasco, NM
- Pueblo of San Ildefonso, Santa Fe, NM
- Pueblo of Santa Clara, Española, NM
- Pueblo of Taos, Taos, NM
- Southern Ute Tribe, Ignacio, CO
- Uintah and Ouray Ute Indian Tribe, Fort Duchesne, UT
- Ute Mountain Ute Tribe, Towaoc, CO

We have continued to discuss key aspects of the CCP with interested tribes who have been actively involved in several cultural resources issues in the San Luis Valley.

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## **Public Involvement and Outreach**

A notice of intent to develop a CCP and a request for comments was published in the Federal Register on March 15, 2011 (FR 76 (50): 14042-44). The notice of intent notified the public of our intent to begin the CCP and EIS process.

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## **Comments on the Draft CCP and EIS**

The draft CCP and EIS was released to the public for a 60-day public review and comment period on August 26, 2014, following publication of a notice of availability in the Federal Register (FR 79 (165): 50937-39). We allowed comments to be submitted until November 3, 2014. We received over 1,000 comments on the draft CCP and EIS, including letters

from several tribes, our cooperating agencies, other governmental agencies, other conservation organizations, form letters (petitions), and individual comments. We responded to all the substantive comments we received in Appendix G of the Final CCP and EIS.

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## Comments on the Final Plan and EIS

The final CCP and EIS was published in the Federal Register on August 12, 2015 (FR 80 (155): 48328-31), and the 30-day waiting period ended on September 23, 2015.

No comments were received on the final CCP and EIS.

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## Environmentally Preferable Alternative

The environmentally preferable alternative is defined as the “alternative that will promote the national environmental policy as expressed in NEPA’s Section 101. Typically, this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves and enhances historic, cultural and natural resources” (Forty Most Asked Questions Concerning Council of Environmental Quality’s National Environmental Policy Act Regulations, 1981).

We believe alternative B—Wildlife Populations, Strategic Habitat Restoration, and Enhanced Public Uses, is the environmentally preferable alternative. We believe alternative B balances the need to manage our water resources more efficiently and to take greater advantage of natural hydrological and ecological functions; it would also enable us to achieve a variety of wetland conditions to support a diversity of migratory birds and other wildlife. This is a key difference between whether alternative B or C is the environmentally preferred alternative.

Under alternative C, wetland management objectives would be similar to those under alternatives B and D, except that we would provide water only to natural wetland areas and historic flowpaths and would do so during times and at depths which mimic the natural hydrology. Under alternative C, we would take all feasible actions to restore or mimic the native vegetation and ecological conditions that existed before Euro-American settlement.

Alternative B tailors wetland and vegetative management to be more responsive to current and future hydrological conditions because less surface water will be available to support wetland habitats in the future. Alternative B is environmentally preferable because it makes more efficient and effective use of scarce water resources in maintaining native habitats while allowing for the restoration of former wetland areas to native upland conditions.

Under alternative C, removing levees and allowing created wetland areas to revert back to native upland vegetation would result in substantially fewer acres of wetland habitat and would reduce the overall level of wetland resources available for wildlife. However, these effects may be offset by the creation of habitat for upland wildlife species, a reduction in invasive weed infestations, and the greater availability of water to support and manage natural wetland areas.

Under alternative C, with a reduction in the number of roost areas on the Monte Vista National Wildlife Refuge (two out of three), the same number of cranes would have to fit into a smaller area, which could raise the potential risk for disease outbreaks. It is not clear whether eliminating grain production on the refuge would reduce the overall body condition of cranes during their spring and fall migration. Under alternative B, we would initiate a research project designed in part to better understand the energetic demands of sandhill cranes migrating through the San Luis Valley and how trends and changes in agricultural practices in the San Luis Valley could affect sandhill cranes in the long term. We think this strategy is preferable to alternative C.

Under alternative C on the Baca Refuge, changing to a more natural hydrologic condition that would keep more water in the creek channels would reduce the water availability for wet meadow habitat and reduce the overall extent of that habitat type.

There are some nuanced differences in protecting cultural and historic resources between alternatives B and C and in implementing big game hunting on all three refuges and opening Baca Refuge to limited small game hunting. Under alternative B, using public hunting as a management tool, in addition to providing for quality wildlife-dependent recreation (which has deep cultural roots in the San Luis Valley) also gives us greater flexibility to effectively manage elk to meet our habitat objectives by keeping elk more evenly distributed between refuge lands and other surrounding lands.

Under alternative B (and D), known sites and sensitive areas would get more law enforcement protection and education (staffing resources). Under alternative C, because natural processes and restoration would be emphasized, more non-significant structures and buildings could be removed.

Bison conservation continues to be an important issue for us, the Department of Interior, and many stakeholder groups. We believe the approach taken under alternative B to carefully research the potential for bison occurrence on Baca National Wildlife Refuge is environmentally preferable. This will ensure that their occurrence does not have an adverse impact on the habitats for other species.

In consideration of our mission and policies and the past history of the three national wildlife refuges, we believe that striking a balance between managing for a diversity of wildlife while restoring the ecological function of the wildlife habitats found across the refuge complex is the environmentally preferable alternative.

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## Measures to Minimize Environmental Harm

Throughout the planning process, we took into account all practicable measures to avoid or minimize environmental impacts that could result from the implementation of alternative B. These measures include the following:

- Continue maintaining solar power production and recycling efforts; increase energy efficiency; and adopt other ways to reduce the refuge complex's carbon footprint.
- Collaborate with the Colorado State Division of Water Resources, the Rio Grande Water Conservation District, and other partners to monitor river flows and ground water levels throughout the Upper Rio Grande watershed.
- Collect information on the timing, volume, and duration of surface water delivery to each refuge.
- Minimize emissions and particulates by following the best management practices when using motorized equipment and conducting restoration activities.
- Prescribed fire will be carried out under an approved fire plan and stringent smoke management plans. Reducing mortality, particularly during breeding seasons, will be considered in the application and timing of prescribed fire.
- Use careful planning in locating and building visitor facilities or road improvements to minimize disturbances, particularly during critical breeding periods. Controlling the numbers of ungulates, use of fencing (including wildlife-friendly fencing), and management of water structures are measures that will be incorporated into the plan.
- Use the best management practices during construction activities, restoring flowpaths, excavation of cultural resources, and the development of visitor services structures or facilities. Limit soil disturbance during dry or windy periods, using erosion controls, properly maintaining roads and culverts, keeping livestock out of riparian areas, and using the minimal tools necessary to accomplish the objective.
- Design all new facilities, including buildings, roads, and trails to limit their visual impact on the landscape. New facilities built on the Baca Refuge should reduce light pollution through the use of motion-activated lighting or should be directed away from or shielded from the Baca Grande subdivision, in keeping with the subdivision's policies for lighting. Any new use of alternative energy structures (windmills or solar panels) will be carefully sited to limit any visual impacts.
- Where possible, use the following principles to minimize the impacts of all roads in refuge complex:
  - locate roads away from streams and riparian areas;
  - locate roads away from steep slopes, landslide prone areas, and erosive soils;
  - when road stream crossings are unavoidable, construct roads during periods of low flow to avoid fish spawning and incubation periods, and dewater relevant stream segments prior to construction;
  - provide adequate drainage and control of erosion to avoid routing sediment into streams;
  - use bottomless or textured bottom culverts; and

- design roads around natural drainage patterns.
- Minimize human disturbance from habitat management activities and visitor services during the nesting season to limit impacts to biological resources. This could include several measures ranging from increased visitor education, monitoring, law enforcement, seasonal closures, and re-routing trails if needed.
- Review any mitigation requirements for any unavoidable adverse effects on historic properties resulting from our actions to ensure compliance with Section 106 of the National Historic Preservation Act. This process will be guided by the Service's cultural resources staff and will be done in consultation with the State Historic Preservation Office, the tribes, and other consulting parties.
- Obtaining all required permits.

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## Consultation Requirements: Section 7 of the Endangered Species Act

Several species in the San Luis Valley are listed as threatened or endangered species under the Endangered Species Act. These species were documented through an Intra-Service Section 7 Consultation. The only known threatened or endangered species found on the refuge complex (Alamosa Refuge) is the southwestern willow flycatcher (*Empidonax traillii extimus*).

New Mexico meadow jumping mouse (*Zapus hudsonius*) is an endangered species whose presence in the project area is unknown. The refuge complex is not in designated critical habitat for this species, but there are no known surveys that have been conducted in the project area.

There are several endangered or threatened species that are found in the San Luis Valley but not within the action area. A very small population of Gunnison sage grouse (*Centrocercus minimus*), which is federally listed as threatened, may occur near Poncha Pass, but the area was not designated as critical habitat and none are known to occur on the three refuges. Canada lynx (*Lynx canadensis*) (federally listed as threatened) is found at higher elevations in the San Luis Valley but not on the three refuges. Western-billed cuckoo (*Coccyzus america-*

*nus*) (federally listed as threatened) has been documented in dense, old-growth cottonwood habitats near McIntire Springs (in BLM area to the south) but this type of habitat is very limited on Alamosa Refuge, and the species has never been observed on the three refuges. Mexican spotted owl (*Strix occidentalis lucida*) has not been observed on the refuges, and since there are no mature montane forests, woodlands, shady-wooded canyons, or steep canyons, it is unlikely to occur. Currently, there are no species that are proposed for or candidates for listing found on the three refuges.

Through the intra-Service consultation process, we concluded that our preferred alternative (B) may affect but is not likely to adversely affect any protected species.

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## Section 106 of the National Historic Preservation Act

Activities outlined in alternative B have the potential to negatively affect cultural resources, either by direct disturbance during construction of habitat projects and facilities related to public use or administration and operations, or indirectly by exposing cultural and historic artifacts during management actions such as habitat restoration or prescribed burning. Prior to any undertaking that would be subject to Section 106 of the National Historic Preservation Act, activities that could negatively affect cultural resources will be identified, and options for minimizing negative effects will be discussed prior to implementation of the preferred alternative, including entering into consultation with the State Historic Preservation Officer and other parties as appropriate. We will protect all known burial sites.

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## Protection of Wetlands and Riparian Areas

Activities outlined in alternative B are aimed at restoring several riparian areas on Baca National Wildlife Refuge and selected backchannel areas on Alamosa National Wildlife Refuge. We will continue to provide water to both created and natural wetlands on Monte Vista and Alamosa Refuges. Although our water management would attempt to follow natural hydrologic cycles, we will have the flexibility to apply water in times or locations that are not natural, such as late summer and fall, to sup-

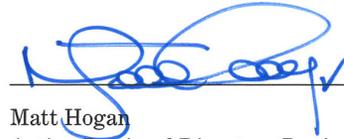
port fall migration or waterfowl hunting. However, some created wetlands will no longer be irrigated, and this water will instead be provided to natural flowpaths and riparian areas.

These strategies are expected to help preserve the long-term function and productivity of wetland habitat and to promote wetland communities that are ecologically resilient to climatic and hydrologic changes. With the more dynamic use of water in combination with using disturbance events such as big game hunting, prescribed fire, grazing, and haying, we want to create a diverse set of habitat conditions that will help wetland-dependent wildlife, especially waterfowl, wading birds, shorebirds, and songbirds.

On the Baca Refuge, one of the creek systems will no longer be used to irrigate wet meadow habitat because the water would be kept instream and provided to playa habitat when possible (every 1–3 years). While this is expected to result in short-term effects on these wet meadow areas, the re-establishment of a natural hydrologic cycle could increase the vegetative diversity and improve overall wetland health and function in these wet meadows, which would result in a long-term benefit. In addition, the shallowly inundated portions of wet meadows are expected to have a wider distribution in the upper portions of the meadows than the lower portions, which will result in a moderate to major effect on the vegetation composition in the downstream sections of wet meadow that will no longer be flood irrigated. These downstream portions of wet meadow are expected to convert from short-emergent wetland to grassland.

We will incorporate applicable regulatory compliance such as wetlands permitting into any dike or wetland removal efforts.

decision. Based on the above information, we have selected alternative B for implementation.

  
 Matt Hogan  
 Acting Regional Director, Region 6  
 U.S. Fish and Wildlife Service

10.21.15  
 Date

## Finding and Basis for Decision

We have considered the environmental and relevant concerns presented by agencies, tribes, organizations, and individuals on the proposed action to develop and implement a comprehensive conservation plan for the refuge complex.

Alternative B was selected for implementation because it achieves a reasonable balance between the significant resource management issues, the purposes of the refuges, the mission of the Refuge System, and the interests and perspectives of all stakeholders.

All public, tribal, and agency comments received during the environmental process were reviewed. The issues and comments raised were addressed in the final CCP and EIS. Comments and responses on the final CCP and EIS are addressed in this record of



# Appendix B

## *Key Legislation and Policies*

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This appendix briefly describes the guidance for the National Wildlife Refuge System and other policies and key legislation that guide the management of the San Luis Valley National Wildlife Refuge Complex.

### **B.1 National Wildlife Refuge System**

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. (National Wildlife Refuge System Improvement Act of 1997.)

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### **Goals**

- Conserve a diversity of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered.
- Develop and maintain a network of habitats for migratory birds, anadromous and inter-jurisdictional fish, and marine mammal populations that is strategically distributed and carefully managed to meet important life history needs of these species across their ranges.
- Conserve those ecosystems, plant communities, wetlands of national or international significance, and landscapes and seascapes that are unique, rare, declining, or under-represented in existing protection efforts.
- Provide and enhance opportunities to participate in compatible wildlife-dependent

recreation (hunting, fish, wildlife observation and photography, and environmental education and interpretation).

- Foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats.

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### **Guiding Principles**

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

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

## B.2 Other Legal and Policy Guidance

Management actions on national wildlife refuges are constrained by many mandates including laws and Executive orders. The more common regulations that affect refuge complex management are listed below.

- American Indian Religious Freedom Act (1978): Directs agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve Native American religious cultural rights and practices.
- Americans with Disabilities Act (1992): Prohibits discrimination in public accommodations and services.
- Antiquities Act (1906): Authorizes the scientific investigation of antiquities on Federal land and provides penalties for unauthorized removal of objects taken or collected without a permit.
- Archaeological and Historic Preservation Act (1974): Directs the preservation of historic and archaeological data in Federal construction projects.
- Archaeological Resources Protection Act (1979), as amended: Protects materials of archaeological interest from unauthorized removal or destruction and requires Federal managers to develop plans and schedules to locate archaeological resources.
- Architectural Barriers Act (1968): Requires federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.
- Bald and Golden Eagle Protection Act (1940): Provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds.
- Bureau of Reclamation Project Authorization Act (1972): Public Law 92-514 (Closed Basin Project) allowed for furnishing water for operation of Alamosa National Wildlife Refuge.
- Clean Air Act (1970, amended 1990): Restricts the amount of pollutants that can be emitted into the air. Designated wilderness areas including the Great Sand Dunes National Park and Preserve (adjacent to portions of Baca National Wildlife Refuge) have the highest standards (class I) for pollution and visibility.
- Clean Water Act (1977): Requires consultation with the U.S. Army Corps of Engineers (404 permits) for major wetland modifications.
- Closed Based Project (1972): BOR is authorized by Public Law 92-514 (October 20, 1972) to operate and maintain the Closed Basin Project through portion of the San Luis Valley including Alamosa and Baca Refuges for the transport of water into the Rio Grande for the fulfillment of the United States' obligation to Mexico and for furnishing water downstream of Alamosa Refuge for deficient areas of Colorado, New Mexico, and Texas. This is accomplished through direct diversion of water out of the closed basin system.
- Data Quality Act (2001): Requires Government agencies to ensure and maximize the quality, objectivity, utility, and dissemination of information by Federal agencies.
- Dingell-Johnson Act (1950): Authorizes the Secretary of the Interior to provide financial assistance for State Fish restoration and management plans and projects. Financed by excise taxes paid by manufacturers of rods, reels, and other fishing equipment.
- Emergency Wetlands Resources Act (1986): Promotes wetland conservation for the public benefit to help fulfill international obligations in various migratory bird treaties and conventions. The act authorizes buying wetlands with Land and Water Conservation Fund monies.
- Endangered Species Act (1973): Requires Federal agencies to carry out programs for the conservation of endangered and threatened species.
- Enhancement Act (2000): Public Law 106-54 authorized the Secretary of Army, working with the Secretary of Interior, to

- identify cabin sites suitable for conveyance to current lessees. The funds received will be used for acquiring other lands with greater wildlife and other public value for the refuge.
- Executive Order 11988 (1977): Requires Federal agencies to provide leadership and take action to reduce the risk of flood loss, minimize the impact of floods on human safety, and preserve the natural and beneficial values served by the floodplains.
  - Executive Order 12996, Management and General Public Use of the National Wildlife Refuge System (1996): Defines the mission, purpose, and priority public uses of the National Wildlife Refuge System. It also presents four principles to guide management of the Refuge System.
  - Executive Order 13007, Indian Sacred Sites (1996): Directs Federal land management and other agencies to accommodate access to and ceremonial uses of Indian sacred sites by Indian religious practitioners, avoid adversely affecting the physical integrity of such sacred sites and, where appropriate, maintain the confidentiality of sacred sites.
  - Executive Order 13352, Cooperative Conservation (2004): Directs Federal agencies to implement laws relating to the environment and natural resources in a manner that promotes cooperative conservation with an emphasis on appropriate inclusion of local participation in Federal decisionmaking in accordance with respective agency missions and policies.
  - Executive Order 13443, Facilitation of Hunting Heritage and Wildlife Conservation (2007): Directs Federal land management and other agencies to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat.
  - Executive Order 13653, Preparing the United States for the Impacts of Climate Change (2013): Directs Federal Government agencies to build on recent progress and pursue new strategies to improve the Nation's preparedness and resilience in preparing and adapting to climate change.
  - Federal Noxious Weed Act (1990): Requires the use of integrated management systems to control or contain undesirable plant species and an interdisciplinary approach with the cooperation of other Federal and State agencies.
  - Federal Records Act (1950): Requires the preservation of evidence of the Government's organization, functions, policies, decisions, operations, and activities, as well as basic historical and other information.
  - Fish and Wildlife Coordination Act (1958): Allows the U.S. Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes.
  - Great Sand Dunes National Park and Preserve Act (2000): Public Law 106-530 was passed by Congress on November 22, 2000. Section 6 of the Act authorized the establishment of Baca National Wildlife Refuge. It also recognized the significant diversity of resources within the Great Sand Dunes ecosystem and changed the park from its national monument status to a national park. The Act was amended in 2009 by Public Law 111-8 to provide purposes for Baca Refuge.
  - Migratory Bird Conservation Act (1929): Establishes procedures for acquisition by purchase, rental, or gifts of areas approved by the Migratory Bird Conservation Commission.
  - Migratory Bird Hunting and Conservation Stamp Act (1934): Authorizes the opening of part of a refuge to waterfowl hunting.
  - Migratory Bird Treaty Act (1918): Designates the protection of migratory birds as a Federal responsibility, and enables the setting of seasons and other regulations including the closing of areas, Federal or non-Federal, to the hunting of migratory birds.
  - Native American Policy (1994): Articulates the general principles that guide the Service's government-to-government relationship to Native American governments in the conservation of fish and wildlife resources.
  - National Environmental Policy Act (1969): Requires all agencies, including the Service,

to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate this act with other planning requirements, and prepare appropriate documents to facilitate better environmental decisionmaking. [From the Code of Federal Regulations (CFR), 40 CFR 1500]

- National Historic Preservation Act (1966), as amended: Establishes as policy that the Federal Government is to provide leadership in the preservation of the Nation's prehistoric and historical resources.
- National Wildlife Refuge System Administration Act (1966): Defines the National Wildlife Refuge System and authorizes the Secretary of the Interior to permit any use of a refuge, provided such use is compatible with the major purposes for which the refuge was established.
- National Wildlife Refuge System Improvement Act of 1997: Sets the mission and administrative policy for all refuges in the National Wildlife Refuge System; mandates comprehensive conservation planning for all units of the Refuge System.
- Native American Graves Protection and Repatriation Act (1990): Requires Federal agencies and museums to inventory, determine ownership of, and repatriate cultural items under their control or possession.
- Paleontological Resources Preservation Act of 2009: Requires the Secretary of Interior and Agriculture to manage and protect paleontological resources on Federal land using scientific principles and expertise.
- Refuge Recreation Act (1962): Allows the use of refuges for recreation when such uses are compatible with the refuge's primary purposes and when sufficient funds are available to manage the uses.
- Rehabilitation Act (1973): Requires programmatic accessibility in addition to physical accessibility for all facilities and programs funded by the Federal Government to ensure that any person can participate in any program.
- Rivers and Harbors Act (1899): Section 10 of this act requires the authorization of U.S. Army Corps of Engineers before any work in, on, over, or under navigable waters of the United States.
- Sangre de Cristo National Heritage Area (2009): National heritage areas are set aside by Congress. The Sangre de Cristo National Heritage Area was established in Public Law 111-11 on March 30, 2009 for the purposes of providing integrated and cooperative approach for the "protection, enhancement, and interpretation of the natural, cultural, scenic, and recreational resources of the Heritage Area."
- Volunteer and Community Partnership Enhancement Act (1998): Encourages the use of volunteers to help in the management of refuges within the Refuge System; facilitates partnerships between the Refuge System and non-Federal entities to promote public awareness of the resources of the Refuge System and public participation in the conservation of the resources; and encourages donations and other contributions.
- Wilderness Act (1964): The act (Public Law 88-577) [16 U.S.C. 1131-36] defines wilderness as "A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain."

# Appendix C

## *Preparers and Contributors*

This document is the result of the extensive, collaborative, and enthusiastic efforts by the members of the planning team, cooperating agencies, and other Service or agency contributors listed below.

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Mike Blenden (Transferred to Regional Office)	Project Leader, San Luis Valley National Wildlife Refuge Complex	B.S. and M.S. Wildlife Management 32 years	Project coordination, organization, writing, and review
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Scott Miller	Wildlife Biologist, San Luis Valley National Wildlife Refuge Complex	B.S. Wildlife Ecology M.S. Wildlife Biology 17 years	Writing and reviewing
Suzanne Beauchanne	Alamosa and Monte Vista Refuge Manager	B.S. Wildlife Ecology 24 years	Writing and reviewing
Ron Garcia	Baca Refuge Manager	B.S. Field Biology 26 years	Writing and reviewing
Corinna Hanson	Deputy Refuge Manager, Baca Refuge	B.S. Criminal Justice M.S. Wildlife Ecology 5 years	Writing and reviewing
Dean Lee	Biological Technician, San Luis Valley National Wildlife Refuge Complex	B.A. Wildlife Biology 15 years	Alternative and biological objectives development, review
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Lee Ann Duran	Administrative Support, San Luis Valley National Wildlife Refuge Complex	Generalist; Administrative Assistant 4 years	Assistance with project coordination
Barbara Boyle	Refuge Supervisor, Colorado, Kansas, Nebraska	B.S. Zoology 28 years	Project overview
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**U.S. Fish and Wildlife Service Staff Planning Team**

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Meg Van Ness	Regional Historic Preservation Officer	B.A. Anthropology and Archaeology M.A. Anthropology and Archaeology 40 years	Alternative and objective development, writing and review
Murray Laubhan	Zone Biologist, Quivera National Wildlife Refuge	M.S. Wildlife Management 27 years	Biological assistance, alternative development and review

**Cooperating Agency Members**

The Cooperating Agency Members Role: Primary representative(s) of respective agencies at meetings; participated in planning team meetings; helped identify issues; provided input on alternative approaches and objectives and strategies; reviewed draft planning documents and provided information as requested.

<i>Name</i>	<i>Agency and/or Position</i>
Rick Basagoitia,	Colorado Parks and Wildlife
Stephanie Ferrero	Colorado Parks and Wildlife, Monte Vista, Colorado
Craig Cotton	State Engineer, Colorado Division of Water Resources
Dan Dallas	Forest Supervisor/San Juan Public Lands Center Manager, Monte Vista, Colorado
Mike Collins	Natural Resources Conservation Service, Alamosa, Colorado
Ruth Lewis	Natural Resources Conservation Service, Alamosa, Colorado
Lisa Carrico	Superintendent, National Park Service, Great Sand Dunes National Park and Preserve
Fred Bunch	National Park Service, Great Sand Dunes National Park and Preserve
Phyllis Pineda Bovin	National Park Service Biologist
Andrew Valdez	National Park Service Geologist
Sue Swift-Miller	Bureau of Land Management, San Juan Public Lands Center
Ken Beck (retired)	Bureau of Reclamation, Alamosa, Colorado

**Other Service or Agency Contributors**

<i>Name</i>	<i>Agency and/or Position</i>	<i>Contributions</i>
Mark Ely	Region 6 Division of Refuge Planning, GIS Specialist, Lakewood, Colorado	Prepared GIS maps for document
Linda Moeder	Region 6 Division of Refuge Planning, GIS Specialist, Lakewood, Colorado	Prepared GIS maps for document
Melvie Uhland	Outdoor Recreation Planner, Division of Visitor Education and Services, Lakewood, Colorado	Assistance with developing public use objectives and overview of visitor services
Deb Parker	Region 6 Writer and Editor, Lakewood, Colorado	Editing, layout of documents
Mitch Werner	Region 6 Writer and Editor, Lakewood, Colorado	Editing, layout of documents
David Lucas	Chief, Division of Refuge Planning, Lakewood, Colorado	Planning guidance
Mike Dixon	Land Protection Planner, Region 6 Division of Refuge Planning	Lead planner for Sangre de Cristo Conservation Area, San Luis Valley Conservation Area

**Consultants**

<i>Name</i>	<i>Agency and/or Position</i>	<i>Education</i>	<i>Contributions</i>
Mimi Mather	Roothouse Studio	B.A. Sociology M.S. Landscape Architecture	Facilitation of planning team and public meetings; assistance with document preparation, particularly chapter 3
Ian Scott	Roothouse Studio		Assistance in facilitation of public use objectives workshop
Bill Mangle	ERO Resources, Natural Resources Planner, Denver, Colorado	B.S. History/Political Science M.S. Natural Resources Policy Planning	Assistance with analysis and research for reasonably foreseeable activities and cumulative impacts, and other NEPA documentation
Lynne Koontz	USGS, Ft. Collins Science Center		Regional economic profile, analysis of socioeconomic impacts
Elizabeth Myrick	Economist, USGS, Fort Collins Science Center, Colorado		Regional economic profile, analysis of socioeconomic impacts
Kathryn McDonald	Managing Editor, North State Resources, Redding, California	B.A. English	Editing, planning updates and CCP and EIS
Brooke McDonald	Editor, North State Resources, Redding, California	B.S. Soil Science	Editing, planning updates and CCP and EIS
Leslie Perry	Project Manager, North State Resources, California		
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**Individuals and Groups**

<i>Name</i>	<i>Position and/or Agency</i>
<i>Many other individuals also provided invaluable assistance with the preparation of this CCP. The Service acknowledges the efforts of the following individuals and groups toward the completion of this plan. The diversity, talent, and knowledge contributed dramatically improved the vision and completeness of this document.</i>	
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Steve Germaine	USGS, Fort Collins, Colorado
Laura Ellison	USGS, Fort Collins, Colorado
Art Hutchinson	NPS, Lakewood, Colorado
Katherine Faz	NPS, Great Sand Dunes National Park and Preserve
Greg Gillaspie	BOR, Alamosa, Colorado
Billy Elbrock	Bureau of BOR, Alamosa, Colorado

# Appendix D

## *Public Involvement*

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Following the guidance found in NEPA, the Improvement Act, and our planning policies, we have made sure that all interested groups and the public have had an opportunity to be involved in the planning process. This appendix outlines our outreach efforts during the development of the CCP and EIS.

### **D.1 Public Scoping Activities**

A notice of intent to develop a CCP and a request for comments was published in the Federal Register on March 11, 2011(76 FR Doc. 2011-5924) (FWS 2011h). The notice of intent notified the public of our intent to begin the CCP and EIS process.

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### **Public Outreach**

Early in the preplanning phase, the Service identified a process that would be inclusive of many interests and would involve a range of activities for keeping the public informed and ensure meaningful public input. To date, the Service used various methods to solicit guidance and feedback from interested citizens, organizations, and government agencies. These methods have included outreach materials, public scoping meetings, agency meetings (planning team), briefings and presentations, as well as letters, email and telephone calls.

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### **Planning Updates**

A Planning Update was mailed to about 300 persons and businesses during the period leading up to the public meetings, and most updates were mailed in mid-March 2011 (FWS 2011h). The planning update and an earlier piece titled Planning Process Summary (FWS 2011g), outlined the planning process, the draft vision and goals for the refuge, and the dates, times and locations of the public scoping meetings. Information contained in the Planning Update was announced at local agency meetings

(FWS2011h). The Planning Update distribution list consisted of individuals, agencies, and organizations who previously expressed an interest in refuge activities (FWS2011h).

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### **Press Release**

A press release announcing the planning process and notifying the public of the schedule and location of the public meetings was sent to nearly 857 media organizations throughout Colorado including congressional offices, other Federal and State agency offices, and tribal agencies. A number of news articles about the planning process appeared in a number of newspapers, radio, TV and online publications prior to the meetings. Additionally, the project leader gave a 20-minute taped radio interview with KSLV in Monte Vista, CO that aired on April 16, 2011 and another 20-minute live interview with KRZA which aired twice on April 19, 2011.

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### **Project Web Site**

The project's planning web site <[http://www.fws.gov/mountain-prairie/planning/ccp/co/alm\\_bac\\_mtv/alm\\_bac\\_mtv.html](http://www.fws.gov/mountain-prairie/planning/ccp/co/alm_bac_mtv/alm_bac_mtv.html)> was established in early March 2011. The site provides information about the public scoping meetings, as well as downloadable versions of all of the available public scoping documents. An example of the web site is included in the scoping report (FWS 2011h). All interested parties can sign up to be on the project mailing list or can provide public comment through the Web site for Region 6.

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### **Public Scoping Meetings**

The three public scoping meetings (March 29-31, 2011) were a major component of the public scoping process. The purpose of these meetings was to solicit public concerns and planning ideas that will be considered in the CCP and EIS. Meetings were held at

three locations—Alamosa, Monte Vista, and Crestone.

Following a brief welcome and introduction, Service staff made a 15-minute presentation that outlined the following points:

- Description of the Service and the purpose of the Refuge System
- CCP and EIS process
- Project schedule
- Draft Vision and goals
- Proposed San Luis Valley Conservation Area and LPP

Following the presentation, the remainder of the meeting was broken up into two components, questions and answers and public comments. During the question and answer session, the facilitator took all the audience's questions. In turn, we answered all the questions. Most of the meeting time was spent in the question and answer session. After all the questions were answered, we took comments from those who wanted to offer them. This format enabled participants to have their questions and concerns answered about the planning process and also identified many of the important issues.

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## Other Briefings

We have briefed or given a presentation to a number of entities that have included county commissioners from the affected governments, the Rio Grande Water Conservation District, and others.

For the President's America's Great Outdoor initiative, we have met with a wide array of local ranchers and stakeholders, county commissioners, State representatives, and other Federal agencies to talk about landscape conservation in the San Luis valley.

## D.2 Agency and Tribal Coordination

In accordance with the Service's planning policy, the preplanning and scoping process began with formal notification to Native American tribes and other Federal and State agencies with a land management interest and inviting them to participate as cooperating agencies and members of the planning team.

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## Native American Tribes

We sent letters of notification about the planning process including an invitation to participate on the planning team to the following tribes: Cochiti Pueblo, Pueblo of Santa Clara, Pueblo of Laguna, Pueblo of Zuni, Pueblo of Picuris, Pueblo of San Ildefonso, Pueblo of Acoma, Pueblo of Santa Ana, Pueblo of Taos, Pueblo of Jemez, Uintah and Ouray Ute Indian Tribe, Southern Ute Tribe, Ute Mountain Tribe, Jicarilla Apache Nation, Ohkay Owingeh, and Navajo Nation. We are continuing to work with interested tribes who are interested in the planning process.

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## Federal, State, and Local Agencies

We sent letters of notification about the planning process including an invitation to participate on the planning team to the following agencies: NPS, BLM and USFS (San Juan Public Lands Office), NRCS, and CPW. Subsequently, we met and briefed the six counties within the refuge boundaries about the planning process including the proposed San Luis Valley Conservation Area. The counties include: Alamosa, Rio Grande, Saguache, Conejos, Costilla, and Mineral counties.

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## Cooperating Agencies

Following notification to Native American tribes and Federal, State, and local agencies, the following agencies have participated as cooperating agencies in the development of the draft CCP and EIS: Bureau of Land Management (BLM) and the Forest Service (USFS) (both agencies are part of the San Juan Public Lands Center), National Park Service (NPS), Natural Resources Conservation Service (NRCS), Colorado Parks and Wildlife (CPW), and the Colorado Division of Water Resources. They have provided input on vision and goal, alternatives development, objectives development, and internal review of the draft CCP and EIS. We have greatly valued the input that we have received from the cooperating agencies in guiding the development of the draft CCP and EIS.

## D.3 Scoping Results

The following summarizes the methods for comment collection and analysis, the number and source of comments received and a summary of the comments. The planning team collected comments, questions and concerns about the future of the refuge through public meetings, letters, email, and other methods as described in the public scoping activities above.

### Methods for Comment Collection and Analysis

The objective of the scoping process is to gather the full range of comments, questions and concerns that the public has about management of the refuge or the planning process. All comments, questions, or issues, whether from written submissions or recorded at the public meetings were organized by topic into a spreadsheet and coded for organizational purposes. Every effort was made to document all issues, questions, and concerns. Regardless of whether comments and questions were general in nature or about specific points of concern, they were added to the spreadsheet one time.

We provided optional questions to the public that included the following:

- What suggestions do you have for managing migratory birds on the refuges in the face of climate change and declining precipitation?
- What ideas do you have regarding visitor services and wildlife-dependent public uses on the refuges, particularly Baca National Wildlife Refuge which is currently closed to any public use?
- What changes, if any, would you like to see in the management of the Alamosa and Monte Vista National Wildlife Refuges?
- What concerns do you have regarding the additional protection of wildlife and wetland habitat in the San Luis Valley? Can the use of conservation easements protect important wildlife resources in the valley?
- What concerns do you have regarding ungulate management on the refuges or reintroduction of species such as the American bison?

All comments received from individuals on Service NEPA documents become part of the official public record. Requests for information contained in comments are handled in accordance with the Freedom of Information Act, NEPA (40 CFR 1506.6 (f)) and other Department of Interior and Service policies and procedures.

### Summary of the Scoping Comments

During the initial scoping process, we received input on a wide array of topics and subtopics. Comments were submitted in writing and/or offered at the public meetings held in March 2011 in Alamosa, Monte Vista, and Moffat, Colorado.

Fifty-two people attended the three public meetings with the largest audience at the meeting in Moffat where about 33 people attended (10 at Alamosa and 9 at Monte Vista). Additionally, about 14 organizations and citizens provided written comments. Agency or organizations included the Environmental Protection Agency, Defenders of Wildlife, TNC, Lexam, and their legal firm.

Subsequently, we identified seven significant issues or topics to address (refer to chapter 1, section 1.7):

- Habitat and Wildlife Management
- Water Resources
- Landscape Conservation and Protection
- Visitor Services
- Partnerships and Operations
- Cultural Resources and Tribal Coordination
- Research, Science and Protection of the Physical Environment

## D.4 Development of Draft Alternatives

We consider alternatives development as part of an iterative process in the development of a draft CCP and EIS, meaning it continues to evolve. This phase of the project began in the fall of 2011. The core planning team developed four approaches to managing the refuge complex. This included three action alternatives including a proposed action and the no-action alternative. Each of the draft alternatives presented a different approach for future management with a varied focus on wildlife and habitat man-

agement and visitor services. Following further input from other Service staff and our cooperating agencies, we sought further input from the public during three workshops that we held from January 23-25, 2012. Similar to the initial scoping meetings, we mailed out a planning update and put out a press release. Forty-one people attended these workshops held in Alamosa, Monte Vista, and Moffat, Colorado. We also received several hundred written comments from individuals and stakeholder groups. This input shaped further development and refinement of the alternatives.

## D.5 Release of the Draft CCP and EIS

The draft CCP and EIS was released to the public for a 60-day public review and comment period on August 26, 2014 following publication of a notice of availability in the Federal Register. We allowed comments to be submitted until November 3, 2014.

### ***Outreach Activities***

A planning update (Issue 3, August 2014) was mailed to everyone on the project mailing list in addition to requests that we received following publication. A press release was also used to announce the availability of the document. We also briefed the county commissioners for Alamosa, Saguache, and Del Norte counties and provided briefings to the Friends of the San Luis Valley Refuges and to Colorado Parks and Wildlife, Colorado Parks and Wildlife Commission, several of the local habitat protection planning groups in the San Luis Valley, and the SLV interagency Native American Graves Protection and Repatriation Group.

We held three public meetings on the draft CCP and EIS in Alamosa (September 29), Monte Vista (September 30), and Moffat (October 1). In total, about 35 people attended the meetings. We began the meetings with a short presentation, followed by an opportunity for participants to ask questions, and finally an opportunity for anyone who wished to offer a formal comment. Comment sheets were available for anyone who preferred to submit comments in writing. Throughout the comment period, we received comments from tribes, Federal agencies, State agencies, non-profit organizations, and individuals. Refer to the responses to comments section of this final CCP and EIS for more information on the comments we received.

## D.6 Significant Changes to the Final CCP and EIS

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

On Alamosa Refuge, under alternative B, we would provide for fishing access along the banks of the river just above and below the Chicago dam (fishing from the dam would not be allowed). This was an element that was only considered under alternative D in the draft CCP and EIS, providing that anglers did not fish from the dam. Prior to our acquisition of the Lillpop property near the Chicago dam, the area was popular with local anglers who fished for game fish like northern pike and carp. When we acquired the property, we closed the access due to concerns of having people fishing off the dam. After further review, we believe under alternative B or D, we can use barriers, increased law enforcement patrols, or other tools to keep people off the dam. We would allow for bank fishing just above and below the dam. Currently, there are no nesting territories for southwestern willow flycatcher found in this area, but monitoring for the birds would continue. Should territories be established in the area, we would institute seasonal closures as needed. Fishing is one of six priority public uses identified in the Improvement Act. Additional fishing opportunities could be considered in the future.

In providing this opportunity, we think it provides a great way to encourage youths and others to come out and experience and learn about the refuge.

For Baca Refuge, we modified several trails under alternative B and D to provide for some shorter loops and longer loops. We also made several other modifications to the maps to provide additional clarity about how the public use program would be managed on the refuge.

There seemed to be confusion about opening Alamosa and Monte Vista Refuge for limited big game hunting and Baca Refuge for limited small game and big game hunting under alternatives B, C, and D, and we have attempted to make it clearer. Under alternatives B, C, and D we would develop and implement a hunting plan within 1-3 years. There are a number of steps that we have to complete before we can publish new hunting regulations in the Federal Register, and we have identified these steps. There are nuanced differences between the alternatives for full implementation of the hunting program. For example, under alternative B, we would be emphasizing opportunities for a quality experience and implementing a youth mentoring program, whereas under alternative D, we also want to maximize opportunities.

Under cultural resources, we added information about the importance of oral traditions.

We also added two new figures to the document 1) Impaired waters in the San Luis Valley; and 2) the migration route for the greater sandhill cranes.

## D.7 List of Entities Receiving the Final CCP and EIS

The following Federal and State agencies, tribes, and nonprofit organizations received copies of the Final CCP and EIS. Other interested groups and members of the public who were on our mailing list received a copy of Planning Update, Issue 4, which summarized the contents of the Final CCP and EIS.

### Federal Elected Officials

- U.S. House of Representatives, Colorado Representative Scott Tipton
- U.S. Senate, Colorado Senator Cory Gardner
- U.S. Senate, Colorado Senator Michael Bennet

### Federal Agencies

- Bureau of Land Management, San Luis Valley Field Office, Saguache, Colorado
- Bureau of Reclamation, Alamosa, Colorado
- Environmental Protection Agency, Region 8, Denver, Colorado
- National Park Service, Mosca, Colorado
- Natural Resources Conservation Service, Alamosa and Center, Colorado
- U.S. Forest Service, Rio Grande National Forest, Monte Vista Colorado
- USGS, Fort Collins, Colorado

### Tribes

- Jicarilla Apache Nation, Dulce, NM
- Navajo Nation, Window Rock, AZ

- Pueblo of Acoma, Acoma, NM
- Pueblo of Cochiti, Cochiti, NM
- Pueblo of Jemez, Jemez, Pueblo, NM
- Pueblo of Laguna, Laguna, NM
- Pueblo of Picuris, Penasco, NM
- Pueblo of San Ildefonso, Santa Fe, NM
- Pueblo of Santa Clara, Espanola, NM
- Pueblo of Taos, Taos, NM
- Pueblo of Zuni, Zuni, NM
- Pueblo of Santa Ana, Santa Ana Pueblo, NM
- Southern Ute Tribe, Ignacio, CO
- Uintah and Ouray Ute Indian Tribe, Fort Duchesne, UT
- Ute Mountain Ute Tribe, Towaoc, CO

### Colorado Elected Officials

- John Hickenlooper, Governor, Denver, CO
- Representative Edward Vigil, Denver, CO (District 62)
- Senator Larry Crowder, State Senator, Denver, CO (District 35)

### Colorado State Agencies

- Colorado Department of Natural Resources
- Colorado Division of Water Resources, Division 3, Alamosa, CO
- Colorado Parks and Wildlife, Monte Vista, CO
- Colorado State Historic Preservation Office (History Colorado)

### Local Governments

- County Commissioner Alamosa County, Alamosa, CO
- County Commissioner, Conejos County, Conejos, CO
- County Commissioner, Costilla County, San Luis, CO
- County Commissioner, Mineral County, Creede, CO
- County Commissioner, Rio Grande County, Del Norte, CO
- County Commissioner, Saguache, CO
- Mayor, Alamosa, CO
- Mayor, Monte Vista, CO

- Mayor, Saguache, CO
- Rio Grande Water Conservation District, Alamosa, CO
- Town of Crestone, Crestone, CO
- Del Norte Town Government, Del Norte, CO

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## Public Libraries

- Alamosa Public Library, Alamosa, CO
- Carnegie Public Library, Monte Vista, CO
- Baca Grande Library, Crestone, CO
- Saguache Public Library, Saguache, CO
- Colorado State University Morgan Library, Fort Collins, CO
- U.S. Fish and Wildlife Service, National Conservation Training Center Library, Shepherdstown, West Virginia

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## Organizations

- Baca Grande Property Owners Association, Crestone, CO
- Colorado Open Lands, Lakewood, CO
- Crestone Baca Land Trust, Crestone, CO
- Crestone Creative Council, Crestone, CO
- Defenders of Wildlife, Denver, CO
- Friends of the San Luis Valley National Wildlife Refuges, CO
- Mount Blanca Habitat Partnership Program: San Luis Valley Habitat Partnership Program
- Rio Grande Headwaters Land Trust, Del Norte, CO
- San Luis Valley Ecosystem Council, Crestone, CO
- The Nature Conservancy, Boulder, CO
- Wilderness Society, Colorado headquarters, Denver, CO

# Appendix E

## *Compatibility Determinations*

### E.1 Uses

We have developed compatibility determinations for the following existing and proposed uses. As per our planning policy, we provide these compatibility determinations in our CCP and EIS as part of the public review. These compatibility determinations only apply to the preferred alternative. Refer to chapter 1, section 1.2 for more information on compatible refuge uses.

- Hunting
- Fishing
- Wildlife observation, photography, environmental education, and interpretation
- Commercial photography
- Prescribed grazing and haying
- Cooperative farming (Monte Vista National Wildlife Refuge)
- Research

### E.2 Refuge Names

The San Luis Valley National Wildlife Refuge Complex (refuge complex) consists of three national wildlife refuges:

- Monte Vista National Wildlife Refuge
- Alamosa National Wildlife Refuge
- Baca National Wildlife Refuge

### E.3 Establishing and Acquisition Authorities

The following laws and Executive orders established the refuges and authorized acquisition of refuge lands.

#### Monte Vista National Wildlife Refuge

- Establishing authority: Migratory Bird Conservation Act of 1929
- Approved for acquisition on June 10, 1952, by the Migratory Bird Conservation Commission
- Public Land Order 2204 dated September 1960

#### Alamosa National Wildlife Refuge

- Establishing authority: Migratory Bird Conservation Act of 1929
- Approved for acquisition on June 27, 1962, by the Migratory Bird Conservation Commission
- Public Land Order 3899 dated December 1965

#### Baca National Wildlife Refuge

- Establishing authority: Great Sand Dunes National Park and Preserve Act of 2000 (Public Law 106-530, November 22, 2000)
- Established on April 8, 2003, with transfer of 3,315 acres from BOR

## E.4 Refuge Purposes

### Monte Vista and Alamosa National Wildlife Refuges

The Monte Vista and Alamosa National Wildlife Refuges (refuges) were established “for use as an inviolate sanctuary, or for any other management purposes, for migratory birds” (16 U.S.C. § 715d (Migratory Bird Conservation Act)).

### Baca National Wildlife Refuge

The Baca Refuge was established “to restore, enhance, and maintain wetland, upland, riparian, and other habitats for native wildlife, plant, and fish species in the San Luis Valley” (Omnibus Appropriations Act, 2009, H.R. 1105).

### National Wildlife Refuge System Mission

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

## E.5 Description of Use

### Hunting

The refuge complex proposes to continue to provide safe and sustainable waterfowl and limited small game hunting opportunities within designated areas of the Alamosa and Monte Vista Refuges. In addition, we propose to expand big game hunting opportunities on the Alamosa and Monte Vista Refuges and

open the Baca Refuge to both big and limited small game hunting.

Under the authority of the National Wildlife Refuge Administration Act, the Secretary of the Interior can authorize hunting on any unit of the National Wildlife Refuge System (Refuge System) as long as it is compatible with the purposes for which the refuge was established. This act also allows waterfowl hunting on up to 40 percent of land acquired under the Migratory Bird Conservation Act that would otherwise be considered “inviolate sanctuary.” Both the Alamosa and Monte Vista Refuges were acquired with funds generated from the sale of Migratory Bird Hunting and Conservation Stamps (“Duck Stamps”). Consequently, portions of both refuges are open to waterfowl hunting in compliance with all applicable State and Federal laws. In addition to waterfowl hunting, hunting for pheasant, cottontail, and jack-rabbit is permitted during established waterfowl hunting seasons within the areas of each refuge designated for waterfowl hunting.

For all practical purposes, elk were not present on the Alamosa and Monte Vista Refuges during the first 40 years after the establishment of the refuges. It was not until the mid-1990s that elk starting using Monte Vista Refuge in noticeable numbers. During the late 1990s, elk started using the Alamosa Refuge. Elk hunting has never been opened to the public on either of these refuges.

As a consequence of the change in elk distribution and abundance on the Alamosa and Monte Vista Refuges, we are proposing some elk hunting on both refuges. The CCP provides the first opportunity in the history of the Baca Refuge to consider making refuge hunting opportunities available to the public. We propose opening limited small game hunting, as defined by Colorado hunting regulations, in the southwest and northwest portions of the refuge (figure 16) and an elk archery season both along and to the north of Crestone Creek. Additional elk hunting opportunities would be made available.

On all three refuges, we propose working with CPW to conduct dispersal hunts to redistribute concentrations of elk that are excessively damaging refuge resources or private property or that are presenting unusual hazards on nearby public roads. These hunts would use licensed hunters to eliminate stubborn management conflicts when all conventional efforts have failed. Hunters would be accompanied by agency personnel and instructed about which animals to take to meet management objectives.

### Availability of Resources

We currently have a full-time law enforcement officer and two collateral duty officers to help admin-

ister the hunting program. Additionally, law enforcement assistance would continue to be provided by CPW.

### ***Anticipated Impacts of Use***

As with all hunting programs that use firearms, human safety and the potential for property damage are important considerations. Hunters, other refuge users, and refuge staff are exposed to potential hazards whenever firearms are present. Damage and theft of cultural resources are potential impacts whenever people, including hunters, are in areas with these resources. Harvest of individual animals can have negative impacts on larger populations if sustainable harvest practices are not used. Hunting activity in one area of a refuge often causes animals to move to other portions of the refuge or to neighboring private or public lands. In developing a sustainable waterfowl hunting program, we must consider the response of waterfowl to hunting, and we often maintain areas that are closed to hunting along with areas where hunting is allowed.

### ***Determination***

Hunting, including big game, waterfowl, and limited small game hunting, is a compatible use of the Alamosa, Baca, and Monte Vista Refuges.

### ***Stipulations Necessary To Ensure Compatibility***

- Work with CPW to develop a refuge complex hunting plan which would provide for the continuation of waterfowl hunting and limited small game on Monte Vista and Alamosa Refuges and opening them to limited big game hunting, and open Baca Refuge to limited small game hunting and big game hunting. Following publication of new hunting regulations in the Federal Register, begin implementation of the hunting plan.
- Plans for specific hunting programs would ensure reasonable human safety by maintaining hunter densities at or below reasonable levels, providing information to hunters regarding the areas they are hunting in and associated conditions, and maintaining law enforcement and staff presence to enable response to emergencies and provide information in the field.

- Plans for specific hunting programs would exclude areas from hunting activity if there is a substantial risk of property damage from firearm discharge.
- Illegal activities, including hunting violations and removal of cultural artifacts, would be minimized by providing well thought-out information and sufficient law enforcement presence.
- All hunting programs would consider population objectives. Waterfowl hunting would follow seasons and bag limits provided by CPW.
- Plans for specific programs would include objectives for elk distribution. In some cases, discouraging elk use of some parts of a refuge may be a major objective of the hunt. In other cases, it would be desirable to prevent movement of elk off a refuge onto the adjoining Great Sand Dunes National Park and Preserve or private lands.
- All hunting programs would be coordinated with CPW.
- The refuge manager would have the ability to close or modify entire hunting programs, including access, timing, and methods, in response to unforeseen conditions in order to ensure public safety and best management of natural resources.
- Refuge staff would regularly solicit feedback from hunters regarding safety, the overall quality of their hunting experiences, and any suggestions they may have.

### ***Justification***

Within the refuge complex, expansion of the current hunting program would provide diverse and quality hunting opportunities for waterfowl, big game, and limited small game hunting, as defined in the Service's guidelines for wildlife-dependent recreation (FWS 2006). Under this policy, providing quality experiences is highlighted as an important component of a hunting program (605 FW1, 605 FW2). Promoting safety, providing reasonable opportunities for success, and working collaboratively with the State wildlife agencies are just a few of the key elements that should be considered in providing for quality experiences. For example, a quality experience could mean that participants could expect reasonable harvest opportunities, uncrowded conditions,

few conflicts between hunters, relatively undisturbed wildlife, and limited interference from, or dependence on, mechanized aspects of the sport.

Hunting has long been an important cultural and social component of the lands that make up the refuge complex. About 800 to 1,000 hunters visit the Alamosa and Monte Vista Refuges each year, and these refuges would continue to provide for quality and diverse hunting experiences. The opening of the Baca Refuge would provide welcome hunting opportunities for many hunters. On all three refuges, elk hunting is a badly needed tool which would improve the ability of refuge managers to influence the distribution of elk on the refuges and assist CPW in achieving population objectives.

***Mandatory 15-year reevaluation date: 2030***

## **Fishing**

Throughout most of the history of Monte Vista Refuge, the Service has hosted an annual “Kids Fishing Day.” Over the years, the event has had several participating partners. Since 2000, it has been sponsored by the Friends of the San Luis Valley National Wildlife Refuges (Friends group). This event is scheduled to occur on a Saturday in June close to or during National Fishing Week, with the objective of introducing youth to fishing and wildlife-dependent activities while providing environmental education regarding cold-water fisheries and national wildlife refuges.

Kids Fishing Day is conducted at a shallow, two-acre pond that is a remnant of a fish hatchery that operated before the refuge was acquired. Typically, the pond is filled with water from an adjoining well several weeks in advance. Approximately 1 week prior to the event, approximately 1,000 fish donated from the Hotchkiss National Fish Hatchery are introduced into the pond. Public service announcements and fliers posted in local communities indicate required adult supervision, announce a free lunch, and describe the educational displays or presentations, which vary from year to year depending on the availability of presenters and cooperators. Volunteers and refuge staff are present to assist young anglers when needed and to ensure public safety.

Other service organizations including a private, non-profit mental health agency, and a number of retirement and assisted living facilities are then allowed to bring groups to the pond after the Kids Fishing Day event to take advantage of any remaining angling opportunities in the safe and accessible environment. This event also provides additional

opportunities for appreciation of wildlife-dependent recreation to an underserved segment of the public.

On Alamosa Refuge, prior to our acquisition of the property near the Chicago Dam, local citizens would access the area to fish for game fish (northern pike and carp). We closed the access down due to safety concerns about people walking across the dam or fishing off the dam. There has been long-time desire voiced by the public to reopen this area. In consideration of the interest in allowing for fishing on Alamosa Refuge along the Rio Grande, we would allow for bank fishing in a designated area just above and below the dam while keeping the dam off limits to fishing. Additional areas could be considered in the future.

## ***Availability of Resources***

Kids Fishing Day does not require a large amount of refuge resources. The fish are donated and delivered by the Hotchkiss National Fish Hatchery. Organization and execution of the event is largely conducted by the Friends group with help from varying partners. The largest refuge expense is the electricity used to pump water when surface water is unavailable.

Allowing for fishing below the Chicago dam is not anticipated to require a large amount of refuge resources. However, it will require law enforcement patrols of the area to ensure people are not fishing outside the designated area for fishing, including fishing from the dam. Signs and other information would need to be distributed informing the public where legal fishing is allowed. The area is already monitored for presence of southwestern willow flycatcher territories and this area would continue to be monitored for flycatcher activity.

## ***Anticipated Impacts of Use***

All water used for this event and not lost to evaporation goes into the Spring Creek system of the Monte Vista Refuge, which then provides some benefit to wetlands. About 5 acres of short emergent wetland habitat could be maintained if this same amount of water was directly used for that purpose.

Allowing for limited bank fishing could result in fishing trails and trampled vegetation developing along the bank where fishing is allowed. There would also be disturbance to wildlife. Designating the bank area and fishing trails along with signage would help to limit trampling and impacts. There would be increased trash in the area or violations of other refuge regulations. A corresponding increase in law enforcement resources would be required to ensure public safety. The use of volunteers could assist in providing information, helping to pick up trash, and

communicating pertinent information to refuge staff. The establishment of a local angler's group could also provide a way to communicate with fishermen and get more compliance in adherence to refuge regulations.

### **Determination**

Conducting the Kids Fishing Day event is a compatible use of Monte Vista Refuge. Allowing for limited fishing access below the Chicago dam on Alamosa Refuge is a compatible use of the refuge.

### **Stipulations Necessary To Ensure Compatibility**

Stipulations required include:

- the event continues to be well supported by the Friends of the San Luis Valley National Wildlife Refuges and other partners
- reliance on groundwater for this event is minimized by maintaining the pond for as short a period as possible while allowing harvest of most of the fish and providing the greatest angling opportunity
- fish continue to be donated from the Hotchkiss National Fish Hatchery or equivalent
- fish remaining in the pond are donated to CPW for placement in other approved fisheries such as nearby Homelake State Wildlife Area
- All fisherman must stay off the dam area and adhere to all other closures;
- Waders would be allowed, but floating would be prohibited;
- Fisherman must use designated access areas and not create new trails;
- Fishermen must adhere to all State fishing regulations and refuge regulations including but limited to: possession of a State license, hours of use, and use of bait.
- All trash must be packed out.
- If nesting territories for southwestern willow flycatcher become established in the area, other seasonal closures would need to be established and enforced.

### **Justification**

Fishing is one of the wildlife-dependent recreational activities that is encouraged on national wildlife refuges and is a fundamental strategy in the Service's "Connecting People with Nature" effort. Although Kids Fishing Day is provided in a somewhat artificial setting, it is a very popular and accessible opportunity in a community that otherwise must drive extensive distances for similar experiences, which may not be possible for youth from lower-income families. The cost of conducting this small, short-term event is well worth the benefit to the community and achieving Refuge System goals.

Allowing for limited fishing access just above and below the Chicago dam provides for a fishing opportunity on Alamosa Refuge which has been long supported in the local community. The impacts and costs of allowing for this wildlife-dependent activity would be offset by the benefit of having more local citizen participation, including youths and minority groups, in refuge activities.

**Mandatory 15-year reevaluation date: 2030**

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## **Wildlife Observation, Photography, Interpretation, and Environmental Education**

The Improvement Act identified six wildlife-dependent recreational activities as priority public uses and encouraged their implementation on refuges when they are found compatible with refuge purposes and when adequate resources are available to manage these activities on refuge lands. This compatibility determination considers wildlife observation, wildlife interpretation, environmental education, and wildlife photography. The compatibility of the other two activities identified in the Act, hunting and fishing, are assessed above.

Compatible access for priority public uses would be improved on the Monte Vista and Alamosa Refuges and established on the Baca Refuge. On the Monte Vista and Alamosa Refuges, we would allow more access for viewing and interpretation on a seasonal basis from about mid-July to the end of February. Modes of access that facilitate wildlife-dependent uses—walking, cross-country skiing and bicycling—would be considered on all three refuges. Portions of the Baca Refuge would be seasonally opened for all public uses except fishing. An auto tour route would be built on the Baca Refuge. Additional trails or viewing platforms could be considered to enhance viewing opportunities. Lim-

ited commercial opportunities such as photography could be considered. We would seek funding to build a visitor center and refuge complex staff offices at either Monte Vista or Alamosa Refuge to better serve the public, provide for safer access to our offices, and create a more efficient work environment for our employees.

On the Alamosa Refuge, we would:

- extend the auto tour route to the east to connect with the Bluff Road; improve the accessibility of the Rio Grande nature trail and enhance the experience by providing better seating, shelter, and interpretation for visitors; seasonally open about 7.3 additional miles of existing trails and administrative roads for wildlife viewing and photography access (foot, bicycle, cross country ski) currently available only to hunters during the hunting season; and open about 6.4 additional miles of nature trails, including a trail link to town and an extension of Bluff Nature Trail to parking lot 4
- work with partners to develop a trail from the town of Alamosa to the Alamosa Refuge
- repurpose the existing contact station and visitor center at the Alamosa Refuge to focus on environmental education and administrative needs

On the Baca Refuge, we would:

- develop auto tour routes and install wayside interpretive panels along these routes. Auto tour routes would provide seasonal access and allow visitors to experience different habitats on the refuge. These routes would be accessible from Colorado Highway 17 and Saguache County Road T.
- develop a looped interpretive trail around the refuge's headquarters area (old Baca Ranch) with several interpretive panels or other interpretive media positioned along the trail route
- develop a nature trail from the refuge office to the sandy bluff and windmill above the office, as well as a trail through the pinion unit uplands with access from the Baca Grande subdivision. This trail would accommodate horse traffic as well as foot traffic

- develop two nature trails originating from the historic Cottonwood Cow Camp, where there would also be a picnic spot with table(s) and a vault toilet
- develop two picnic spots (without toilets) at the refuge headquarters and one at the historic Sheds Cow Camp
- develop three elevated wildlife viewing areas along the auto tour routes and along the Baca Grande subdivision access road
- develop seven seasonal access parking areas along the western boundary of the refuge
- develop a pullout with an informational kiosk along Saguache County Road T
- provide a refuge office and visitor center and work with agency partners, Friends group, and others to staff and provide orientation and interpretation for natural and cultural resources throughout the San Luis Valley. This office and visitor center would also house impressive archeological collections and provide opportunities for the public to view and learn about these artifacts.
- seasonally open portions of the refuge to big game hunting and other wildlife-dependent uses, with all using non-motorized forms of access during normal elk hunting seasons
- open proposed big game hunting areas to all non-motorized forms of access during the elk season

On the Monte Vista Refuge we would:

- improve the accessibility of the Meadowlark Nature Trail and add a viewing blind; replace information kiosks at three parking areas; develop visitor facilities around Parker Pond, including an accessible parking area and trailhead, viewing blind, trail, and observation platform; develop one crane observation pull-off and parking along Rio Grande County Road 6 South; and replace signs at existing crane observation pull-offs.
- work with partners to develop a trail from the town of Monte Vista to the Monte Vista Refuge
- work with BLM and Rio Grande County to develop a trailhead on Rio Grande County

Road 6 South to provide non-motorized access to BLM land

On all three refuges we would:

- construct additional recreational vehicle pads for volunteers

### ***Availability of Resources***

We would mostly use existing funding and staffing to implement some of the projects that only require opening an administrative road to non-motorized access or extending an auto tour route along existing roads. Most of these projects would potentially be funded through traditional appropriated funds as they become available. Their availability depends on annual appropriations and on the degree to which refuge staff succeed in competing for any of the Service's flexible funding opportunities. Additionally, the generation of outside funding, "in-kind" assistance from partners, especially the Friends group, would also be used.

Once implemented, these projects would result in a significant increase in visitor use at all three refuges, placing a significant demand on refuge maintenance and law enforcement programs. Additional positions and maintenance funds required to sustain these projects are identified in the CCP.

### ***Anticipated Impacts of Use***

Projects on all three refuges could have the following impacts:

- On the Alamosa Refuge, additional wildlife disturbance could occur from extension of the auto tour route, opening areas for non-motorized access, expansion of wildlife viewing nature trails, and providing a trail link from the town of Alamosa to the refuge.
- On all three refuges, the proposed projects would increase human presence in both time and space. There is inter- and intra-specific variation within and among wildlife species since some species, especially habitat specialists, are more susceptible than others to human disturbance, especially habitat generalists. Research has shown that human presence associated with roads and trails can result in a simplification of avian communities (fewer specialists and more generalists), reduced nest success, and reduced habitat quality. Many species are more likely to flush with increased human presence, resulting in less time spent foraging, which can affect building suitable energy reserves for egg laying and migration, reduced food delivery rates to young, territory establishment and defense, and mate attraction. For many species, especially medium-sized and large mammals, the presence of dogs can greatly magnify the effects of disturbance. Research has shown that various activities result in differing levels of disturbance. Pedestrian and bicycle use results in greater disturbance than vehicle use. Trails and roads create habitat edges, which lead to increased predation, cowbird parasitism, and displacement of interior-sensitive birds. Trails and roads can restrict animal movement and dispersal. A corresponding increase in law enforcement resources would be required to ensure public safety.
- On the Alamosa Refuge, repurposing the visitor center and contact station would result in more use of the facility.
- On the Baca Refuge, the development of the auto tour routes and trails would result in increased disturbance to migratory birds, elk, pronghorn, and mule deer. Additionally, large movements of amphibians, primarily Great Plains toad, have occurred under some environmental conditions on the Baca Refuge. During these mass movements, it is impossible to avoid direct mortality from vehicles.
- On the Baca Refuge, increased public access comes with a greater concern about accidental destruction and intentional illegal collection of cultural artifacts commonly found on the refuge. This could also occur on the Monte Vista and Alamosa Refuges.
- On the Baca Refuge, the proposed auto tour route could increase the likelihood of visitors becoming stranded in relatively remote areas.
- On the Monte Vista Refuge, development of year-round access to Parker Pond could increase disturbance to an important waterbird nesting colony.
- On the Monte Vista Refuge, some additional disturbance would be associated with devel-

opment of observation areas along County Road 6.

- Some additional disturbance would result from any non-motorized trail extending from the city of Monte Vista onto the refuge.
- Construction of a new office and visitor center at either Monte Vista or Alamosa would create a larger footprint, and final siting of the facility would need to consider impacts to wildlife.

### **Determination**

Wildlife interpretation, environmental education, wildlife photography, and wildlife observation are compatible uses of the Alamosa, Baca, and Monte Vista Refuges.

### **Stipulations Necessary To Ensure Compatibility**

Stipulations required on the Alamosa Refuge include:

- Riparian habitat acquired in 2003 with the Lillpop addition was purchased with funds provided by BOR as mitigation for southwestern willow flycatcher habitat lost from the construction and operation of the Salt River Project in Arizona. Consequently, southwestern willow flycatchers are a priority management goal on this tract and destruction of habitat and disturbance of nesting birds must be minimized by careful siting and timing of projects and associated disturbance.
- Additional limited non-motorized access to the refuges would be allowed outside of the critical breeding period.
- Existing administrative roads and trails would be used as much as possible in the expansion of non-motorized access to the refuge, which would minimize ground disturbance, associated habitat loss, and the spread of weeds.
- Additional volunteer recreational vehicle pads would be located in areas that are already disturbed and that are near exist-

ing administrative facilities to minimize soil and wildlife disturbance.

- The refuge manager could terminate or modify any activity if conditions change or assumptions in this analysis are found incorrect, resulting in the activity materially interfering with refuge purposes.
- Interpretive information would be posted and included in refuge brochures describing the impact of disturbance on wildlife and simple practices for the visitor to minimize disturbance.

Stipulations required on the Baca Refuge include:

- Visitors on the auto tour route would be restricted to their vehicles or the immediate area outside their vehicle.
- Refuge staff would temporarily close the auto tour route during times of significant amphibian movement to prevent toad mortality.
- Visitors on the wildlife observation trail(s) would be required to stay on the trail.
- Existing administrative roads and trails would be used as much as possible in the expansion of non-motorized access to the refuge, which would minimize ground disturbance, associated habitat loss, and the spread of weeds.
- Law enforcement presence on the refuge must correspond to the amount of public use to minimize poaching, habitat destruction from off-road driving, and illegal collection of artifacts. Law enforcement presence would also have to increase to ensure that the public has a reasonable expectation of safety when visiting the refuge. Much of the Baca Refuge is relatively isolated from busy roads and people, resulting in a potentially life-threatening situation if visitors and users become stranded due to injury, mud, snow, or break down. Tour routes would be closed during times when conditions pose a significant threat to public safety.
- The use of horses would be restricted to all areas open to non-motorized access and where horses are permitted.

- Additional volunteer recreational vehicle pads would be located in areas that are already disturbed and are near existing administrative facilities to minimize soil and wildlife disturbance.
- The refuge manager could terminate or modify any activity if conditions change or assumptions in this analysis are found to be incorrect, resulting in the activity materially interfering with refuge purposes.
- Interpretive information would be posted and included in refuge brochures describing the impact of disturbance on wildlife and simple practices for the visitor to minimize disturbance.

Stipulations required on the Monte Vista Refuge include:

- Additional non-motorized access to the refuges would be allowed during the non-critical breeding period.
- Existing administrative roads and trails would be used as much as possible in expansion of non-motorized access to the refuge, which would minimize ground disturbance, associated habitat loss, and the spread of weeds.
- Additional volunteer recreational vehicle pads would be located in areas that are already disturbed and are near existing administrative facilities to minimize soil and wildlife disturbance.
- Interpretive information would be posted and included in refuge brochures describing the impact of disturbance on wildlife and simple practices for the visitor to minimize disturbance.

### **Justification**

The abundant wildlife resources found on the refuge complex attract many visitors to the San Luis Valley. The largest draw is the Monte Vista Crane Festival, which attracts thousands of people annually during the spring migration of sandhill cranes. This event, which is put on in partnership with the Friends group and the local community, provides a significant boost to the local economy. Other visitors frequent the auto tour routes at the Monte Vista and Alamosa Refuges, walk the nature trails, or enjoy

the spectacular vistas from the Bluff Overlook at the Alamosa Refuge.

The Service is unable to open the Baca Refuge to significant public access without the benefit of a planning process with public participation. Overall, access for visitors wanting to participate in nonconsumptive recreation on these three refuges has been limited. It is clear from talking with visitors and community members and from a USGS visitor survey of the Monte Vista Refuge that there is a substantial demand for more opportunities for public access on these refuges. It is the intent of this determination and the CCP to provide well-thought-out and desirable access opportunities without materially interfering with achievement of refuge wildlife management goals.

***Mandatory 15-year reevaluation date: 2030***

## **Commercial Photography**

The San Luis Valley offers several photogenic wildlife spectacles such as the sandhill crane migration, elk herds, and waterfowl concentrations, with a stunning backdrop provided by the San Juan Mountains and the Culebra and Sangre de Cristo Ranges. Wildlife observation areas, hiking trails, and auto tour routes are available on the Alamosa and Monte Vista Refuges, while similar opportunities are being proposed in the CCP for the Baca Refuge. Commercial photographers and videographers regularly visit the San Luis Valley.

Commercial filming is defined as the digital recording or filming of a visual image or sound recording by a person, business, or other entity for a market audience, such as for a documentary, television or feature film, advertising, or similar project. It does not include news coverage or visitor use. Still photography is defined as the capturing of a still image on film or in a digital format. These descriptions and further information about these activities are found in 43 CFR Part 5 (Department of the Interior) and 50 CFR Part 27 (Fish and Wildlife Service).

Under the Code of Federal Regulations (50 CFR § 27.71), special use permits for commercial filming and still photography are required when “it takes place at location(s) where or when members of the public are generally not allowed; or (2) it uses model(s), sets(s), or prop(s) that are not a part of the location’s natural or cultural resources or administrative facilities; or (3) the agency would incur additional administrative costs to monitor the activity; or (4) the agency would need to provide management and oversight to:

- i. avoid impairment or incompatible use of the resources and values of the site; or
- ii. limit resource damage; or
- iii. minimize health or safety risks to the visiting public.”

These permit requests are evaluated on an individual basis, using a number of Department of the Interior, Service, and National Wildlife Refuge System policies (for example, 43 CFR Part 5, F0 CFR Part 7, 8 RM 16). Commercial filming would be managed on the refuges through the special use permitting process to minimize the possibility of damage to cultural or natural resources or interference with other visitors to the area.

### ***Availability of Resources***

In general, the refuge would normally incur no expense except administrative costs for review of applications, issuance of a special use permit, and staff time to conduct compliance checks. Special use permits for commercial filming and still photography would require payment of a location fee and a reimbursement for actual costs incurred in processing the permit request and administering the permit.

### ***Anticipated Impacts of Use***

Wildlife photographers and filmmakers tend to create the largest disturbance impacts of all wildlife observers (Dobb 1998, Klein 1993, Morton 1995). While wildlife observers frequently stop to view species, wildlife photographers and cinematographers are more likely to approach wildlife (Klein 1993). Even a slow approach by wildlife photographers tends to have behavioral consequences on wildlife species (Klein 1993). Other impacts include the potential for photographers to remain close to wildlife for extended periods of time in an attempt to habituate the wildlife subjects to their presence (Dobb 1998) and the tendency for photographers to use low-power lenses to get much closer to their subjects (Morton 1995). This usually results in increased disturbance to wildlife and habitat. Handling of animals and disturbing vegetation (such as cutting plants and removing flowers) is prohibited on national wildlife refuges.

A special use permit request would be denied if the commercial filming, audio recording, or still photography activities are found not to be compatible with refuge purposes.

### ***Determination***

Commercial filming, audio recording, and still photography are compatible uses of the Alamosa, Baca, and Monte Vista Refuges.

### ***Stipulations Necessary To Ensure Compatibility***

- All commercial filming requires a special use permit.
- Special use permits would identify conditions that protect the refuges’ values, purposes, and resources; ensure public health and safety; and prevent unreasonable disruption of the public’s use and enjoyment of the refuge. Such conditions may be specifying road conditions when access would not be allowed, establishing time limitations, and identifying routes of access into refuges. These conditions would be identified to prevent excessive disturbances to wildlife, damage to habitat or refuge infrastructure, or conflicts with other visitor services or management activities.
- The special use permit would stipulate that imagery produced on refuge lands would be made available to the refuge to use in environmental education and interpretation, outreach, internal documents, or other suitable uses. In addition, any commercial products must include appropriate credits to the refuges, the Refuge System, and the Service.
- Any commercial filming, still photography, or audio recording permits that are requested must demonstrate a means to extend public appreciation and understanding of wildlife or natural habitats, or enhance education, appreciation, and understanding of the Refuge System, or facilitate outreach and education goals of the refuges.
- Still photography and audio recording also require a special use permit (with specific conditions as outlined above) if one or more of the following would occur:
  - it would occur in places where or when members of the public are not allowed.

- it uses model(s), set(s), or prop(s) that are not part of the location's natural or cultural resources or administrative facilities.
- the refuge would incur additional administrative costs to monitor the activity.
- the refuge would need to provide management and oversight to avoid impairment of the resources and values of the site; limit resource damage; or minimize health and safety risks to the visiting public.
- the photographer(s) intentionally manipulate(s) vegetation to create a “shot” (for example cutting vegetation to create a blind).
- To minimize impact on refuge lands and resources, the refuge staff would ensure that all commercial filmmakers, commercial still photographers, and commercial audio recorders comply with policies, rules, and regulations, and refuge staff would monitor and assess the activities of all filmmakers, photographers, and audio recorders.

## Justification

Commercial filming, still photography, or audio recording are economic uses that must contribute to the achievement of the refuge purposes, mission of the Refuge System, or the mission of the Service. Providing opportunities for commercial filming, still photography, and audio recording that meets the above requirements should result in increased public awareness of the refuges' ecological importance as well as advancing the public's knowledge and support for the Refuge System and the Service. The stipulations outlined above and conditions imposed in the special use permits issued to commercial filmmakers, still photographers, and audio recorders would ensure that these wildlife-dependent activities occur without adverse effects on refuge resources or refuge visitors.

**Mandatory 10-year reevaluation date: 2025**

## Prescribed Grazing and Haying

Since the three refuges were established, prescribed grazing and haying have been used to achieve a number of habitat objectives. These tools are used to improve the vigor and maintain the

health of plant communities by removing decadent vegetation that has accumulated over several growing seasons, as well as reduce or eliminate infestations of noxious and invasive plants, often in combination with herbicide applications. Additionally, they are used to modify the condition of plant communities to make them more attractive to some wild-life species.

Domestic cattle (including calves and yearlings), domestic sheep, and, to a lesser degree, bison (which are classified as “livestock” by the State of Colorado) have been used on the refuges.

Haying and grazing is conducted with private cooperators through annual special use permit or cooperative farming agreements. Cooperators are charged at fair market value for the grazing or haying privilege, and the permit or agreement fee may be reduced based on project objectives.

Hay cutting is used almost entirely in wetland habitat while livestock grazing is used mostly on wetland. Livestock grazing is used in uplands to combat noxious weeds.

In all cases grazing and haying are and would be used to meet specific management objectives outlined in the permit that would be communicated to the permittee or cooperator.

## Availability of Resources

Current staffing levels allow for fundamental planning and administration of grazing and haying programs, but allow only very basic monitoring of treatment efficacy. Additional staff positions are identified for the proposed alternative (table 7) to satisfy this need.

## Anticipated Impacts of Use

As with the use of many vegetation management tools, there could be a negative impact for some species in the short term. For example, a temporary drop in duck nesting densities has been documented on the Monte Vista Refuge after vegetation removal in wetland habitat. This immediate decline in nesting is confined to the treatment area and is relatively short term. Although refuge staff and permittees are increasingly relying on single strand electric fencing, multi-strand barbed wire fence is still required in many instances. Improperly designed barbed wire fence presents hazards to elk, deer, pronghorn, and some bird species.

Both grazing and haying can be detrimental to riparian habitat and riparian habitat restoration projects. Steps must be taken to exclude grazing and haying from riparian areas unless they are used as part of a deliberate prescription.

The benefits of thoughtful use of haying and grazing exceed the negative impacts.

## **Determination**

Grazing and haying are compatible uses within the refuge complex.

## **Stipulations Necessary To Ensure Compatibility**

- Ensure control of location, duration, and intensity of grazing through carefully planned and implemented projects that are designed to achieve site-specific biological objectives. Use herders to move animals when fencing requirements are too large or impractical.
- Monitor results of grazing and haying treatments.
- Design and implement haying projects to achieve biological objectives.
- Use the appropriate class of livestock to meet project goals.
- Grazing or haying prescriptions on any individual refuge would not exceed 25 percent of the refuge in any given year.
- The refuge manager would retain control over all haying and grazing practices and has the right to discontinue any practice if conditions change that may compromise the compatibility of the project.

## **Justification**

Prescribed livestock grazing and haying are two grassland and wetland management tools that are used in combination with rest, prescribed fire, and herbicides, and are effective in maintaining and restoring quality migratory bird habitat. They are also valuable tools in establishing vegetative structural conditions needed for the life requirements of many species, such as loafing and foraging habitat for sandhill cranes, foraging habitat for dabbling ducks and some shorebirds, and foraging and breeding habitat for Gunnison's prairie dogs. Grazing and haying practices are easily planned, controlled, implemented, and monitored. Due to the value of cattle and hay as commodities, grazing and haying are

extremely cost-effective methods to treat large tracts of habitat to meet habitat objectives.

Many wetland-dependent migratory bird species (waterfowl, northern harriers, and short-eared owls in particular) require tall dense stands of grass and sedges for optimal nesting habitat. These plant communities have evolved under a regime of regular disturbance, primarily ungulate grazing and fire. Historic management practices on all three of the refuges consisted of frequent grazing or haying events that removed decadent vegetation from previous years. The Alamosa and Monte Vista Refuges saw little disturbance of vegetation during the late 1990s and early 2000s, resulting in little removal of residual vegetation. Refuge staff has observed that the overall health and vigor of these plant communities declined during this time period. The years of accumulation of vegetation seem to have reduced the stem density and height of grasses and sedges, likely from (1) shading the current year's growth and compromising photosynthesis, (2) insulating the soil and effectively retarding the initiation of spring plant growth, and (3) preventing nutrients contained in above-ground portions of the plant from reentering the soil and nutrient cycle.

Refuge staff must be able to use these tools to restore and maintain healthy plant communities in conditions that directly benefit migratory birds and other wildlife.

***Mandatory 10-year reevaluation date: 2025***

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## **Cooperative Farming Program (Monte Vista Refuge)**

This plan proposes to continue farming on the Monte Vista Refuge to produce an average of 190 acres of small grain (primarily barley) annually in order to provide food for spring-migrating sandhill cranes. This food production would occur on four fields, each of which would be irrigated by center pivot sprinklers. This irrigation technique is preferred due to the dramatically reduced cost (primarily for labor) and greater water efficiency compared with the flood irrigation practices that were used before 1990.

Farming operations would be conducted by a cooperating farmer under an agreement with the refuge manager. The typical agreement allows the cooperator to plant half of a field with barley and the other half with alfalfa. The four farm fields on the refuge average about 100 acres of cultivated land on each. The cooperator is responsible for costs associated with planting and irrigating (pumping), while

the refuge is responsible for maintaining the associated water rights and for major maintenance to the sprinkler system and well. At the end of the growing season, the small grain crops are not harvested and are left standing. Just prior to and during spring sandhill crane migration, these standing crops are scattered to the ground by mowing them, which makes them available for the migrating cranes. The alfalfa grown on the other half of the irrigated field becomes the property of the cooperative farmer. Refuge and cooperator responsibilities may vary between fields and years in response to changing maintenance circumstances.

### **Availability of Resources**

Because of the low costs associated with the cooperative farming approach, adequate funding exists to administer this farming program. Refuge responsibilities include maintenance of the associated water rights and maintenance of irrigation equipment. Water rights maintenance includes the ability to demonstrate beneficial use of the water and compliance with upcoming ground water rules and regulations pertaining to groundwater. Some of the systems irrigating these fields are supplemented by surface water when available. In these instances, refuge responsibilities include membership in the mutual ditch company and maintenance of the water distribution system. Maintenance of these water rights is required whether the water is used for farming, wetland irrigation, or other wildlife habitat objectives. Maintenance of the actual irrigation equipment is typically met within annual budgets. Exceptions include rare catastrophic pump, sprinkler, or even well failures. In these instances, Refuge System policy allows for adjustment of the annual agreement with the cooperator to cover these repairs.

### **Anticipated Impacts of Use**

It is recognized that the benefits of this farming program come with tradeoffs. The benefits of this farming program include (1) assurance that the Rocky Mountain population of greater sandhill cranes arrive on breeding grounds in good physical condition, increasing the likelihood of a successful nesting effort and (2) providing a remarkable and popular wildlife viewing opportunity on the refuge. The Monte Vista Crane Festival has been conducted on the Monte Vista Refuge for 31 years and is the largest wildlife viewing event in Colorado. Large numbers of cranes feeding on one or more of these fields provides unparalleled viewing opportunities for thousands of visitors each spring.

Continuation of the farming program comes largely at the cost of using land and water for grain

production instead of maintaining native wildlife habitat.

### **Determination**

This cooperative farming program is compatible when used as a tool for the net benefit of migratory birds.

### **Stipulations Necessary To Ensure Compatibility**

Cooperative farming would be conducted under the terms of a cooperative farming agreement. The agreement would contain general and special conditions to ensure consistency with management objectives. Some of the general stipulations include:

- The use of herbicides would be coordinated with the refuge manager and comply with the station's pesticide use plan.
- Genetically modified crops and neonicotinoids (insecticides) between crops are not currently used in this farming program. Any future use of such crops would comply with Region 6 policy guidance.
- The cooperative farmer cannot begin harvesting alfalfa in the spring until after most ground-nesting bird activity is complete, as determined by the refuge manager.

Other stipulations would be considered depending upon site- and time-specific circumstances.

### **Justification**

For centuries, the San Luis Valley has been an important migratory staging area for the Rocky Mountain population of greater sandhill cranes. During spring migration, an estimated 18,000–20,000 greater sandhill cranes and approximately 5,000–6,000 lesser and Canadian sandhill cranes inhabit the valley between late February and early April. During this period, they build up necessary energy reserves to finish migration to their nesting grounds (Tacha et al. 1987). These energy reserves also greatly influence breeding success. However, the loss of natural shallow-water wetlands, due to land use modifications and alterations to hydrology, has reduced the overall amount of potential foraging areas throughout the valley. Furthermore, it is believed that sandhill cranes did not migrate through the valley until later in the spring when natural wetlands would have been largely free of ice and more

invertebrates and other natural food sources would have been available. With the advent of agricultural production of small grains in the valley over the last century, sandhill cranes began arriving as early as mid-February to take advantage of the waste grain left in agricultural fields after harvest. Sandhill cranes have likely altered the timing of their migration to take advantage of this readily available food source. They now arrive in the valley in late winter when most wetland areas are still frozen and natural food sources are largely unavailable in sufficient amounts to provide the energy required to build fat reserves. As a result, they have become dependent on small grain production in the valley.

Sandhill cranes forage for small grains in the farm fields on the Monte Vista Refuge and on private agricultural fields. In recent years, fall tillage and flood irrigation of privately owned small grain fields has become increasingly widespread in the valley. Farmers implement these practices to encourage the growth and then subsequent freezing of waste seeds to get a clean field for spring planting. In addition, since the late 1990s, the amount of acres in small grain production in the valley has been dramatically reduced because many farmers have switched to alfalfa, which is a more profitable crop. These changes in farming practices have resulted in a dramatic reduction in waste grain availability for sandhill cranes during spring and have prompted concern over whether current or future food resources are adequate to meet spring demands for migrating cranes. We would therefore continue agricultural production of a minimum of 190 acres of small grains (primarily barley) on the Monte Vista Refuge to ensure that this critical food resource is provided and available for spring staging cranes.

***Mandatory 10-year reevaluation date: 2025***

## Research

The refuge complex occasionally receives requests to conduct research. Recent examples include projects assessing the degree of water evapotranspiration in the San Luis Valley. Priority would be given to studies that contribute to the enhancement, protection, preservation, and management of native plants, fish, wildlife populations, and habitat on the refuges. Research applicants must submit a proposal that outlines the (1) objectives of the study; (2) justification for the study; (3) detailed study methodology and schedule; and (4) potential impacts on refuge wildlife and habitat, including disturbance (short and long-term), injury, or mortality. This includes (1) a description of mitigation measures the researcher

would take to reduce disturbances or impacts; (2) personnel required and their qualifications and experience; (3) status of necessary permits (such as scientific collecting permits and endangered species permits); (4) costs to refuge and refuge staff time requested, if any; and (5) product delivery schedules such as anticipated progress reports and end products such as reports or publications. Refuge staff and others, as appropriate, would review research proposals and issue special use permits if approved.

Evaluation criteria would include the following:

- Research that would contribute to specific refuge management issues would be given higher priority than the other requests.
- Research that would conflict with other ongoing research, monitoring, or management programs would not be approved.
- Research projects that can be conducted off-refuge are less likely to be approved.
- Research that causes undue disturbance or is intrusive would likely not be approved. The degree and type of disturbance would be carefully weighed when evaluating a research request.
- Research evaluation would determine if any effort has been made to minimize disturbance through study design, including adjusting location, timing, number of permits, study methods, and number of study sites.
- Research evaluation would determine if any mitigation planning is included to minimize disturbances or impacts or to reclaim resultant disturbed areas.
- Research evaluation would determine if staffing or logistics make it impossible for the refuge to monitor researcher activity in a sensitive area.
- Specific timelines, including the length of the project and product delivery dates, would be considered and agreed upon before approval. All projects would be reviewed annually.

## Availability of Resources

At current and anticipated levels, adequate funding exists to manage requests for research on the

Alamosa, Baca, and Monte Vista Refuges. Administration of these requests usually includes evaluation of the proposal as well as management and monitoring of the associated special use permits. Our experience has indicated that the nominal cost of managing research projects is typically offset by the value of information acquired from the research.

### ***Anticipated Impacts of Use***

Some degree of disturbance is expected with all research activities since they often include areas of the refuges closed to or with limited public access, and some research requires collection of samples or direct handling of wildlife. However, minimal impacts on refuge wildlife and habitats is expected with research studies because special use permits would specify conditions to ensure that impacts to wildlife and habitats are kept to a minimum.

### ***Determination***

Research is a compatible use of the Alamosa, Baca, and Monte Vista Refuges.

### ***Stipulations Necessary To Ensure Compatibility***

- Extremely sensitive wildlife habitat areas and wildlife species would be provided sufficient protection from disturbance by limiting proposed research activities in these areas. All refuge rules and regulations would be strictly enforced unless otherwise exempted by refuge management.
- Refuge staff would use the criteria for evaluating a research proposal, as outlined above under “Description of Use,” when determining whether to approve a proposed study on the refuge. If proposed research methods are evaluated and determined to have potential impacts on refuge resources (habitat and wildlife), it must be demonstrated that the research is necessary for refuge resource conservation management. Measures to minimize potential impacts would need to be developed and included as part of the study design. In addition, these measures would be listed as conditions and requirements of the special use permit.
- Refuge staff would monitor research activities for compliance with conditions of the special use permit. At any time, refuge staff

may accompany the researchers to determine potential impacts. Staff may determine that previously approved research and special use permits be terminated due to observed impacts. The refuge manager would also have the ability to cancel a special use permit if the researcher is out of compliance, or to ensure wildlife and habitat protection.

### ***Justification***

The program as described is determined to be compatible. Potential impacts of research activities on refuge resources would be minimized because sufficient restrictions would be included in the required special use permits and all activities would be monitored by refuge staff. At a minimum, research activities would have no significant impact on refuge resources and are expected to contribute to the enhancement, protection, preservation, and management of refuge wildlife populations and their habitats.

***Mandatory 10-year reevaluation date: 2025***



# Appendix F

## *Wilderness Review*

This appendix summarizes our wilderness review on the refuge complex.

The purpose of a wilderness review is to identify and recommend for Congressional designation National Wildlife Refuge System (System) lands and waters that merit inclusion in the National Wilderness Preservation System. Wilderness reviews are a required element of CCPs and are conducted in accordance with the refuge planning process outlined in 602 FW 1 and 3, including public involvement and NEPA compliance.

There are three phases to the wilderness review: (1) inventory, (2) study; and (3) recommendation. Lands and waters that meet the minimum criteria for wilderness are identified in the inventory phase. These areas are called wilderness study areas (WSAs). WSAs are evaluated through the CCP process to determine their suitability for wilderness designation. In the study phase, a range of management alternatives are evaluated to determine if a WSA is suitable for wilderness designation or management under an alternate set of goals and objectives that do not involve wilderness designation. The recommendation phase consists of forwarding or reporting recommendations for wilderness designation from the Director through the Secretary and the President to Congress in a wilderness study report.

If the inventory does not identify any areas that meet the WSA criteria, we document our findings in the administrative record for the CCP which fulfills the planning requirement for a wilderness review.

Because Monte Vista Refuge has been heavily manipulated over time, we determined that no lands within the refuge even minimally met the criteria for wilderness designations, and we did not complete any further review or inventory of the refuge.

We inventoried Alamosa and Baca Refuges and subsequently found that no areas of the Alamosa Refuge met the eligibility criteria for a WSA as defined by the Wilderness Act. However, we found two portions of the Baca Refuge along the southeastern boundary of the refuge and adjacent to the Great Sand Dunes National Park and Preserve's proposed wilderness area meet the criteria for wilderness designation (refer to tables 16 and 17 below).

### **F.1 Inventory Criteria**

The wilderness inventory is a broad look at the planning area to identify WSAs. These are roadless areas that meet the minimum criteria for wilderness identified in Section 2(c) of the Wilderness Act as stated:

“A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions, and which: (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic, or historical value.”

A WSA must be a roadless area or island, meet the size criteria, appear natural, and provide outstanding opportunities for solitude or primitive recreation. The process for identification of roadless areas and application of the wilderness criteria are described in the following sections.

### **Identification of Roadless Areas and Roadless Islands**

Identification of roadless areas and roadless islands required gathering and evaluating land status maps, land use and road inventory data, and aerial and satellite imagery for the refuges. “Roadless” refers to the absence of improved roads suitable and maintained for public travel by means of motorized vehicles primarily intended for highway use. Only

lands currently owned by the Service in fee title or BLM lands managed under a cooperative agreement were evaluated.

Roadless areas or roadless islands meet the size criteria if any one of the following standards applies:

- An area with over 5,000 contiguous acres. State and private lands are not included in making this acreage determination.
- A roadless island of any size. A roadless island is defined as an area surrounded by permanent waters or that is markedly distinguished from the surrounding lands by topographical or ecological features.
- An area of less than 5,000 contiguous Federal acres that is of sufficient size as to make practicable its preservation and use in an unimpaired condition, and of a size suitable for wilderness management.
- An area of less than 5,000 contiguous Federal acres that is contiguous with a design-

nated wilderness, recommended wilderness, or area under wilderness review by another Federal wilderness managing agency such as the Forest Service, National Park Service, or Bureau of Land Management.

## Evaluation of the Naturalness Criteria

In addition to being roadless, a WSA must meet the naturalness criteria. Section 2(c) defines wilderness as an area that "... generally appears to have been affected primarily by the forces of nature with the imprint of man's work substantially unnoticeable." The area must appear natural to the average visitor rather than "pristine." The presence of historic landscape conditions is not required. An area may include some human impacts provided they are substantially unnoticeable in the unit as a whole. Significant human-caused hazards, such as the presence of unexploded ordnance from military activity and the physical impacts of refuge management facilities

**Table 16. Evaluation of wilderness values on Alamosa Refuge.**

<i>Refuge Area</i>	<i>Areas north and west of Closed Basin canal</i>	<i>Areas south and east of Closed Basin canal</i>
(1) Has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; or (2) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable?	NO Area is fragmented by county roads, refuge public use roads, and several large irrigation laterals. Large water control structures and manmade dikes are evident throughout as well.	NO Area is fragmented by county roads, refuge public use roads, and several large irrigation laterals. Area is fragmented by county roads, refuge public use roads, and several large irrigation laterals. Large water control structures and man-made dikes are evident throughout as well.
(3a) Has outstanding opportunities for solitude; or (3b) has outstanding opportunities for a primitive and unconfined type of recreation?	NO (3a and 3b) (3a) Area is within 1–5 miles of the city of Alamosa with several public roads intersecting. An active railroad also bounds the unit to the north and an active regional airport is within 3 miles. (3b) Large irrigation canals limit accessibility within the units, and intersecting roads fragment and confine areas.	YES to 3a; NO to 3b (3a) Area is further from town, highways, and active railroad. (3b) Large irrigation canals limit accessibility within the units, and intersecting roads fragment and confine areas.
(4) Contains ecological, geological, or other features of scientific, educational, scenic, or historical value?	YES Area has rich diverse wetlands and riparian areas that provide scientific, educational, and scenic value	YES Area has rich diverse wetlands and riparian areas that provide scientific, educational, and scenic value.
Unit qualifies as a wilderness study area (meets criteria 1, 2, and 3a or 3b)?	NO The human imprint on the environment is substantially noticeable and unavoidable	NO The human imprint on the environment is substantially noticeable and unavoidable.

**Table 17. Evaluation of wilderness values on Baca Refuge.**

<i>Refuge Unit or Area</i>	<i>Management Areas 1 and 2</i>	<i>Management Areas 3 and 5</i>	<i>Management Areas 4, 6 and 7 (Western Portions)</i>	<i>Management Areas 4, 6, and 7 (Eastern Portions)</i>
(1) Has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; or (2) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable.	NO Area is fragmented by roads, fences, irrigation laterals, large water control structures, administrative sites, corrals, and sheds.	NO Area extremely fragmented by BOR's roads, pipelines and a large industrial-like canal which are readily visible. Overhead powerline webs landscape and can be seen for miles.	NO Area extremely fragmented by BOR's roads, powerlines, pipelines, and a large industrial-like canal, which are readily visible. Overhead powerlines landscape and can be seen for miles.	YES Areas mostly intact with very few intervening roads and infrastructure and little sign of intervention by man.
(3a) Has outstanding opportunities for solitude; or (3b) Has outstanding opportunities for a primitive and unconfined type of recreation.	NO (3a) Management areas are bounded on the north by busy county road. In addition, these areas house several administrative sites. All major refuge access points are through these areas. (3b) Area is fragmented by roads, several large irrigation laterals, large water control structures, corrals, and sheds. Smaller management units result in more confinement.	NO Area extremely fragmented by BOR's roads, powerlines, pipelines and a large industrial-like canal	NO Area extremely fragmented by BOR's roads, powerlines, pipelines, and a large industrial-like canal.	YES Areas not easily accessible and located nearly as far from regular human activity as possible on the valley floor; share boundary with current WSA.
(5) Contains ecological, geological, or other features of scientific, educational, scenic, or historical value?	YES Area has rich diverse wetland, riparian, and upland habitats. Provides scientific, educational and scenic value. Contains rich historic and prehistoric values.	YES Area has rich playa habitats which provide scientific, educational and scenic value. Also, contains rich prehistoric values.	YES Area has rich playa habitats that provide scientific, educational, and scenic value. Also, contains rich prehistoric values.	YES Areas associated with rare and globally significant Great Sand Dunes complex. Contains unique native habitats and rich historic and prehistoric values.
Unit qualifies as a wilderness study area (meets criteria 1, 2, and 3a or 3b)?	NO The human imprint on the environment is substantially noticeable and unavoidable	NO The human imprint on the environment is substantially noticeable and unavoidable	NO The human imprint on the environment is substantially noticeable and unavoidable	YES

and activities are also considered in evaluation of the naturalness criteria. An area may not be considered unnatural in appearance solely on the basis of the “sights and sounds” of human impacts and activities outside the boundary of the unit.

Evaluation of Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

In addition to meeting the size and naturalness criteria, a WSA must provide outstanding opportunities for solitude or primitive recreation. The area does not have to possess outstanding opportunities for both solitude and primitive and unconfined recreation and does not need to have outstanding opportunities on every acre. Further, an area does not have to be open to public use and access to qualify under this criteria; Congress has designated a number of wilderness areas in the Refuge System that are closed to public access to protect resource values.

Opportunities for solitude refer to the ability of a visitor to be alone and secluded from other visitors in the area. Primitive and unconfined recreation means non-motorized, dispersed outdoor recreation activities that are compatible and do not require developed facilities or mechanical transport. These primitive recreation activities may provide opportunities to experience challenge and risk, self reliance, and adventure.

These two “opportunity elements” are not well defined by the Wilderness Act but, in most cases, can be expected to occur together. An outstanding opportunity for solitude may be present in an area offering only limited primitive recreation potential. Conversely, an area may be so attractive for recreation use that experiencing solitude is not an option.

## Evaluation of Supplemental Values

Supplemental values are defined by the Wilderness Act as “...ecological, geological, or other features of scientific, educational, scenic, or historic value.” These values are not required for wilderness but their presence should be documented.

## F.2 Inventory and Findings Alamosa Refuge

As documented below, none of the lands within Alamosa Refuge meet the criteria necessary for a WSA. Tables 19 and 20 summarize the inventory findings for each unit.

## Background

Alamosa Refuge consists of 12,026 acres and was established in 1962 under authority of the Migratory Bird Treaty Act with the authorizing purpose “... for use as inviolate sanctuary or for any other management purpose, for migratory birds.” Primarily located within the historic Rio Grande floodplain, the refuge encompasses lands that include 7 river miles of the Rio Grande as it transitions from flowing in a southeasterly direction to nearly directly south. This transition in direction over time has resulted in the river’s taking many paths over the landscape as it changed directions. This movement of the river created an extensive system of channel sloughs, oxbow lakes, and wet meadow depressions, which make up the character of the refuge today.

Many land and water use changes have occurred throughout the San Luis Valley since European settlement. These changes revolved primarily around the expansion of agriculture and have resulted in the diminished availability of surface and ground water to the refuge. Less water available in the Rio Grande as it enters the refuge made it necessary for the development of irrigation systems to deliver water through ditches and canals to areas that historically were naturally wet. In efforts to maintain the productivity of the wetlands on the refuge over time, we have continued to make modifications by the development of even more extensive water management infrastructure (levees, ditches, and water-control structures), all of which exist on the landscape today. In addition, the landscape encompassing the refuge was changed by the construction of a BOR water salvage project that included a large, extraordinary canal that bisects the refuge. The canal, which has extensive associated support infrastructure attached to it as it passes through the refuge (heated and enclosed fish barrier screens, and a large concrete spillway and apron), was designed to deliver water to the Rio Grande below the last diversion on the river that occurs on the refuge.

For the purposes of this review, we have divided the refuge into two parcels: Parcel 1 includes those refuge lands that occur north and west of the Closed Basin Project canal, and Parcel 2 is all refuge lands south and east of the Closed Basin canal.

## Roadless Areas, Roadless Islands, and Size Criteria

Parcels 1 and 2: Many of the roads are associated with the intensive irrigation infrastructure neces-

sary for maintaining the refuge's productivity to meet its intended purpose. These roads divide the refuge into several smaller parcels, which are classified as management units. None of the fragmented parcels are larger than 5,000 acres.

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## Naturalness Criteria

Parcels 1 and 2: The land within Alamosa Refuge has been extensively altered by the construction of a vast irrigation network that allowed it to be intensively managed for hay and cattle production prior to the establishment of the refuge and ensured the productivity of its wetlands as a refuge. As a result, many of the visual qualities associated with those uses are evident on the landscape. Man-made ditches, levees, fences, roads and other infrastructure are evidence of some of the former and current operations, thus detracting from the naturalness of the refuge.

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## Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

Parcel 1: There are limited opportunities for solitude or primitive and unconfined recreation in this area as it is closer to the town of Alamosa, an active regional airport, and a busy railway switchyard. Sights and sounds from the town, airport, and switchyard as well as from county roads, refuge headquarters and shop areas, and neighboring agricultural operations interfere with opportunities for solitude and unconfined recreation.

Parcel 2: This area, which is situated east and south of the Closed Basin Project canal, is located further than Parcel 1 from the influence of a neighboring hub community with facilities such as an airport, railyards, and highways. It offers opportunities for relative solitude and unconfined recreation. Neighboring operations and the low hum of a distant town can nearly always be heard, although at a much lower level than the more northern and western parcel areas.

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## Supplemental Values

Alamosa Refuge consists of over 12,000 acres of productive and diverse habitats flanked on the west by the Rio Grande and on the east by a large bluff

escarpment providing an overlook of the entire refuge. A mosaic of seasonal to permanent wetlands and alkaline desert uplands provide for a diverse assemblage of wildlife. The juxtaposition of the bluff escarpment with nearby wetlands provided an important lookout for countless generations of hunters and as a result contains the rich archeological history of over 8,000 years of use by humans.

Although the refuge is surrounded by activities ranging from the city of Alamosa to several agricultural operations and a rail switchyard, portions still offer excellent relief from this nearby urban setting. In addition, relatively dark night skies are abundant on the southern portions of the refuge.

## F.3 Inventory and Findings for Baca Refuge

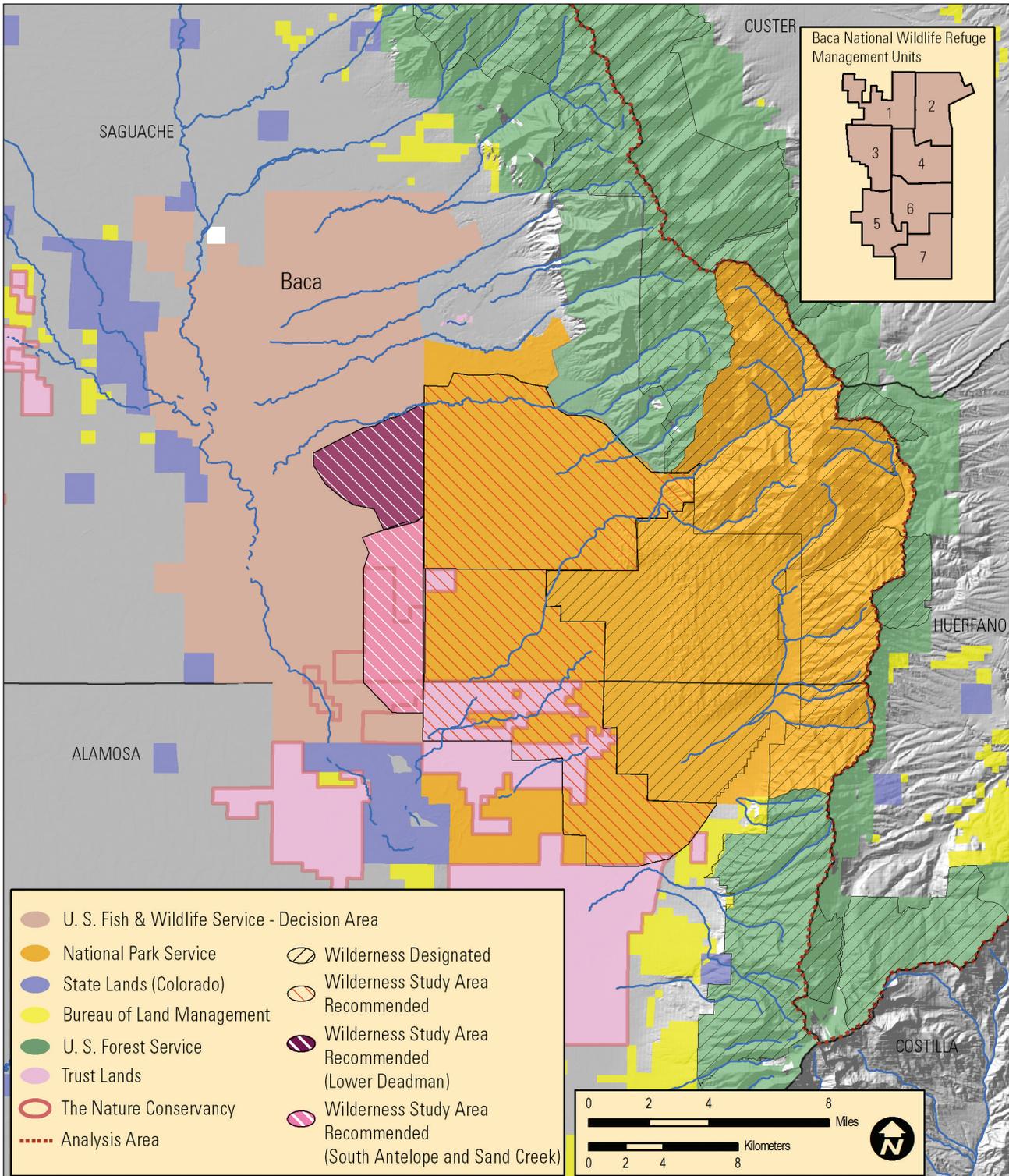
As documented below, there are two areas within Baca Refuge that meet the criteria necessary for a WSA. Figure 47 shows these areas, and table 17 summarizes the inventory findings for each of the refuge's seven major management areas.

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## Background

The Baca Refuge located in the northeastern portion of the San Luis Valley in south-central Colorado currently contains roughly 85,942 acres of the nearly 92,500 acres authorized by Congress in 2000 as part of the Great Sand Dunes National Park and Preserve Act. The intended purpose of the refuge is to restore, enhance, and maintain wetland, upland, riparian, and other habitats for wildlife, plants, and fish that are native to the San Luis Valley. Refuge policies emphasize migratory bird conservation and consideration of the refuge in the context of broader San Luis Valley conservation efforts.

The refuge, although located at the base of the impressive Sangre de Cristo Mountains and receiving most of the runoff from the tallest portions of this steep mountain chain, is part of a closed basin having no natural surface outlet connecting it to the Rio Grande, which is the primary artery transferring water out of the San Luis Valley. Lands encompassing the refuge include the major confluence of all surface waters draining into the northern portions of the valley from several creeks that originate in the Sangre de Cristo Mountains and discharge into San Luis Creek, and from Saguache and La Garita creeks, which originate in the San Juan Mountains



**Figure 47. Wilderness inventory for Baca National Wildlife Refuge.**

and also discharge into San Luis Creek. Historically, water from these sources maintained one of the largest playa wetland complexes in the San Luis Valley. Restoration of this wetland complex is an emphasis for the Service.

The Baca Refuge contains a large portion of the regionally unique eolian sand sheet associated with the Great Sand Dunes complex, which features the tallest dunes in North America and one of the most fragile and complex dune systems in the world. The portions of this dune system on the refuge contain many unique sand ramps and stabilizing dunes, which lead to and eventually become part of the larger dune mass. These areas provide tremendously scenic settings, which include the massive dunes surrounded by alpine peaks. In addition, portions of the refuge contain remnants of some of the oldest known archaeology in the San Luis Valley (12,000 years of human history in the San Luis Valley).

The majority of the refuge area receiving surface water was developed as part of the historic Baca Grant Ranch. This ranch remained in continuous operation under different ownerships from the late 1800s until the land was acquired by the Service and the refuge was established. An intensive historic network of canals and ditches carry water from streams and wells to meadows that were historically irrigated for the production of forage for large cattle operations that existed there for nearly 120 years. The refuge continues to maintain and operate this infrastructure to provide quality wetland habitats in support of the Service mission and the refuge's intended purposes.

The Baca Refuge borders lands owned by TNC, NPS, CPW and the Colorado State Land Board. The complex of lands within these ownerships including the refuge, total more than 500,000 acres of contiguous protected land and include the Great Sand Dunes National Park and Preserve, TNC's Medano Ranch Preserve, and the San Luis Lake State Park and Wildlife Area. Management of these lands is primarily focused on protecting the region's hydrology, as well as the ecological, cultural, and wildlife resources of the area.

BOR operates a ground water "salvage" project within the valley's Closed Basin, including major portions of the refuge. This project extracts shallow ground water from the closed basin portion of the valley and delivers it to the Rio Grande through a 42-mile-long canal originating on the western boundary of the refuge. About one-third of this project's wells are within the boundaries of the Baca Refuge. This array of wells and a vast amount of infrastructure (well sites, pipelines, and an extensive array of powerlines and roads) dissect the majority of the western portions of the refuge.

The northeastern portion of the refuge is bounded by a 15,000-plus-acre subdivision with over 4,000 platted buildable lots and over 600 full-time residents. The landbase for this subdivision was carved from within the boundaries of the historic Baca Grant in the early 1970s. In addition, the subsurface mineral, and oil and gas rights were severed from those portions of the refuge that were part of the historic Baca Grant.

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## Roadless Areas, Roadless Islands, and Size Criteria (Figure 47)

Management Areas 1 and 2: These areas of the refuge contain a series of refuge-maintained roads that are used frequently in the maintenance and operation of the refuge's intensive irrigation infrastructure. In addition, these roads are heavily used by contractors and permittees assisting the Service in maintaining the refuge's productivity to meet its intended purpose. Three of the four CCP public use alternatives consider development of an auto tour route in these areas. These areas of the refuge contain a greater diversity of habitats of relatively smaller patch size and numerous fences delineating individual management units. Management Areas 3 and 5: These areas in the heart of the Closed Basin sump area contain a vast network of roads, powerlines, wells, and pipelines that comprise nearly one-third of BOR's Closed Basin Project. This extensive infrastructure greatly fragments these areas. Management Areas 4, 6, and 7: Western portions of these units are fragmented by the extensive BOR's infrastructure or the refuge's irrigation infrastructure and its associated roads. The eastern portions of these areas, which contribute to the large sand sheet associated with the great sand dunes complex, exhibit very few roads, fences, and other infrastructure that fragment many other areas of the refuge. This largely roadless area encompasses over 13,800 acres and is bounded on the east by Great Sand Dunes National Park lands that are also proposed as wilderness.

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## Naturalness Criteria

Management Areas 1 and 2: These lands within the Baca Refuge have primarily been shaped by the rich ranching history that has dominated this landscape for the last 120 years. The majority of the refuge irrigation water rights were secured in the late 1870s, and irrigation and associated infrastructure

have continued to develop since then. Even though this presence of man's hand is so readily apparent on the landscape, there is still a feel of naturalness as the rich ranch management history that is predominate in the northern San Luis Valley results in wet meadows of native species that are uncharacteristically large and scenic.

Management Areas 3 and 5: Although these areas of the refuge contain remnants of what once was one of Colorado's largest playa wetland complexes, several decades of over demand on the area's limited water resources has resulted in little water currently reaching the area. It is in these areas where BOR's Closed Basin Project extracts shallow ground water for delivery to the Rio Grande. This water salvage project contains a vast network of roads, powerlines, wells, and pipelines that compromise every aspect of the naturalness of these areas. Management Areas 4, 6, and 7: The western portions of land within these management areas contain much of the same infrastructure for BOR's Closed Basin Project or infrastructure used by the Service for irrigation of refuge habitats. These anomalies to the natural landscape greatly detract from the overall naturalness of the area. The eastern portions of these areas, despite having been used for cattle operations for over a century, have retained their natural characteristics. Mostly roadless and intact, these areas have very few infrastructure developments. The developments that do exist consist of two cross fences, a handful of stock and monitoring wells, and three roads transecting the area, which consists of more than 13,800 acres.

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## Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

Management Areas 1 and 2: These areas are on the north end of the refuge and are bounded on the north by Saguache County Road T, which serves as the only ingress/egress for the town of Crestone and the Baca Grande Subdivision. In addition, these areas house both the refuge headquarters and shop compounds. Many of the habitats in these areas are irrigated and as such have the related infrastructure. Management units within these areas are, for the most part, smaller which results in more fencing and roads on the overall landscape. All of these factors combined reduce the potential for solitude or primitive and unconfined recreation.

Management Areas 3 and 5: These areas in the heart of the Closed Basin sump contain a vast network of roads, powerlines, wells, and pipelines that comprise nearly one-third of BOR's Closed Basin

Project. This extensive infrastructure requires frequent maintenance, resulting in frequent vehicle and equipment use. In addition, Colorado Highway 17 lies within 4 miles of any point in these areas. The noises, visual distractions, and the fragmentation due to the vast infrastructure limit any opportunities for solitude and unconfined recreation in these areas.

Management Areas 4, 6, and 7: Western portions of these units are fragmented by BOR's infrastructure and the refuge's irrigation infrastructure and its associated roads and offer little opportunity for solitude and unconfined recreation, while the eastern portions are located nearly as far as one can get from regular human activity on the valley floor. These eastern areas share an administrative boundary with NPS proposed wilderness associated with the Great Sand Dunes National Park and Preserve. NPS has documented a portion of Great Sand Dunes National Park and Preserve as being one the quietest places in the National Park System. One of the greatest attributes of these areas is the opportunity they provide for solitude and unconfined recreation. With or without a wilderness designation, we would strive to maintain those characteristics in these areas.

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## Supplemental Values

Management Areas 1 and 2: These areas of the refuge, although altered by the imprint of man, contain many important values, such as remnants of the rich history of the Baca Grant Ranch and many important archeological sites containing artifacts of more than 9,000 years of human existence in and around important wetlands. Habitats in these management areas consist primarily of rabbit-brush-dominated uplands and large expanses of irrigated wet meadows. The juxtaposition of these two habitats is of interest to scientists as they continue to gather information on their importance and role in overall San Luis Valley wetlands conservation.

Although these areas do not offer opportunities for roadlessness or solitude, they are situated within 10 miles of five 14,000 plus foot peaks and offer a fantastic and rare vantage of the impressive mountain range containing them. Because of the extreme private nature of the ranch for over the past century, the area has been viewed and enjoyed by only a few individuals. Many life-long neighbors who have visited these areas have commented on how this place gives them an incredible and wonderfully different vantage of the area they call their own and where they have spent their whole lives.

Management Areas 3 and 5: These areas in the heart of the Closed Basin sump once contained one of the largest playa wetland complexes in the San Luis

Valley, and although they no longer receive large amounts of water and have been fragmented and invaded by man, there are portions that occasionally can be wetted. These areas offer small glimpses of what once likely dominated the landscape. The resulting natural wetlands that occur are of extreme importance to the scientific community. In addition, the overall area contains a rich archaeological and paleontological history.

Management Areas 4, 6, and 7: Western portions of these areas are similar to the areas described

above for management areas 3 and 5. The eastern portions have experienced very little intervention by man and are largely unfragmented and intact. Situated on the sand sheet associated with the rare and globally significant Great Sand Dunes complex, they contain unique native habitats and species. Night skies, extreme quietness, and incredible vistas dominate the area and offer a unique insight as to what the valley floor may have been like prior to human settlement.



# Appendix G

## Species Lists

Common Name	Scientific Name
Birds	
✧ Known to nest on complex > Suspected to nest on complex < Rare or accidental sightings	
Loons	
< Pacific loon	<i>Gavia pacifica</i>
< Common loon	<i>Gavia immer</i>
Grebes	
✧ Pied-billed grebe	<i>Podilymbus podiceps</i>
✧ Eared grebe	<i>Podiceps nigricollis</i>
> Western grebe	<i>Aechmophorus occidentalis</i>
Clark's grebe	<i>Aechmophorus clarkii</i>
Pelicans	
American white pelican	<i>Pelecanus erythrorhynchos</i>
Cormorants	
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Bitterns, Herons, and Egrets	
✧ American bittern	<i>Botaurus lentiginosus</i>
< Least bittern	<i>Ixobrychus exilis</i>
Great blue heron	<i>Ardea herodias</i>
Great egret	<i>Ardea alba</i>
✧ Snowy egret	<i>Egretta thula</i>
Little blue heron	<i>Egretta caerulea</i>
✧ Cattle egret	<i>Bubulcus ibis</i>
Green heron	<i>Butorides virescens</i>
✧ Black-crowned night-heron	<i>Nycticorax nycticorax</i>
< Tricolored heron	<i>Egretta tricolor</i>
Ibises and Spoonbills	
✧ White-faced ibis	<i>Plegadis chihi</i>
< White ibis	<i>Eudocimus albus</i>
New World Vultures	
Turkey vulture	<i>Cathartes aura</i>
Swans, Geese, and Ducks	
Greater white-fronted goose	<i>Anser albifrons</i>

Common Name	Scientific Name
Snow goose	<i>Chen caerulescens</i>
Ross' goose	<i>Chen rossii</i>
✧ Canada goose	<i>Branta canadensis</i>
Tundra swan	<i>Cygnus columbianus</i>
Wood duck	<i>Aix sponsa</i>
✧ Gadwall	<i>Anas strepera</i>
✧ American wigeon	<i>Anas americana</i>
✧ Mallard	<i>Anas platyrhynchos</i>
✧ Blue-winged teal	<i>Anas discors</i>
✧ Cinnamon teal	<i>Anas cyanoptera</i>
✧ Northern shoveler	<i>Anas clypeata</i>
✧ Northern pintail	<i>Anas acuta</i>
✧ Green-winged teal	<i>Anas crecca</i>
Canvasback	<i>Aythya valisineria</i>
✧ Redhead	<i>Aythya americana</i>
Ring-necked duck	<i>Aythya collaris</i>
Greater scaup	<i>Aythya marila</i>
Lesser scaup	<i>Aythya affinis</i>
Bufflehead	<i>Bucephala albeola</i>
Common goldeneye	<i>Bucephala clangula</i>
Common merganser	<i>Mergus merganser</i>
< Hooded merganser	<i>Lophodytes cucullatus</i>
< Red-breasted merganser	<i>Mergus serrator</i>
✧ Ruddy duck	<i>Oxyura jamaicensis</i>
Osprey, Kites, Hawks, and Eagles	
Osprey	<i>Pandion haliaetus</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
✧ Northern harrier	<i>Circus cyaneus</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Cooper's hawk	<i>Accipiter cooperii</i>
< Northern goshawk	<i>Accipiter gentilis</i>
✧ Swainson's hawk	<i>Buteo swainsoni</i>
✧ Red-tailed hawk	<i>Buteo jamaicensis</i>
Ferruginous hawk	<i>Buteo regalis</i>
Rough-legged hawk	<i>Buteo lagopus</i>
Golden eagle	<i>Aquila chrysaetos</i>

Common Name	Scientific Name
Gallinaceous Birds	
◇ Ring-necked pheasant (Introduced)	<i>Phasianus colchicus</i>
Rails	
◇ Virginia rail	<i>Rallus limicola</i>
◇ Sora	<i>Porzana carolina</i>
◇ American coot	<i>Fulica americana</i>
< Purple gallinule	<i>Porphyrio martinicus</i>
< Common gallinule	<i>Gallinula galeata</i>
Cranes	
Sandhill crane	<i>Grus canadensis</i>
Plovers	
Black-bellied plover	<i>Pluvialis squatarola</i>
Semipalmated plover	<i>Charadrius semipalmatus</i>
◇ Killdeer	<i>Charadrius vociferus</i>
Mountain plover	<i>Charadrius montanus</i>
< Snowy plover	<i>Charadrius nivosus</i>
Stilts and Avocets	
◇ Black-necked stilt	<i>Himantopus mexicanus</i>
◇ American avocet	<i>Recurvirostra americana</i>
Sandpipers and Phalaropes	
Greater yellowlegs	<i>Tringa melanoleuca</i>
Lesser yellowlegs	<i>Tringa flavipes</i>
Solitary sandpiper	<i>Tringa solitaria</i>
Willet	<i>Catoptrophorus semipalmatus</i>
◇ Spotted sandpiper	<i>Actitis macularia</i>
< Whimbrel	<i>Numenius phaeopus</i>
Long-billed curlew	<i>Numenius americanus</i>
Marbled godwit	<i>Limosa fedoa</i>
Sanderling	<i>Calidris alba</i>
Western sandpiper	<i>Calidris mauri</i>
Least sandpiper	<i>Calidris minutilla</i>
Baird's sandpiper	<i>Calidris bairdii</i>
Pectoral sandpiper	<i>Calidris melanotos</i>
Stilt sandpiper	<i>Calidris himantopus</i>
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>
◇ Wilson's snipe	<i>Gallinago delicata</i>
◇ Wilson's phalarope	<i>Phalaropus tricolor</i>
Skuas, Jaegers, Gulls, and Terns	
Franklin's gull	<i>Larus pipixcan</i>
Bonaparte's gull	<i>Larus philadelphia</i>
Ring-billed gull	<i>Larus delawarensis</i>
< Caspian tern	<i>Hydroprogne caspia</i>

Common Name	Scientific Name
< Common tern	<i>Sterna hirundo</i>
< Least tern	<i>Sternula antillarum</i>
Forster's tern	<i>Sterna forsteri</i>
> Black tern	<i>Chlidonias niger</i>
Pigeons and Doves	
◇ Rock Dove (Introduced)	<i>Columba livia</i>
Band-tailed pigeon	<i>Columba fasciata</i>
◇ Mourning dove	<i>Zenaida macroura</i>
Eurasian collared-dove (Introduced)	<i>Streptopelia decaocto</i>
Barn Owls	
Barn owl	<i>Tyto alba</i>
Typical Owls	
◇ Great horned owl	<i>Bubo virginianus</i>
> Burrowing owl	<i>Athene cunicularia</i>
Long-eared owl	<i>Asio otus</i>
◇ Short-eared owl	<i>Asio flammeus</i>
Nightjars	
> Common nighthawk	<i>Chordeiles minor</i>
Common poorwill	<i>Phalaenoptilus nuttallii</i>
Swifts	
White-throated swift	<i>Aeronautes saxatalis</i>
Hummingbirds	
Black-chinned hummingbird	<i>Archilochus alexandri</i>
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>
Rufous hummingbird	<i>Selasphorus rufus</i>
Calliope hummingbird	<i>Stellula calliope</i>
Kingfishers	
> Belted kingfisher	<i>Ceryle alcyon</i>
Woodpeckers	
Lewis' woodpecker	<i>Melanerpes lewis</i>
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>
Downy woodpecker	<i>Picoides pubescens</i>
Hairy woodpecker	<i>Picoides villosus</i>
Northern flicker	<i>Colaptes auratus</i>
< Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
Falcons and Caracaras	
◇ American kestrel	<i>Falco sparverius</i>
Merlin	<i>Falco columbarius</i>

Common Name	Scientific Name
Peregrine falcon	<i>Falco peregrinus</i>
Prairie falcon	<i>Falco mexicanus</i>
Tyrant Flycatchers	
Olive-sided flycatcher	<i>Contopus cooperi</i>
◇ Western wood-pewee	<i>Contopus sordidulus</i>
◇ Willow flycatcher	<i>Empidonax traillii</i>
◇ Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>
◇ Say's phoebe	<i>Sayornis saya</i>
< Vermillion flycatcher	<i>Pyrocephalus rubinus</i>
Gray flycatcher	<i>Empidonax wrightii</i>
Cassin's kingbird	<i>Tyrannus vociferans</i>
> Western kingbird	<i>Tyrannus verticalis</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Shrikes	
◇ Loggerhead shrike	<i>Lanius ludovicianus</i>
Northern shrike	<i>Lanius excubitor</i>
Vireos	
Warbling vireo	<i>Vireo gilvus</i>
Crows, Jays, and Magpies	
◇ Black-billed magpie	<i>Pica hudsonia</i>
American crow	<i>Corvus brachyrhynchos</i>
Common raven	<i>Corvus corax</i>
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>
Larks	
◇ Horned lark	<i>Eremophila alpestris</i>
Swallows	
◇ Tree swallow	<i>Tachycineta bicolor</i>
Violet-green swallow	<i>Tachycineta thalassina</i>
> Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
< Purple martin	<i>Progne subis</i>
Bank swallow	<i>Riparia riparia</i>
◇ Cliff swallow	<i>Petrochelidon pyrrhonota</i>
◇ Barn swallow	<i>Hirundo rustica</i>
Titmice and Chickadees	
Black-capped chickadee	<i>Poecile atricapilla</i>
Mountain chickadee	<i>Poecile gambeli</i>
Nuthatches	
White-breasted nuthatch	<i>Sitta carolinensis</i>
Wrens	
Rock wren	<i>Salpinctes obsoletus</i>

Common Name	Scientific Name
◇ House wren	<i>Troglodytes aedon</i>
◇ Marsh wren	<i>Cistothorus palustris</i>
Kinglets	
Ruby-crowned kinglet	<i>Regulus calendula</i>
Thrushes	
Western bluebird	<i>Sialia mexicana</i>
Mountain bluebird	<i>Sialia currucoides</i>
Swainson's thrush	<i>Catharus ustulatus</i>
◇ American robin	<i>Turdus migratorius</i>
Mimic Thrushes	
Northern mockingbird	<i>Mimus polyglottos</i>
◇ Sage thrasher	<i>Oreoscoptes montanus</i>
< Brown thrasher	<i>Toxostoma rufum</i>
Gray catbird	<i>Dumetella carolinensis</i>
Starlings	
◇ European starling (Introduced)	<i>Sturnus vulgaris</i>
Wagtails and Pipits	
American pipit	<i>Anthus rubescens</i>
Wood Warblers	
◇ Yellow warbler	<i>Dendroica petechia</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>
Townsend's warbler	<i>Dendroica townsendi</i>
Northern water-thrush	<i>Seiurus noveboracensis</i>
MacGillivray's warbler	<i>Oporornis tolmiei</i>
◇ Common yellowthroat	<i>Geothlypis trichas</i>
Wilson's warbler	<i>Wilsonia pusilla</i>
< Orange-crowned warbler	<i>Oreothlypis celata</i>
< Black-and-white warbler	<i>Mniotilta varia</i>
< Prothonotary warbler	<i>Protonotaria citrea</i>
< Hooded warbler	<i>Setophaga citrina</i>
Tanagers	
Western tanager	<i>Piranga ludoviciana</i>
Sparrows and Towhees	
Green-tailed towhee	<i>Pipilo chlorurus</i>
Spotted towhee	<i>Pipilo maculatus</i>
Cassin's sparrow	<i>Aimophila cassinii</i>
American tree sparrow	<i>Spizella arborea</i>
Chipping sparrow	<i>Spizella passerina</i>

Common Name	Scientific Name
◇ Brewer's sparrow	<i>Spizella breweri</i>
◇ Vesper sparrow	<i>Pooecetes gramineus</i>
Lark sparrow	<i>Chondestes grammacus</i>
Black-throated sparrow	<i>Amphispiza bilineata</i>
Lincoln's sparrow	<i>Melospiza lincolni</i>
Sage sparrow	<i>Amphispiza belli</i>
Lark bunting	<i>Calamospiza melanocorys</i>
◇ Savannah sparrow	<i>Passerculus sandwichensis</i>
Grasshopper sparrow	<i>Ammodramus savannarum</i>
◇ Song sparrow	<i>Melospiza melodia</i>
◇ White-crowned sparrow	<i>Zonotrichia leucophrys</i>
< Swamp sparrow	<i>Melospiza georgiana</i>
Dark-eyed junco	<i>Junco hyemalis</i>
< Lapland longspur	<i>Calcarius lapponicus</i>
Cardinals, Grosbeaks, and Allies	
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>
Blue grosbeak	<i>Guiraca caerulea</i>
< Indigo bunting	<i>Passerina cyanea</i>
Blackbirds and Orioles	
Bobolink	<i>Dolichonyx oryzivorus</i>
◇ Red-winged blackbird	<i>Agelaius phoeniceus</i>
◇ Western meadowlark	<i>Sturnella neglecta</i>
◇ Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>
◇ Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Great-tailed grackle	<i>Quiscalus mexicanus</i>
◇ Brown-headed cowbird	<i>Molothrus ater</i>
◇ Bullock's oriole	<i>Icterus bullockii</i>
< Orchard oriole	<i>Icterus spurius</i>
Finches	
Gray-crowned rosy-finch	<i>Leucosticte tephrocotis</i>
Cassin's finch	<i>Carpodacus cassinii</i>
◇ House finch	<i>Carpodacus mexicanus</i>
Pine siskin	<i>Carduelis pinus</i>
Lesser goldfinch	<i>Carduelis psaltria</i>
> American goldfinch	<i>Carduelis tristis</i>
Old World Sparrows	
House sparrow (Introduced)	<i>Passer domesticus</i>

Common Name	Scientific Name
Mammals	
◇ Breeding species on complex	
Insectivores	
◇ Masked shrew	<i>Sorex cinereus</i>
◇ Montane shrew	<i>Sorex monticolus</i>
◇ Water shrew	<i>Sorex palustris</i>
Bats	
Western small-footed myotis	<i>Myotis ciliolabrum</i>
Long-eared myotis	<i>Myotis evotis</i>
Little brown myotis	<i>Myotis lucifugus</i>
Yuma myotis	<i>Myotis yumanensis</i>
Hoary bat	<i>Lasiurus cinereus</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Big brown bat	<i>Eptesicus fuscus</i>
Townsend's big-eared bat	<i>Plecotus townsendii</i>
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>
Lagomorphs	
◇ Desert cottontail	<i>Sylvilagus audubonii</i>
◇ Mountain cottontail	<i>Sylvilagus nuttallii</i>
◇ White-tailed jackrabbit	<i>Lepus townsendii</i>
Rodents	
◇ Least chipmunk	<i>Tamias minimus</i>
Yellow-bellied marmot	<i>Marmota flaviventris</i>
◇ Thirteen-lined ground squirrel	<i>Spermophilus tridecemlineatus</i>
Wyoming ground squirrel	<i>Urocitellus elegans</i>
Gunnison's prairie dog	<i>Cynomys gunnisoni</i>
◇ Botta's pocket gopher	<i>Thomomys bottae</i>
◇ Northern pocket gopher	<i>Thomomys talpoides</i>
◇ Plains pocket mouse	<i>Perognathus flavescens</i>
◇ Silky pocket mouse	<i>Perognathus flavus</i>
◇ Ord's kangaroo rat	<i>Dipodimys ordii</i>
◇ Western harvest mouse	<i>Reithrodontomys megalotis</i>
◇ Deer mouse	<i>Peromyscus maniculatis</i>
◇ Northern grasshopper mouse	<i>Onychomys leucogaster</i>
◇ House mouse	<i>Mus musculus</i>

Common Name	Scientific Name
◇ Western jumping mouse	<i>Zapus princeps</i>
◇ Long-tailed vole	<i>Microtus longicaudus</i>
◇ Montane vole	<i>Microtus montanus</i>
◇ Meadow vole	<i>Mecrotus pennsylvanicus</i>
◇ Muskrat	<i>Ondatra zibethicus</i>
◇ American beaver	<i>Castor canadensis</i>
◇ Common porcupine	<i>Erethizon dorsatum</i>
Carnivores	
◇ Coyote	<i>Canis latrans</i>
◇ Red fox	<i>Vulpes vulpes</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Black bear	<i>Ursus americanus</i>
◇ Common raccoon	<i>Procyon lotor</i>
Short-tailed weasel	<i>Mustela erminea</i>
◇ Long-tailed weasel	<i>Mustela frenata</i>
Mink	<i>Mustela vison</i>
◇ American badger	<i>Taxidea taxus</i>
Western spotted skunk	<i>Spilogale gracilus</i>
◇ Striped skunk	<i>Mephitis mephitis</i>
Mountain lion	<i>Felis concolor</i>
Bobcat	<i>Lynx rufus</i>
Ungulates	
◇ American elk	<i>Cervus elaphus</i>
◇ Mule deer	<i>Odocoileus hemionus</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Pronghorn	<i>Antilocapra Americana</i>
Reptiles	
Snapping turtle	<i>Chelydra serpentina</i>
Short-horned lizard	<i>Phrynosoma douglassii</i>
Eastern fence lizard	<i>Sceloporous undulatus</i>
Variable skink	<i>Eumeces gaigeae</i>
Milk snake	<i>Lampropeltis triangulum</i>
Bullsnake	<i>Pituophis melnoleucus</i>
Western terrestrial garter snake	<i>Thamnophis elegans</i>
Common garter snake	<i>Thamnophis sirtalis</i>
Western rattlesnake	<i>Crotalus viridis</i>
Smooth green snake	<i>Opheodrys vernalis</i>
Amphibians	
Tiger salamander	<i>Ambystoma tigrinum</i>
Plains spadefoot	<i>Scaphiopus bombifrons</i>
Western toad	<i>Bufo boreas</i>
Great Plains toad	<i>Bufo cognatus</i>

Common Name	Scientific Name
Woodhouse's toad	<i>Bufo woodhousii</i>
Western chorus frog	<i>Pseudacris triseriata</i>
Bullfrog	<i>Rana catesbeiana</i>
Northern leopard frog	<i>Rana pipiens</i>
Fish	
Northern pike	<i>Esox lucius</i>
Brown trout	<i>Salmo trutta</i>
Black bullhead	<i>Ameiurus melas</i>
Rio Grande sucker	<i>Catostomus plebeius</i>
Rio Grande chub	<i>Gila pandora</i>
Fathead minnow	<i>Pimephales promelas</i>
Longnose dace	<i>Rhinichthys cataractae</i>
White sucker	<i>Catostomus commersonii</i>
Common carp	<i>Cyprinus carpio</i>
Tench	<i>Tinca tinca</i>
Vegetation	
Agavaceae	
Yucca	<i>Yucca</i> spp.
Aizoaceae	
Verrucose seapurslane	<i>Sesuvium verruosum</i>
Alismataceae	
Arrowhead	<i>Sagittaria cuneata</i>
Northern water plantain	<i>Alisma</i> cf.
Alsinaceae	
Longleaf starwort	<i>Stellaria longifolia</i>
Alliaceae	
Wild onion/garlic	<i>Allium</i> spp.
Amaranthaceae	
Rough pigweed	<i>Amaranthus retroflexus</i>
Mat amaranth	<i>Amaranthus blitoides</i>
Anacardiaceae	
Skunkbush sumac	<i>Rhus aromatica</i>
Apiaceae	
Rocky Mountain hemlock-parsley	<i>Conioselinum scopulorum</i>
Common cowparsnip	<i>Heracleum sphondylium</i>
Hemlock waterparsnip	<i>Sium suave</i>
Asclepiadaceae	
Showy milkweed	<i>Asclepias speciosa</i>
Swamp milkweed	<i>Asclepias incarnata</i>
Asparagaceae	
Garden asparagus-fern	<i>Asparagus officinalis</i>
Starry false lily of the valley	<i>Maianthemum stellatum</i>

Common Name	Scientific Name
Asteraceae	
Aster species	<i>Aster</i> spp.
Canada thistle	<i>Cirsium arvense</i>
Common cocklebur	<i>Xanthium strumarium</i>
Common mare's-tail	<i>Hippuris vulgaris</i>
Common sagewort	<i>Artemisia campestris</i>
Dandelion	<i>Taraxacum officinale</i>
Fringed sage	<i>Artemisia frigida</i>
Horseweed	<i>Conyza canadensis</i>
Marsh sowthistle	<i>Sonchus arvensis</i>
Povertyweed	<i>Iva axillaris</i>
Rabbitbrush	<i>Chrysothamnus nauseosus</i>
Russian knapweed	<i>Acroptilon repens</i>
Silver sage	<i>Artemisia cana</i>
Snakeweed	<i>Gutierrezia lucida</i>
Sunflower	<i>Helianthus</i> spp.
Wild lettuce	<i>Lactuca serriola</i>
Yarrow	<i>Achillea millefolium</i>
Common yarrow	<i>Achillea lanulosa</i>
Pale agoseris	<i>Agoseris glauca</i>
Alkali marsh aster	<i>Almutaster pauciflorus</i>
Flatspine bur ragweed	<i>Ambrosia acanthicarpa</i>
Littleleaf pussytoes	<i>Antennaria microphylla</i>
Lesser burdock	<i>Arctium minus</i>
Biennial wormwood	<i>Artemisia biennis</i>
Prairie sagewort	<i>Artemisia frigida</i>
White sagebrush	<i>Artemisia ludoviciana</i>
Nodding beggarticks	<i>Bidens cernua</i>
Slimlobe beggarticks	<i>Bidens tenuisecta</i>
Rubber rabbitbrush	<i>Chrysothamnus nauseosus</i>
Prairie thistle	<i>Cirsium canescens</i>
Parry's thistle	<i>Cirsium parryi</i>
Purple aster	<i>Dieteria biglovii</i>
Running fleabane	<i>Erigeron divergens</i>
Trailing fleabane	<i>Erigeron flagellaris</i>
Beautiful fleabane	<i>Erigeron formosissimus</i>
Streamside fleabane	<i>Erigeron glabellus</i>
White sagebrush	<i>Artemisia ludoviciana</i>
Nodding beggarticks	<i>Bidens cernua</i>
Slimlobe beggarticks	<i>Bidens tenuisecta</i>
Rubber rabbitbrush	<i>Chrysothamnus nauseosus</i>
Prairie thistle	<i>Cirsium canescens</i>

Common Name	Scientific Name
Parry's thistle	<i>Cirsium parryi</i>
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Trailing fleabane	<i>Erigeron flagellaris</i>
Beautiful fleabane	<i>Erigeron formosissimus</i>
Streamside fleabane	<i>Erigeron glabellus</i>
Western marsh cudweed	<i>Gnaphalium palustre</i>
Marsh cudweed	<i>Gnaphalium uliginosum</i>
Hairy false goldenaster	<i>Heterotheca villosa</i>
Fineleaf hymenopappus	<i>Hymenopappus filifolius</i>
Blue lettuce	<i>Lactuca tatarica</i>
Hall's ragwort	<i>Ligularia bigelovii</i>
Rush skeletonplant	<i>Lygodesmia juncea</i>
Fall tansyaster	<i>Machaeranthera canescens</i>
Smallflower tansyaster	<i>Machaeranthera parviflora</i>
Tanseyleaf tansyaster	<i>Machaeranthera tanacetifolia</i>
False gold groundsel	<i>Packera pseud aurea</i>
Threetooth ragwort	<i>Packera tridenticulata</i>
Fiddleleaf hawksbeard	<i>Psilochenia runcinata</i>
Lanceleaf goldenweed	<i>Pyrrcoma lanceolata</i>
Blackeyed Susan	<i>Rudbeckia hirta</i>
Manyflower false threadleaf	<i>Schkuhria multiflora</i>
Broomlike ragwort	<i>Senecio multicapitatus</i>
Broom groundsel	<i>Senecio spartioides</i>
Canada goldenrod	<i>Solidago canadensis</i>
Missouri goldenrod	<i>Solidago missouriensis</i>
Spiny sowthistle	<i>Sonchus asper</i>
Moist sowthistle	<i>Sonchus uliginosus</i>
Western aster	<i>Symphotrichum ascensens</i>
White heath aster	<i>Symphotrichum ericoides</i>
White prairie aster	<i>Symphotrichum falcatum</i>
Leafy rayless aster	<i>Symphotrichum frondosum</i>
White panicle aster	<i>Symphotrichum lanceolatum</i>
Yellow salsify	<i>Tragopogon dubius</i>
Boraginaceae	
Cryptantha	<i>Cryptantha</i> sp.
Manyflower stickseed	<i>Hackelia floribunda</i>

<i>Common Name</i>	<i>Scientific Name</i>
Seaside heliotrope	<i>Heliotropium curassavicum</i>
Flatspine stickseed	<i>Lappula occidentalis</i>
James' cryptantha	<i>Oreocarya pustulosa</i>
Sleeping popcornflower	<i>Plagiobothrys scouleri</i>
Common comfrey	<i>Symphytum officinale</i>
Brassicaceae	
Herb sophia	<i>Descurainia sophia</i>
Hoary Cress (small white-top)	<i>Cardaria draba</i>
Peppergrass	<i>Lepidium montanum</i>
Tall Whitetop	<i>Lepidium latifolium</i>
Tansymustard	<i>Descurainia</i> spp.
Rape	<i>Brassica napus</i>
Shepherd's purse	<i>Capsella bursa-pastoris</i>
Lenspod whitetop	<i>Cardaria chalepensis</i>
Broadleaved pepperweed	<i>Cardaria latifolia</i>
Villa grove tansymustard	<i>Descurainia ramosissima</i>
Western wallflower	<i>Erysimum asperum</i>
Field pepperweed	<i>Lepidium campestre</i>
Mesa pepperwort	<i>Lepidium alyssoides</i>
Manybranched pepperweed	<i>Lepidium ramosissimum</i>
Spreading yellowcress	<i>Rorippa sinuata</i>
Southern marsh yellowcress	<i>Rorippa teres</i>
Tall tumbled mustard	<i>Sisymbrium altissimum</i>
Flaxleaf plainsmustard	<i>Sisymbrium linifolium</i>
Cactaceae	
Prickly pear	<i>Opuntia</i> spp.
Campanulaceae	
Parry's bellflower	<i>Campanula parryi</i>
Cannabaceae	
Common hop	<i>Humulus lupulus</i>
Caprifoliaceae	
Honeysuckle	<i>Lonicera</i> sp.
Tatarian honeysuckle	<i>Lonicera tatarica</i>
Caryophyllaceae	
Chickweed	<i>Cerastium</i> spp.
Drummond's campion	<i>Silene drummondii</i>
Chenopodiaceae	
Russian thistle	<i>Salsola iberica</i>
Four-wing saltbush	<i>Atriplex canescens</i>
Goosefoot	<i>Chenopodium murale</i>
Greasewood	<i>Sarcobatus vermiculatus</i>

<i>Common Name</i>	<i>Scientific Name</i>
Saltlover	<i>Halogeton glomeratus</i>
Kochia	<i>Kochia scoparia</i>
Lambsquarters	<i>Chenopodium album</i>
Pickleweed	<i>Salicornia rubra</i>
Pursh seepweed	<i>Suaeda calceoliformis</i>
Winterfat	<i>Krascheninnikovia lanata</i>
Silverscale saltbush	<i>Atriplex argentea</i>
Twoscale saltbush	<i>Atriplex heterosperma</i>
Wolf's saltweed	<i>Atriplex wolffi</i>
Pinyon goosefoot	<i>Chenopodium atrovirens</i>
Zschack's goosefoot	<i>Chenopodium berlandieri</i>
Fremont's goosefoot	<i>Chenopodium fremontii</i>
Rocky Mountain goosefoot	<i>Chenopodium glaucum</i>
Narrowleaf goosefoot	<i>Chenopodium leptophyllum</i>
Desert goosefoot	<i>Chenopodium pratericola</i>
Hairy bugseed	<i>Corispermum villosum</i>
Winged pigweed	<i>Cycloloma atriplicifolium</i>
Slender Russian thistle	<i>Salsola collina</i>
Fetid goosefoot	<i>Teloxys graveolens</i>
Cleomaceae	
Slender spiderflower	<i>Cleome multicaulis</i>
Rocky Mountain bee plant	<i>Cleome serrulata</i>
Convolvulaceae	
Field bindweed	<i>Convolvulus arvensis</i>
Cupressaceae	
Rocky Mountain juniper	<i>Sabina scopulorum</i>
Eastern redcedar	<i>Sabina virginiana</i>
Cyperaceae	
Hardstem bulrush	<i>Schoenoplectus acutus</i>
Nebraska sedge	<i>Carex nebrascensis</i>
Nevada bulrush	<i>Scirpus nevadensis</i>
Sedge spp.	<i>Carex</i> spp.
Softstem bulrush	<i>Schoenoplectus tabernaemontani</i>
Spikerush	<i>Eleocharis</i> spp.
Common three-Square	<i>Schoenoplectus pungens</i>
Bearded flatsedge	<i>Cyperus aristatus</i>
Panicled bulrush	<i>Scirpus microcarpus</i>
Cloaked bulrush	<i>Scirpus pallidus</i>
Elaeagnaceae	
Russian olive	<i>Elaeagnus angustifolia</i>
Equisetaceae	
Field horsetail	<i>Equisetum arvensis</i>
Smooth horsetail	<i>Equisetum laevigata</i>

Common Name	Scientific Name
Scouring rush	<i>Equisetum hyemale</i>
Horsetail	<i>Equisetum</i> spp.
Euphorbiaceae	
Spotted spurge	<i>Euphorbia maculate</i>
Ribseed sandmat	<i>Chamaesyce glyptosperma</i>
Thymeleaf sandmat	<i>Chamaesyce serpyllifolia</i>
Rocky Mountain spurge	<i>Tithymalus brachyceras</i>
Fabaceae	
American vetch	<i>Vicia americana</i>
Purple locoweed	<i>Oxytropis lambertii</i>
Mountain goldenbanner	<i>Thermopsis montana</i>
Goldenbanner	<i>Thermopsis rhombifolia</i>
Alkali swainsonpea	<i>Sphaerophysa salsula</i>
Sweet clover	<i>Melilotus officinalis</i>
Wild licorice	<i>Glycyrrhiza lepidota</i>
Alfalfa	<i>Medicago sativa</i>
Clover	<i>Trifolium</i> spp.
Purple Milkvetch	<i>Astragalus agrestis</i>
Bodin's milkvetch	<i>Astragalus bodinii</i>
Painted milkvetch	<i>Astragalus ceramicus</i>
Hall's milkvetch	<i>Astragalus hallii</i>
Siberian peashrub	<i>Caragana arborescens</i>
King's lupine	<i>Lupinus kingii</i>
Black medick	<i>Medicago lupulina</i>
Blue nodding locoweed	<i>Oxytropis deflexa</i>
White locoweed	<i>Oxytropis sericea</i>
Lemon scurfpea	<i>Psoraleidium lanceolatum</i>
Garden vetch	<i>Vicia angustifolia</i>
Fumaraceae	
Scrambled eggs	<i>Corydalis aurea</i>
Gentianaceae	
Gentian	<i>Gentiana detonsa</i>
Pleated gentian	<i>Gentiana affinis</i>
Autumn dwarf gentian	<i>Gentianella strictiflora</i>
Rocky Mountain fringed	<i>Gentiana Gentianopsis thermalis</i>
Geraniaceae	
Redstem stork's bill	<i>Erodium cicutarium</i>
Pineywoods geranium	<i>Geranium caespitosum</i>
Grossulariaceae	
Golden currant	<i>Ribes aureum</i>
Whitestem gooseberry	<i>Ribes inerme</i>
Trumpet gooseberry	<i>Ribes leptanthum</i>

Common Name	Scientific Name
Haloragaceae	
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Water milfoil	<i>Myriophyllum exalbes-cens</i>
Hippuridaceae	
Mare's tail	<i>Hippuris vulgaris</i>
Hydrophyllaceae	
Wishbone fiddleleaf	<i>Nama dichotomum</i>
White phacelia	<i>Phacelia alba</i>
Iridaceae	
Wild iris	<i>Iris missouriensis</i>
Stiff blue-eyed grass	<i>Sisyrinchium demissum</i>
Juncaceae	
Baltic rush	<i>Juncus balticus</i>
Toad rush	<i>Juncus bufonius</i>
Inland rush	<i>Juncus interior</i>
Longstyle rush	<i>Juncus longistylis</i>
Rocky Mountain rush	<i>Juncus saximontanus</i>
Torrey's rush	<i>Juncus torreyi</i>
Juncaginaceae	
Seaside arrowgrass	<i>Triglochin maritimum</i>
Slender arrowgrass	<i>Triglochin concinna</i>
Marsh arrowgrass	<i>Triglochin palustris</i>
Lamiaceae	
Field mint	<i>Mentha arvensis</i>
Spearmint	<i>Mentha spicata</i>
Wild mint	<i>Mentha arvensis</i>
Hairy hedgenettle	<i>Stachys palustris</i>
Lemnaceae	
Duckweed	<i>Lemna</i> spp.
Loasaceae	
Bractless blazingstar	<i>Mentzelia nuda</i>
Adonis blazingstar	<i>Nuttallia multiflora</i>
Malvaceae	
Salt spring checkerbloom	<i>Sidalcea neomexicana</i>
Scarlet globemallow	<i>Sphaeralcea coccinea</i>
Nyctaginaceae	
Hairy four o'clock	<i>Oxybaphus hirsutus</i>
Narrowleaf four o'clock	<i>Oxybaphus linearis</i>
Heartleaf four o'clock	<i>Oxybaphus nyctagineus</i>
Smallflower sandverbena	<i>Tripterocalyx micranthus</i>
Oleaceae	
Common lilac	<i>Syringa vulgaris</i>

<i>Common Name</i>	<i>Scientific Name</i>	<i>Common Name</i>	<i>Scientific Name</i>
Onagraceae		Prairie wedgegrass (Reedgrass)	<i>Spenopholis obtusata</i>
Yellow evening-primrose	<i>Oenothera flava</i>	Rabbitfoot grass	<i>Polypogon monspeliensis</i>
Fringed willowherb	<i>Epilobium ciliatum</i>	Reed canarygrass	<i>Phalaris arundinaceae</i>
Crownleaf evening-primrose	<i>Oenothera coronopifolia</i>	Reedgrass	<i>Calimagrostis neglecta</i>
Pale evening-primrose	<i>Oenothera pallida</i>	Saltgrass	<i>Distichlis spicata</i>
Hairy evening-primrose	<i>Oenothera villosa</i>	Sand dropseed	<i>Sporobolus cryptandrus</i>
Orchidaceae		Sandhill muhly	<i>Muhlenbergia pungens</i>
Northern green orchid	<i>Platanthera aquilonis</i>	Short-awn foxtail	<i>Alopecurus aequalis</i>
Orobanchaceae		Slender wheatgrass	<i>Agropyron trachycaulum</i>
Louisiana broomrape	<i>Orobanche ludoviciana</i>	Slimstem reedgrass	<i>Calamagrostis neglecta</i>
Yellow owl's-clover	<i>Orthocarpus luteus</i>	Sloughgrass	<i>Beckmannia syzigachne</i>
Phrymaceae		Spike bentgrass	<i>Agrostis exarata</i>
Roundleaf monkeyflower	<i>Mimulus glabratus</i>	Spikedropseed	<i>Sporobolus contractus</i>
Pinaceae		Squirrel tail	<i>Elymus elymoides</i>
Engelmann spruce	<i>Picea engelmannii</i>	Timothy	<i>Phleum pratense</i>
Blue spruce	<i>Picea pungens</i>	Tufted hairgrass	<i>Deschampsia cespitosa</i>
Plantaginaceae		Weeping alkaligrass	<i>Puccinellia distans</i>
Common plantain	<i>Plantago major</i>	Western wheatgrass	<i>Pascopyrum smithii</i>
Nodding buckwheat	<i>Eriogonum cernuum</i>	Sleepygrass	<i>Achnatherum robustum</i>
Longroot smartweed	<i>Persicaria amphibia</i>	Crested wheatgrass	<i>Agropyron cristatum</i>
Curlytop knotweed	<i>Persicaria lapathifolia</i>	Redtop	<i>Agrostis gigantea</i>
Redwool plantain	<i>Plantago eriopoda</i>	Shortawn foxtail	<i>Alopecurus aequalis</i>
Oval-leaf knotweed	<i>Polygonum arenastrum</i>	Creeping meadow foxtail	<i>Alopecurus arundinaceus</i>
Silversheath knotweed	<i>Polygonum argyrocoleon</i>	Purple threeawn	<i>Aristida purpurea</i>
Poaceae		American sloughgrass	<i>Beckmannia syzigachne</i>
Alkali cordgrass	<i>Spartina gracilis</i>	Smooth brome	<i>Bromopsis inermis</i>
Alkali muhly	<i>Muhlenbergia asperifolia</i>	Cheatgrass	<i>Bromus tectorum</i>
Alkali sacaton	<i>Sporobolus airoides</i>	Slimstem reedgrass	<i>Calamagrostis stricta</i>
Barnyard grass	<i>Echinochloa crusgalli</i>	Blue grama	<i>Chondrosium gracile</i>
Beardless wildrye	<i>Leymus triticoides</i>	Foxtail barley	<i>Critesion jubatum</i>
Blue grama	<i>Bouteloua gracilis</i>	MacKenzie's hairgrass	<i>Deschampsia caespitosa</i>
Bluejoint reedgrass	<i>Calamagrostis canadensis</i>	Saltgrass	<i>Distichlis stricta</i>
Brome spp.	<i>Bromus</i> spp.	Quackgrass	<i>Elytrigia repens</i>
Common rye	<i>Secale cereale</i>	Stinkgrass	<i>Eragrostis cilianensis</i>
Creeping wildrye	<i>Elymus triticoides</i>	American mannagrass	<i>Glyceria grandis</i>
Foxtail barley	<i>Hordeum jubatum</i>	Needle and thread	<i>Hesperostipa comata</i>
Grass spp.	<i>Gramanacea</i> spp.	Prairie Junegrass	<i>Koeleria macrantha</i>
Indian ricegrass	<i>Oryzopsis hymenoides</i>	False buffalograss	<i>Monroa squarrosa</i>
Johnsongrass	<i>Sorghum halipense</i>	Scratchgrass	<i>Muhlenbergia asperifolia</i>
Mat muhly	<i>Muhlenbergia richardsonis</i>	Pullup muhly	<i>Muhlenbergia filiformis</i>
Nuttall's alkali grass	<i>Puccinellia nuttalliana</i>	Annual muhly	<i>Muhlenbergia minutissima</i>
Phragmites	<i>Phragmites australis</i>	Witchgrass	<i>Panicum capillare</i>
		Canada bluegrass	<i>Poa compressa</i>

<i>Common Name</i>	<i>Scientific Name</i>
Kentucky bluegrass	<i>Poa pratensis</i>
Sand dropseed	<i>Sporobolus cryptandrus</i>
Polemoniaceae	
Scarlet gilia	<i>Ipomopsis aggregata</i>
Flaxflowered ipomopsis	<i>Ipomopsis longiflora</i>
Polygonaceae	
Curly dock	<i>Rumex crispus</i>
Erect knotweed	<i>Polygonum erectum</i>
Smartweed	<i>Polygonum amphibium</i>
Western dock	<i>Rumex occidentalis</i>
Mexican dock	<i>Rumex triangulivalvis</i>
Portulacaceae	
Little hogweed	<i>Portulaca oleracea</i>
Potamogetonaceae	
Horned pondweed	<i>Zannichellia palustris</i>
Pondweed	<i>Potamogeton</i> spp.
Sago pondweed	<i>Potamogeton pectinatus</i>
Primulaceae	
Sea milkwort	<i>Glaux maritima</i>
Ranunculaceae	
Buttercup	<i>Ranunculus cymbalaria</i>
Western white clematis	<i>Clematis ligusticifolia</i>
Threadleaf crowfoot	<i>Ranunculus aquatilis</i>
Macoun's buttercup	<i>Ranunculus macounii</i>
Rhamnaceae	
Common buckthorn	<i>Rhamnus cathartica</i>
Rosaceae	
Herbaceous cinquefoil	<i>Potentilla nivea</i>
Silverweed cinquefoil	<i>Argentina anserine</i>
Apple	<i>Malus</i>
Paradox cinquefoil	<i>Potentilla paradoxa</i>
Platte River cinquefoil	<i>Potentilla plattensis</i>
Woods' rose	<i>Rosa woodsii</i>
Rubiaceae	
Northern bedstraw	<i>Galium boreale</i>
Salicaceae	
Coyote willow	<i>Salix exigua</i>
Crack willow	<i>Salix fragilis</i>
Narrow-leaf cottonwood	<i>Populus angustifolia</i>
Peach-leaf willow	<i>Salix amygladoides</i>
Plains cottonwood	<i>Populus deltoides</i>
Lombardy poplar	<i>Populus nigra</i>
Quaking aspen	<i>Populus tremuloides</i>
Strapleaf willow	<i>Salix ligulifolia</i>

<i>Common Name</i>	<i>Scientific Name</i>
Greenleaf willow	<i>Salix lucida</i>
Santalaceae	
Pale bastard toadflax	<i>Comandra umbellata</i>
Scrophulariaceae	
Water speedwell	<i>Veronica anagallis-aquat-ica</i>
Neckweed	<i>Veronica peregrina</i>
Butter and eggs	<i>Linaria vulgaris</i>
Meadow lousewort	<i>Pedicularis crenulata</i>
Oneside penstemon	<i>Penstemon virgatus</i>
Common mullein	<i>Verbascum thapsus</i>
Solanaceae	
Matrimony vine	<i>Lycium barbarum</i>
Cutleaf nightshade	<i>Solanum triflorum</i>
Sparganiaceae	
Giant Bur-reed	<i>Sparganium eurycarpum</i>
Tamaricaceae	
Matrimony vine	<i>Lycium barbarum</i>
Cutleaf nightshade	<i>Solanum triflorum</i>
Saltcedar	<i>Tamarix ramosissima</i>
Typha	
Cattail	<i>Typha latifolia</i>
Ulmaceae	
Siberian elm	<i>Ulmus pumila</i>
Urticaceae	
Stinging nettle	<i>Urtica gracilis</i>
Valerianaceae	
Tobacco root	<i>Valeriana edulis</i>
Verbenaceae	
Bigbract verbena	<i>Verbena bracteata</i>
Vitaceae	
Virginia creeper	<i>Parthenocissus quinque-fo- lia</i>
Zygophyllaceae	
Puncturevine	<i>Tribulus terrestris</i>

# Appendix H

## *Intra-Service Section 7 Biological Evaluation Form*

### Intra-Service Section 7 Biological Evaluation Form - Region 6

Originating Person: Scott Miller, Laurie Shannon Date Submitted: \_\_\_\_\_

Telephone Number: Scott (719) 588-7268; Laurie (303) 378-9335

- I. **Service Program and Geographic Area or Station Name:** National Wildlife Refuge System; San Luis Valley National Wildlife Refuge Complex-Alamosa, Monte Vista, and Baca National Wildlife Refuges (NWR(s))
- II. **Flexible Funding Program** (e.g. Joint Venture, etc) if applicable:
- III. **Location:** Location of the project including County, State and TSR (township, section & range): Alamosa, Rio Grande, and Saguache Counties, Colorado.
- IV. **Species/Critical Habitat:** List federally endangered, threatened, proposed, and candidate species or designated or proposed critical habitat that may occur within the action area.

#### **Federally Endangered**

1. Southwestern willow flycatcher (*Empidonax traillii extimus*) Alamosa NWR is within designated critical habitat. Currently there are fewer than five territories documented on the refuge.
2. New Mexico Meadow Jumping Mouse (*Zapus hudsonius*) UNKNOWN

There are several endangered or threatened species that are found in the San Luis Valley but are not found within the action area. Gunnison sage grouse (*Centrocercus minimus*) is federally threatened with a very small population that may occur near Poncha Pass, but the area was not designated as critical habitat, and none are known to occur on the three refuges. Canada lynx (*Lynx Canadensis*) (federally threatened) is found at higher elevations in the San Luis Valley but is not found on the three refuges. Western-billed cuckoo (*Coccyzus americanus*) (federally threatened) has been documented in dense, old-growth cottonwood habitats near McIntire Springs (BLM area to the south), but this type of habitat is very limited on Alamosa Refuge, and the species has never been observed on the three refuges. Mexican spotted owl (*Strix occidentalis lucida*) has not been observed on the refuges (no mature montane forests, woodlands, shady-wooded canyons, or steep canyons). Currently, there are no proposed or candidate species found on the three refuges.

- V. **Project Description:** Describe proposed project or action or, if referencing other documents, prepare an executive summary (attach additional pages as needed):  
**Comprehensive Conservation Plan for the San Luis Valley National Wildlife Refuge Complex (Alamosa, Monte Vista, and Baca National Wildlife Refuges).**

**NOTE:** The Colorado Field office reviewed and provided comments on the internal review draft of the final CCP and EIS. We made changes to the document as a result of the comments we received.

**The overall theme of our preferred alternative is Wildlife Populations, Strategic Habitat Restoration, and Enhanced Public Uses.**

**Summary:** We would approach management of the three refuges with an emphasis on maintaining or restoring the composition, structure, and function of the natural and modified habitats on all three refuges. We would take into greater consideration the ecological site characteristics and wildlife

species requirements and would develop sound and sustainable management strategies that maintain or restore ecological integrity, productivity, and biological diversity. We would apply strategic habitat conservation principles in determining where and how to best benefit native fish, wildlife, and plants, emphasizing migratory birds, waterfowl, and declining or listed species.

**Key actions include:**

- restoring about 21 miles of riparian habitat on Baca NWR and about 100 acres along the backchannels of the Rio Grande on Alamosa NWR where we can effect a positive change (we do not have control over the hydrology of the river so our options are limited for riparian restoration on Alamosa Refuge).
- restoring historic water flow paths on Monte Vista and Alamosa NWRs where practical. For example, on Alamosa NWR, we would push more water to the southern portions of the refuge where some of the historic backchannels of the river exist. Not all wetlands will be wet annually. We will have to follow new State regulations which will require us to augment our use of groundwater, and our water infrastructure will likely require upgrades. Some infrastructure could be modified or removed.
- Continue maintaining the roost areas for sandhill cranes and continue grain production on Monte Vista Refuge (with slight decrease in acreage due to changes in water management)
- Continue using prescribed fire, grazing, mowing, or haying to manage both wetland and upland habitats on all three refuges
- Researching the potential for accommodating bison on Baca NWR in support of the Department's bison conservation effort
- Recommending protection of about 13,800 acres along the southeastern portion of Baca NWR for wilderness designation
- Continue allowing year-round access on the Rio Grande nature trail on Alamosa Refuge, but visitors would be required to remain on trails.
- Enhancing and expanding wildlife-dependent public uses and access to include all three refuges. We would establish a big-game hunting program on all three refuges (more limited in scope on Alamosa and Monte Vista NWRs) and allowing for limited small-game hunting on portions of Baca NWRs. The existing waterfowl and limited small game hunting would remain unchanged on Alamosa and Monte Vista NWRs. Dispersal hunting (depredation-type hunting or dispersal) would occur outside the general hunting season (August 15-end of February).
- Allow for more opportunities for non-consumptive users (wildlife observation, photography, interpretation and environmental education) on Alamosa and Monte Vista NWRs and would open portions of the Baca NWR to similar wildlife-dependent uses by establishing an auto tour route, walking trails, and parking areas. On Monte Vista and Alamosa NWRs, access to the existing hunting areas would be allowed outside the critical breeding period (around late summer to the end of the February), and this could be modified as necessary to protect wildlife. For the most part, the public would be required to use the existing two-track road network, but we would re-route a trail if necessary to avoid impacts, or we would implement additional closures. We would also use viewing blinds designed for the public to view wildlife while limiting disturbance. We would re-route the auto tour route on Alamosa Refuge from the existing route, out to the Bluff Overlook generally following an existing two-track road (we would follow all requirements for design and permitting and using best management practices). Currently, the only route to the Bluff Overlook follows a wash-boarded county road and offers limited visual appeal nor does it do much to promote the Service's mission. We would allow for walking and some limited biking, x-country skiing and snowshoeing access. We would also allow for some limited fishing access along the Rio Grande just above and below the Chicago dam. We would work with the local communities to link access to the refuges. All of these activities would be implemented slowly as resources allow.
- For all actions or improvements related to habitat and wildlife management or public use, we would survey and monitor for presence of New Mexico meadow jumping mouse. Currently, its presence is unknown.

## VI. Determination of Effects:

**(A) Description of Effects:** Describe the action(s) that may affect the species and critical habitats listed in item IV. Your rationale for the Section 7 determinations made below (B) should be fully described here.

### 1. Southwestern willowflycatcher

**Habitat Management Activities-** We would establish, preserve, and enhance at least 100 acres of willow-dominated habitat on Alamosa Refuge in addition to about 21 miles of riparian corridors on Baca Refuge. On Alamosa Refuge, we would make improvements in the back-channel areas of the Rio Grande where we could potentially improve riparian habitat conditions for southwestern willow flycatcher. We would continue to use livestock grazing, mowing, and prescribed burning to manage our upland and wetland areas. These habitat enhancements would result in minor, long-term benefits to southwestern willow flycatcher that rely on healthy riparian habitat on the Alamosa Refuge. The timing and duration of the use of prescriptive management tools would be limited in areas where southwestern willow flycatcher is found during the breeding period or where the potential exists to negatively affect willow habitat. Because we do not have control over the hydrology of the main channels of the river, riparian habitat along the river will continue to be negatively impacted by ongoing drought, climate change, and the amount of water. If successful these habitat enhancement would result in minor long-term benefits and negligible to minor negative impacts on southwestern willow flycatcher. Careful planning and implementation using best management practices would minimize impacts to flycatcher habitat.

**Public Use Activities-** We would implement a big game hunting program on all three refuges although it would be more limited in scope on Alamosa and Monte Vista Refuges where we would rely more on a dispersal (depredation-type hunt) to reduce or disperse resident elk away from sensitive habitats such as riparian areas. Elk browsing of willow and cottonwood plants was found to be a primary factor preventing the growth of willow and cottonwood plants in the riparian habitat on Baca Refuge. Similar effects have been documented on Alamosa Refuge, but impacts are more localized. Implementing a big game hunting program may effect but is not likely to adversely impact southwestern willow flycatcher, in large part because the hunting season begins after August 15<sup>th</sup> which is near the end of the critical breeding period. The use of dispersal hunting could occur outside of the general elk hunting seasons, but all hunters must be accompanied by a hunt coordinator, and the hunting areas would be designated and highly controlled, and all precautions would be taken to not hunt in areas where southwestern willow flycatcher is found.

We would open Baca NWR to seasonal public use and expand opportunities for non-consumptive uses on Alamosa and Monte Vista Refuges outside the critical breeding periods. Portions of existing two-track roads and trails that are currently open to hunters would be opened from late summer to the end of February which would result in some overlap toward the end of the breeding season. The primary reason is to provide some opportunity for visitors who come to the refuges during the typical summer season in late July and early August. Opportunities are currently very limited to view wildlife or appreciate the Service's mission on national wildlife refuges. Visitors would be required to stay on established two-track roads or trails except during hunting season when they could venture off the trail. Any potential for negative or adverse impacts would be reduced or eliminated by careful planning, surveying, and monitoring efforts as well as imposing additional closures if necessary, signage, and increased law enforcement presence. No new impacts would be created unless a trail needs to be rerouted. We would also allow for limited and seasonal bank fishing access on the Rio Grande just above and below the Chicago dam. Currently there are no nesting territories for

southwestern willow flycatcher documented in this area. Should this change, additional closures would be necessary to protect the birds. Currently documented active territories occur near the existing visitor center at the start of the Rio Grande trail and near Parking Area 5, which is currently closed to public use during the breeding season. Impacts to southwestern willow flycatcher as a result of increased public access would be negligible to minor, and additional monitoring and implementation of best management practices would minimize impacts to this species.

**2. New Mexico Meadow Jumping Mouse**

The presence of New Mexico Meadow Jumping Mouse is unknown in the project area. Currently, the project area is not in designated critical habitat, and there no known surveys have been conducted in the project area. According to ECOS, the jumping mouse appears to utilize two riparian community types: 1) persistent emergent herbaceous wetlands (i.e. beaked sedge and reed canarygrass alliances); and 2) scrub-shrub wetlands (i.e. perennial streams that are composed of willows and alders). Alders are not a plant species found on the refuge complex. The Rio Grande is a perennial stream with willow-riparian areas along some stretches of the river (many areas are currently severely impacted by ongoing hydrological issues). Alamosa Refuge does have areas of persistent emergent herbaceous wetlands, although water shortages have greatly impacted the refuge’s ability to get water to all the wetlands that were wet in the past during the summer months.

Our efforts to improve the function and health of the riparian creek corridors on Baca Refuge and in some of the back channels of the Rio Grande on Alamosa would generally benefit riparian habitats should the mouse exist within the refuge complex. For any habitat restoration activity or management tool, or improvements to visitor facilities or structures in areas where the jumping mouse could occur, we would survey and monitor for presence of the meadow jumping mouse prior to conducting our activities.

**(B) Determination:** Determine the anticipated effects of the proposed project on species and critical habitats listed in item IV. Check all applicable boxes and list the species (or attach a list) associated with each determination.

**Determination**

*No Effect:* This determination is appropriate when the proposed project will not directly or indirectly affect (neither negatively nor beneficially) individuals of listed/proposed/candidate species or designated/proposed critical habitat of such species. **No concurrence from ESFO required.**

\_\_\_\_\_

*May Affect but Not Likely to Adversely Affect:* This determination is appropriate when the proposed project is likely to cause insignificant, discountable, or wholly beneficial effects to individuals of listed species and/or designated critical habitat. **Concurrence from ESFO required.**

\_\_\_\_\_ X

*May Affect and Likely to Adversely Affect:* This determination is appropriate when the proposed project is likely to adversely impact individuals of listed species and/or designated critical habitat. **Formal consultation with ESFO required.**

\_\_\_\_\_

*May affect but Not Likely to Jeopardize candidate or proposed species/critical habitat:*

This determination is appropriate when the proposed project may affect, but is not \_\_\_\_\_  
expected to jeopardize the continued existence of a species proposed for  
listing or a candidate species, or adversely modify an area proposed for  
designation as critical habitat. **Concurrence from ESFO optional.**

*Likely to Jeopardize candidate or proposed species/critical habitat:*

This determination is appropriate when the proposed project is reasonably \_\_\_\_\_  
expected to jeopardize the continued existence of a species proposed for  
listing or a candidate species, or adversely modify an area proposed for  
designation as critical habitat. **Conferencing with ESFO required.**

**SHARON VAUGHN**

Signature \_\_\_\_\_  
[Supervisor at originating station]

Digitally signed by SHARON VAUGHN  
DN: c=US, o=U.S. Government, ou=Department of the Interior, ou=U.S. Fish and  
Wildlife Service, cn=SHARON VAUGHN, 0.9.2342.19200300.100.1.1=14001000809023  
Date: 2015.08.04 10:45:34 -06'00'

Date \_\_\_\_\_

**Reviewing Ecological Services Office Evaluation** (check all that apply):

A. **Concurrence**  **Nonconcurrence**

Explanation for nonconcurrence:

B. Formal consultation required   
List species or critical habitat unit

C. Conference required   
List species or critical habitat unit

Name of Reviewing ES Office Dave DeBency, Acting FO Supervisor

Signature 

Date 9/8/15