

**ENVIRONMENTAL ASSESSMENT**

**ARAPAHO  
NATIONAL WILDLIFE REFUGE**

**PROPOSED DONATION OF THE  
CHANDLER RANCH**

**Jackson County, Colorado**

**UNITED STATES DEPARTMENT OF THE INTERIOR**

**U.S. FISH AND WILDLIFE SERVICE**

Environmental Assessment

Arapaho National Wildlife Refuge  
Chandler Ranch Addition

July 2009

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# Chapter 1 – Purpose of and Need for Action

The U.S. Fish and Wildlife Service (Service) is the principle Federal agency with the responsibility for conserving, protecting, and enhancing fish and wildlife and plants and their habitats for the continuing benefit of the American people. The Service manages the 95-million-acre National Wildlife Refuge System (System) which encompasses more than 540 national wildlife refuges, thousands of small wetlands and other special management areas. It also operates 70 national fish hatcheries, 64 fishery resource offices, and 78 ecological services field stations. The agency enforces Federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, and helps foreign governments with their conservation efforts. It also oversees the Federal Aid program that distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state fish and wildlife agencies.

National wildlife refuges are established for a particular purpose. Formal establishment is generally based upon a statute or executive order that specifies a purpose for that refuge. However, refuges can also be established by the U.S. Fish and Wildlife Service using the authorization found within laws such as the Endangered Species Act, Migratory Bird Conservation Act, and the Fish and Wildlife Act of 1956. Arapaho National Wildlife Refuge (NWR) was established in September 26, 1967, for the following purposes:

“ . . . for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

16 U.S.C. § 715d (Migratory Bird Conservation Act)

“ . . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . . .” 16 U.S.C. § 742f (a)(4) “ . . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . . .” (Fish and Wildlife Act of 1956)

Arapaho NWR is managed to benefit the diversity of plants and wildlife found in this high mountain valley of the southern Rocky Mountains. The refuge and its resources are also managed for the benefit of the citizens of the United States.

The refuge includes wetland, meadow, sagebrush uplands, and riparian communities that provide habitat for large mammals, Neotropical migratory birds, nesting waterfowl, fishes, and species of concern from national and regional conservation plans. In particular, efforts by refuge staff to restore the Illinois River channel hydrology, areas of sagebrush uplands, and to effectively manage wetlands and meadows, contribute to the ecological integrity of the refuge, North Park, and the overall North Platte River system.

Through wildlife-dependent recreation and education, people have opportunities to learn of the wonder and significance of North Park’s fauna and flora. Firsthand experiences with the refuge

encourage people to participate as stewards, not only of the refuge, but also of the natural resources in their own communities.

Working in collaboration with the local community and other agencies and organizations helps the Service manage the refuge as a contributing ecological, cultural, and economic component of the unique mountain valley within which it sits.

### ***Proposed Action***

The Service is proposing to expand the acquisition boundary of the Arapaho National Wildlife Refuge in order to protect important migratory bird habitat and key wintering grounds for the greater sage grouse. The Service is evaluating a proposal to accept, in fee title, a donation of the Chandler Ranch (figure 1).

Gloria Chandler and her husband, Ike, owned and operated the Chandler Ranch located about 12 miles north of Walden. Ike Chandler passed away in 2004 and Gloria Chandler passed away in January 2008. Unbeknownst to the Service, Mrs. Chandler had left instructions in her Last Will and Testament dated August 29, 2005, that “all of my ranch real estate together with all existing leases be given to the Arapaho National Wildlife Refuge.” Mrs. Chandler’s stated intention was that, upon her death, the property would be transferred to the Service and managed as part of the Arapaho National Wildlife Refuge, thereby protecting its extensive natural resources in perpetuity.

In addition to the deeded ranch acres, the Kremmling Field Office of the Bureau of Land Management (BLM), which manages approximately 189,200 acres in North Park, have indicated their interest and support for the withdrawal and transfer to the Service several small BLM tracts adjacent to the Chandler Ranch. These “roundouts”, which total about 605 acres, would provide additional quality sagebrush habitat, ease management, operations and maintenance costs for the Service, and reduce confusion to the general public by more clearly delineating boundaries. Total acreage for this proposed expansion of Arapaho NWR is 2,850 acres.

### ***The Refuge and Project Area***

The Arapaho National Wildlife Refuge is located in an intermountain, glacial basin south of the town of Walden, Colorado, the county seat of Jackson County. The 8,200-foot elevation basin is approximately 30 miles wide and 45 miles long, and is commonly known as “North Park” since it is the most northern of three such “parks” in Colorado. Jackson County is contained within this basin that lies in the northern tier of Colorado counties.

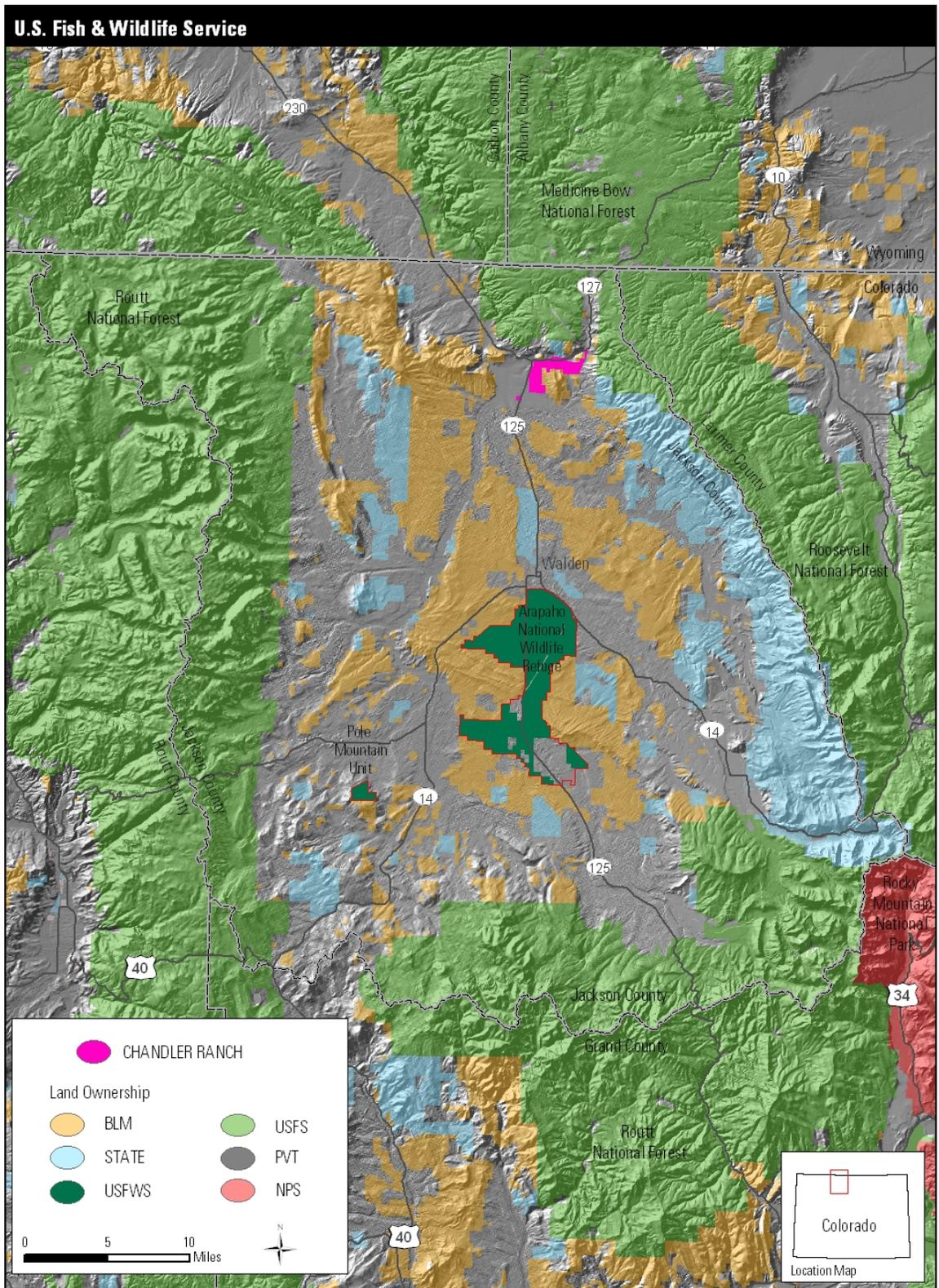


Figure 1. Landownership in North Park, Colorado.

The Chandler Ranch includes nearly 2,250 acres of deeded land with additional BLM grazing leases on adjoining BLM lands. The majority of the ranch is located to the east of the junction of State Highways 125 and 127. Pinkham creek runs for approximately 2.5 miles on the north end of the property. In addition, a small 40-acre parcel is located west of Highway 125 (about 2 miles from the main ranch) and included Ms. Chandler residence. The residence was destroyed in October 2008 according to the instructions in Mrs. Chandler's Will. A second house and several outbuildings are located on the main ranch.

Forming the headwaters of the North Platte River, the basin opens north into Wyoming and is rimmed on the west by the Park Range, on the south by the Rabbit Ears Range, and on the east by the Medicine Bow Range. Elevation ranges from 7,800–12,953 feet above sea level. The floor of the basin is interspersed with many slow, meandering streams that come together in the north-central part of the county to form the North Platte River. Main tributary rivers are the Michigan, Illinois, Canadian, and Grizzly.

### ***Purpose of and Need for Proposed Action***

The addition of this area into the refuge system will enhance and ensure protection of habitats valuable to migratory birds that utilize North Park. Riparian willow habitats, in addition to providing breeding habitat for numerous species, provide critical stopover areas for neo-tropical birds migrating on to northern breeding areas. Riparian habitats, especially those of high quality as occurs on this ranch, are lacking not only in North Park, but throughout the west. These areas contain the highest diversity of breeding birds among any habitat type, yet compose only a fraction of the available habitat to birds.

Sagebrush provides habitat for a suite of species, some of which are entirely dependent on this habitat. These species, referred to as sagebrush-obligate species include greater sage grouse, sage thrasher, sage sparrow, and Brewer's sparrow. All of these are recognized as Species of Concern by state and federal agencies. Greater sage grouse, currently under review for Endangered Species Act protection, have been documented to utilize lek sites within two miles of the project area. Because of the proximity to an active lek site, irrigated meadows on the south side of the property have been identified as a greater sage grouse "Brood and Production Area" by the Colorado Division of Wildlife.

Raptors such as bald eagle, golden eagle, peregrine falcon, Swainson's hawk, short-eared owl, and northern harrier all use habitats that occur within this project area, thus are likely residents during the year.

Grassland nesting birds such as savanna sparrows, Lincoln's sparrows, and song sparrows are also common nesters in North Park and can be expected to occur within the project area. Sandhill cranes have been documented using irrigated meadows within the project area.

North Park phacelia, a federal listed endangered plant, is known only to occur in Jackson County, Colorado. The majority of known populations occur on a BLM Natural Resource Area located northwest of Walden. It also occurs on the Arapaho NWR in two locations. This plant appears to prefer disturbed eroding sandstone outcrops of the Coalmont Formation on west

southwest facing slopes. These types of areas do occur within the project area, however, the plant is not known to exist. Surveys would be conducted in the future.

Canada lynx, a federally-listed threatened species, is known to occur in the forested areas surrounding North Park. This species likely travels through riparian corridors to reach preferred habitats.

Adding the Chandler Ranch in the refuge system will provide important connectivity between forested areas on the Routt and Medicine Bow National Forests and large blocks of BLM-managed lands on the valley floor, namely the Sentinel Mountain area. This connectivity will protect short-migration routes for wintering elk and deer, as well as other wildlife.

### ***Decision to be Made***

Based on the analysis in this environmental assessment (EA), the Service's director of region 6, with the concurrence of the director of the U.S. Fish and Wildlife Service, will make three decisions.

- Determine whether the Service should expand the acquisition boundary of the Arapaho National Wildlife Refuge in order to accept the Gloria Chandler land donation.
- If yes, select an approved boundary that best fulfills the habitat protection purposes.
- If yes, determine whether the selected alternative would have a significant impact on the quality of the human environment. The National Environmental Policy Act (NEPA) of 1969 requires this decision. If the quality of the human environment would not be significantly affected, a finding of no significant impact (FONSI) will be signed and made available to the public. If the alternative would have a significant impact, completion of an environmental impact statement would be required to address further those impacts.

### ***Issues Identified and Selected for Analysis***

A news release was issued on November 18, 2008 to the media, conservation interests, and the general public expressing the Services' request for comments concerning this expansion project. Local newspapers ran the notice prior to the meeting. An open house was held at the Arapaho National Wildlife Refuge on November 25, 2008 from 5:00 pm to 7:00 pm. Public comments were taken during the meeting to identify any additional issues of concern to be analyzed for this project.

The Service has contacted county government officials, state congressional members, government agencies, and other public agencies.

There are two general categories of commonly expressed issues and concerns – biological and socioeconomic.

The biological issues include:

- the impact of development activities and the disturbance to wintering sage grouse within the project area

- the impact of habitat fragmentation and loss of habitat connectivity resulting from future development activities

The socioeconomic issues include:

- public access for hunting or other recreational activities
- Rights of an individual to donate land through last will and testament
- lands owned by the Federal Government
- use of historic buildings as a public interpretive site

### ***National Wildlife Refuge System and Authorities***

The mission of the National Wildlife Refuge System is to preserve a national network of lands and waters for the conservation, management and, where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. Various authorities have been granted to the Service allowing acceptance of gifts or donations into the refuge system including the Fish and Wildlife Act (1956), the Migratory Bird Conservation Act (1929), the National Wildlife Refuge System Act (1966), and the Wilderness Act (1964).

The Service boundary expansion to include the Chandler Ranch donation, would occur under the authority of the Fish and Wildlife Act (1956).

### **Goals of the Refuge System**

Specific goals of the Refuge System include:

- Fulfill our statutory duty to achieve refuge purpose(s) and further the Refuge System mission
- Conserve, restore where appropriate, and enhance all species of fish, wildlife, and plants that are endangered or threatened with becoming endangered.
- Perpetuate migratory bird, inter-jurisdictional fish, and marine mammal populations.
- Conserve a diversity of fish, wildlife, and plants.
- Conserve and restore, where appropriate, representative ecosystems of the United States, including the ecological processes characteristic of those ecosystems.
- Foster understanding and instill appreciation of fish, wildlife, and plants, and their conservation, by providing the public with safe, high-quality, and compatible wildlife-dependent public use. Such use includes hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation.

### **Guiding Principles of Refuge System**

In addition to the goals outlined above, four guiding principles for the management and general public use of the Refuge System have been established:

- **Habitat** - Fish and wildlife will not prosper without high 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.
- **Public Use** - The Refuge System provides important opportunities for compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation.
- **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 general 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 regarding acquisition and management of our national wildlife refuges.

The conservation and protection of the project area would continue to be consistent with the following policies and management plans:

- Migratory Bird Treaty Act (1918)
- Bald Eagle Protection Act (1940)
- Endangered Species Act (1973)
- North American Waterfowl Management Plan (1994)
- Migratory non-game Birds of Management Concern in the U.S. (2002)

### ***Related Actions and Activities***

The Service is working with other public, private, and tribal entities to maintain wildlife habitat and protect wildlife values within the vicinity of the project area and throughout North Park.

Colorado Division of Wildlife (CDOW) manages about 11,150 acres of land in North Park. The refuge works directly with CDOW on big game issues and hunting opportunities as well as in larger landscape efforts through the Owl Mountain Partnership. Sagebrush habitats on private lands in North Park are recognized as a focus area for the CDOW in their most recent comprehensive statewide wildlife plan (CDOW 2006)

Bureau of Land Management (BLM) manages over 180,000 acres in North Park and is the main adjacent landowner of Arapaho NWR as well as the Chandler Ranch. The refuge and local BLM office work together on a variety of habitat improvement projects for wildlife habitat in the area.

The mission of Owl Mountain Partnership (OMP) is to: serve the economic, cultural, and social needs of the community while developing adaptive long-term landscape management programs, policies and practices that ensure ecosystem sustainability. The partnership was formed in 1993 and the steering committee consists of USFWS, BLM, USFS, DOW and private landowners. Habitat improvement projects are a focus for the OMP.

### ***The Acquisition Process***

It is the long standing policy of the Service to acquire minimum interest in land from a willing seller that best achieves habitat acquisition goals. Mrs. Chandler was the sole owner of the ranch. Her stated intent was to leave the ranch to the Arapaho NWR.

Because the property is being donated to the Service, no federal source of funding will be needed to acquire the property. Future costs will include staff time to post/sign the land, and staff time for developing land management plans. No new additional refuge staff will be added to manage this acquisition. Currently, there is a grazing permittee managing the ranch. It is anticipated that the permittee will continue to graze the Chandler ranch for the short term. In working with this individual the Service can utilize his knowledge of the ranch to increase the refuge staff knowledge of the irrigation system, identify any fencing issues, which in turn will minimize costs. Annual refuge revenue sharing cost is estimated to be \$3,442, which would be paid to Jackson County. BLM payment-in-lieu-of-taxes (PILT) are estimated to be \$193.

# Chapter 2 Alternatives Including the Proposed Action

This chapter describes the two alternatives identified for this project related to the donation of the Chandler Ranch:

- Alternative A, no action alternative
- Alternative B, the proposed action, giving the Service the authority to accept the donation of the Chandler Ranch and expand the Arapaho National Wildlife Refuge

The alternatives consider the effects of expanding the refuge boundary to include the project area identified in this EA.

## *Alternative A (no action)*

Currently, the Service manages approximately 23,271 acres of land at the Arapaho NWR. Under the no action alternative, the Service would not expand the boundary of the refuge and would not accept the donation of the Chandler Ranch in fee title.

If the Service fails to act and accept this donation, the executor of the Chandler estate may be forced to change course, and move against the final wishes of Ms. Chandler. There is a distinct possibility that this property, because of its desirable location and existing access by all-weather roads, would be developed and subdivided. This would significantly fragment the area, making it less attractive to wildlife, especially sage-obligate species such as the greater sage grouse. Threats to sagebrush communities include fragmentation from increased housing development, energy development, mining activities, and new roads. Invasive species such as cheatgrass can dramatically alter fire regimes, resulting in negative impacts sagebrush communities, thereby impacting the animals that use this important habitat type.

Conservation organizations or state and local agencies could try to pursue efforts to conserve the acreage within the project area to secure this important habitat. Other groups and agencies could pursue efforts of habitat protection, enhancement or restoration projects within the project area to improve wildlife habitat for migratory birds and the greater sage grouse.

## *Alternative B (proposed action)*

The Service would expand the Arapaho NWR to accept the Chandler Ranch by donation from the last will and testament of Gloria Chandler. The Service would accept, in fee title, approximately 2,250 acres (figure 2).

The Service would also seek to withdraw approximately 605 acres adjacent to the boundary of the Chandler Ranch. These “roundouts” would provide additional quality sagebrush habitat, ease management, operations and maintenance costs for the Service,

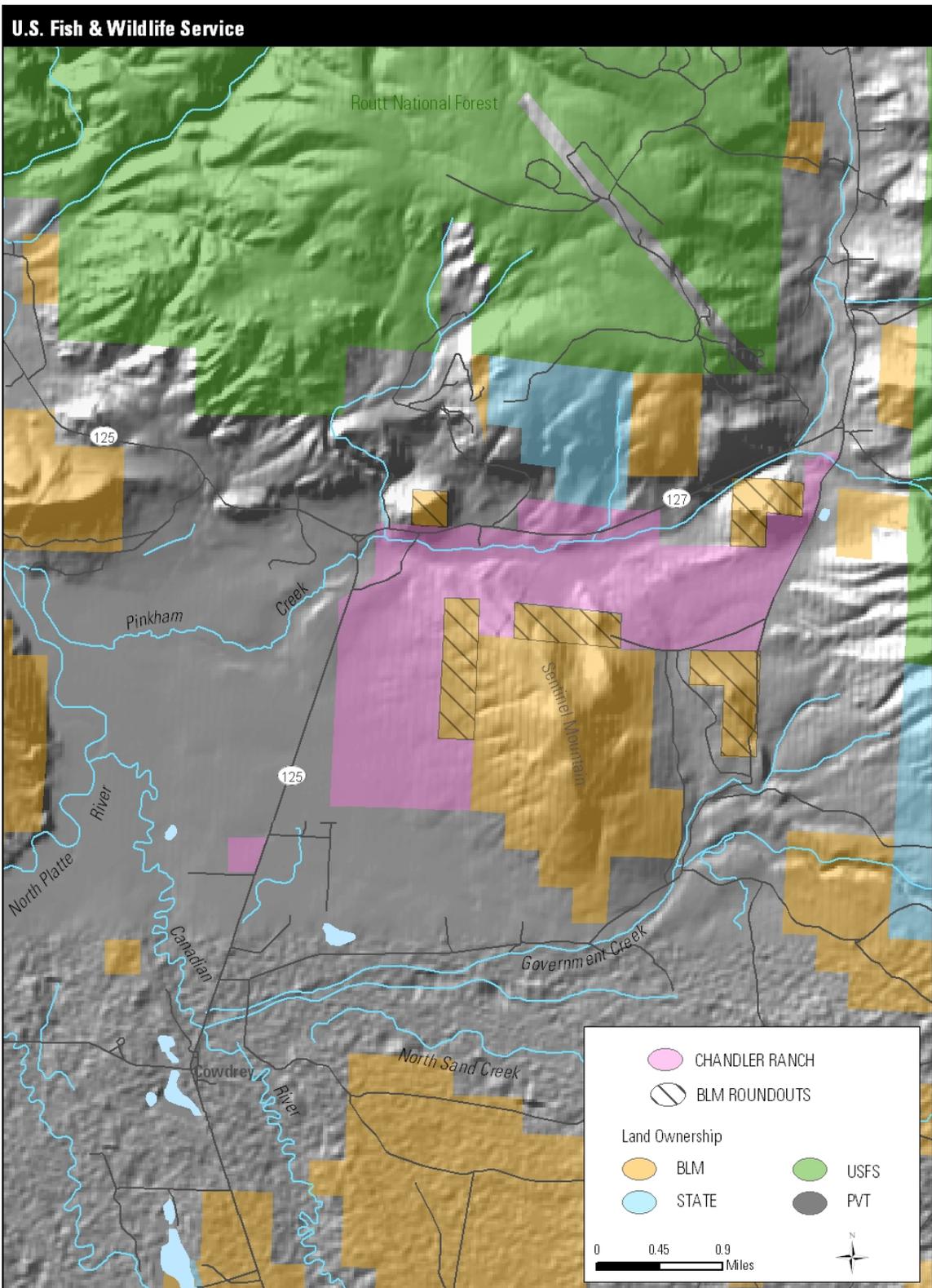


Figure 2. General landownership near the Chandler Ranch.

and to reduce confusion to the general public by more clearly delineating boundaries. The total proposed expansion of Arapaho NWR is 2,850 acres.

Existing agricultural use of grazing livestock would continue to be permitted as is. Assistance and coordination with other agencies and non-profit groups would be sought to best manage wintering habitat for the greater sage grouse.

All management would be conducted by the staff at Arapaho NWR complex. Monitoring would consist of reviewing land status conditions to ensure that the vegetation goals and standards set forth by the Service are met through management actions.



Example of sagebrush habitat on the Chandler Ranch (Sentinel Mountain in distance).

# Chapter 3 Affected Environment

This chapter describes the biological, cultural, and socioeconomic resources most likely affected by expanding the acquisition boundary of Arapaho NWR.

## Geographic/Ecosystem Setting

The Chandler Ranch is located in an intermountain of Jackson County within a glacial basin in north-central Colorado (Figure 1). The ranch is situated along the western edge of the Central Waterfowl Flyway. Jackson County opens north into Wyoming and is rimmed on the west by the Park Range, on the south by the Rabbit Ears Range, and on the east by the Medicine Bow Range. The basin floor is locally known as North Park and encompasses approximately 600 square miles. The basin floor is relatively flat with an elevation range of 7,900 to 8,300 feet. Slow, meandering streams, which crisscross the basin, flow toward the north-central part of the basin to form the North Platte River. Most of the floodplain is irrigated meadow, while the adjacent low rises are characterized by sagebrush grasslands.

Sagebrush uplands are the dominant vegetative community encompassing 80 percent of the Park. Sagebrush uplands are dominated by seven primary species of sagebrush, with a perennial bunch-grass and forb understory. Meadows are typically irrigated to produce a single hay crop per year. Meadow grasses typical include timothy, red top, garrison creeping foxtail, and foxtail barley. Riparian areas are dominated by willows and other low growing shrub species.

## Climate

The climate is semiarid which can be characterized as having short-cool summers, followed by long, cold winters. The mean rainfall in Walden is 10.83 inches of precipitation annually. Temperatures and precipitation vary greatly with elevation and location. Mean annual air temperature in Walden, near the center of the Park, is 36.4 degrees Fahrenheit. Temperature extremes are minus 39 degrees to 90 degrees Fahrenheit, based on the National Weather Bureau 30-year average. The average length of the growing season in Walden is 43 days. The average date for the last killing frost in Walden is July 1, and the average first killing frost is August 14, based on North Park weather station's 70-year average. The relatively short frost-free season inhibits any form of agriculture today except grass hay near floodplain areas. Due to this, the primary agricultural use in the area is grazing lands and hay production.

Generally, annual precipitation increases as elevation increases from the floor to the outer edge of North Park. Elevation ranges from slightly below 8,000 feet on the valley floor to 12,965 feet on Clarks Peak. Seventy percent of the annual precipitation falls as snow. Walden averages 53 inches of snow per year, the lowest of any point in the Park. The highest average monthly precipitation occurs in March, April, May, and August (Lischka et al., 1983).

## Geological Resources

North Park is a structural basin between the Precambrian granites, gneisses and schists of the Medicine Bow and Park Ranges and Independence Mountain. The Surface geology of the Park floor is dominated by the sandstones, conglomerates, and shales of the Tertiary Coalmont

Formation. Coal is found in the lower members of the formation (Hail, 1968). The North Park Formation overlies the Coalmont Formation and consists of white, calcareous conglomerates. The Coalmont Formation is exposed along a long narrow syncline ridge trending northwest from Owl Mountain to the confluence of Roaring Fork and Grizzly Creeks. The syncline includes Owl Ridge and Peterson Ridge. Pierre Shale underlies the Coalmont Formation and is exposed primarily in the northwestern and northeastern quadrants of North Park. Evidence of Tertiary volcanics is obvious along the south boundary of the Park. Quantities of breccia and other volcanics are common in the Rabbit Ears Range in the form of dikes, flows, and ash.

Significant glacial activity occurred in North Park during the Pleistocene. Fluvial gravels, and interfluvial terraces are examples of the influence of glacial activity upon the current landscape of the Park floor. Several natural lakes in the area are thought to be remnants of Pleistocene glaciation. Winds also influenced the geology of the Park. Prevailing southwesterly winds, thought to be caused by the low ridge between Rabbit Ears Peak and Arapaho Pass, have deposited fine grains alluvium, some of which reaches thicknesses of 30 feet. Winds are suggested to have created several shallow lakes within the basin, including Hebron Sloughs, located just southwest of the refuge (Lischka et al. 1983).

### **Ecosystem Setting**

The Chandler Ranch lies within the Platte/Kansas Rivers Ecosystem. This ecosystem team has identified, among other things, protection of sagebrush and wet meadow/riparian habitat (between 8,000-10,000 feet elevation), as a primary focus for the mountain portion of the ecosystem (USFWS 2002). The two largest habitat types within this project area are sagebrush (> 1,840 acres), and irrigated meadows (>660 acres), thus contributing directly to the ecosystem goals and objectives. An additional goal and objective is “protect and/or restore 20 miles of riparian corridor within the next 5 years along both large and small drainages.” A strategy related to accomplishing this goal is through land acquisition, both “fee and easements by FWS and our partners”. This acquisition will protect about 2.5 miles of riparian habitat along Pinkham Creek.

### **Description of Habitats**

The Chandler Ranch is composed of a variety of habitats including dense riparian willows, irrigated meadows, and sagebrush-dominated uplands (see table 1, figure 3). Other habitats include small groves of aspen and conifer trees, and small seasonal wetlands.

#### *Willow Riparian*

The willow habitat, located primarily along Pinkham Creek, exceeds 5 meters in height, and 200 meters wide in places. Pinkham Creek, which originates high in the Medicine Bow Mountains within the Roosevelt National Forest to the east, is a perennial stream which ultimately empties into the North Platte River approximately 4 miles west of the project area. Pinkham Creek is one of the last main tributaries of the North Platte River within the State of Colorado.

Habitat/Land Use	Chandler Ranch		BLM Roundouts		Overall	
	Acres	%	Acres	%	Acres	%
Sagebrush	1,344.0	59.8%	496.1	82.0%	1,840.4	64.1%
Irrigated Meadow	663.6	29.5%	-	0.0%	663.6	23.3%
Willow	145.1	6.5%	-	0.0%	145.1	5.5%
Deciduous Trees	42.2	1.9%	4.2	0.7%	46.4	1.7%
Disturbed	33.4	1.5%	2.1	0.4%	35.5	1.0%
Evergreen Trees	16.1	0.7%	85.0	14.1%	101.1	3.7%
Other Wetlands	1.5	0.1%	-	0.0%	1.45	0.1%
Unknown Shrub	-	0.0%	17.6	2.9%	17.6	0.6%
<b>Total</b>	<b>2,246.1</b>	<b>100.0%</b>	<b>605.0</b>	<b>100.0%</b>	<b>2,850</b>	<b>100.0%</b>

Table 1. Habitat types within the project area.

#### *Irrigated Meadows*

There are approximately 664 acres of irrigated meadows within the project area. These meadows are irrigated by 4 ditches which divert water from Pinkham Creek via relatively crude water control structures. With water rights dating to the 1880's, these meadows have been in existence for over 100 years. Typically the meadows are cut for hay production in late July or August. Red clover, timothy, Kentucky bluegrass, and other tame grasses and forbs comprise these meadows.

#### *Sagebrush*

The majority of the upland habitat surrounding the irrigated meadows and riparian areas is dominated by sagebrush. Wyoming big sagebrush and mountain big sagebrush are the most common species in the project area. Within North Park there is an estimated 285,000 acres of sagebrush-dominated or co-dominated habitat. Sagebrush communities have been identified by the Colorado Division of Wildlife as a high priority habitat in the Colorado State Wildlife Plan (CDOW 2006).

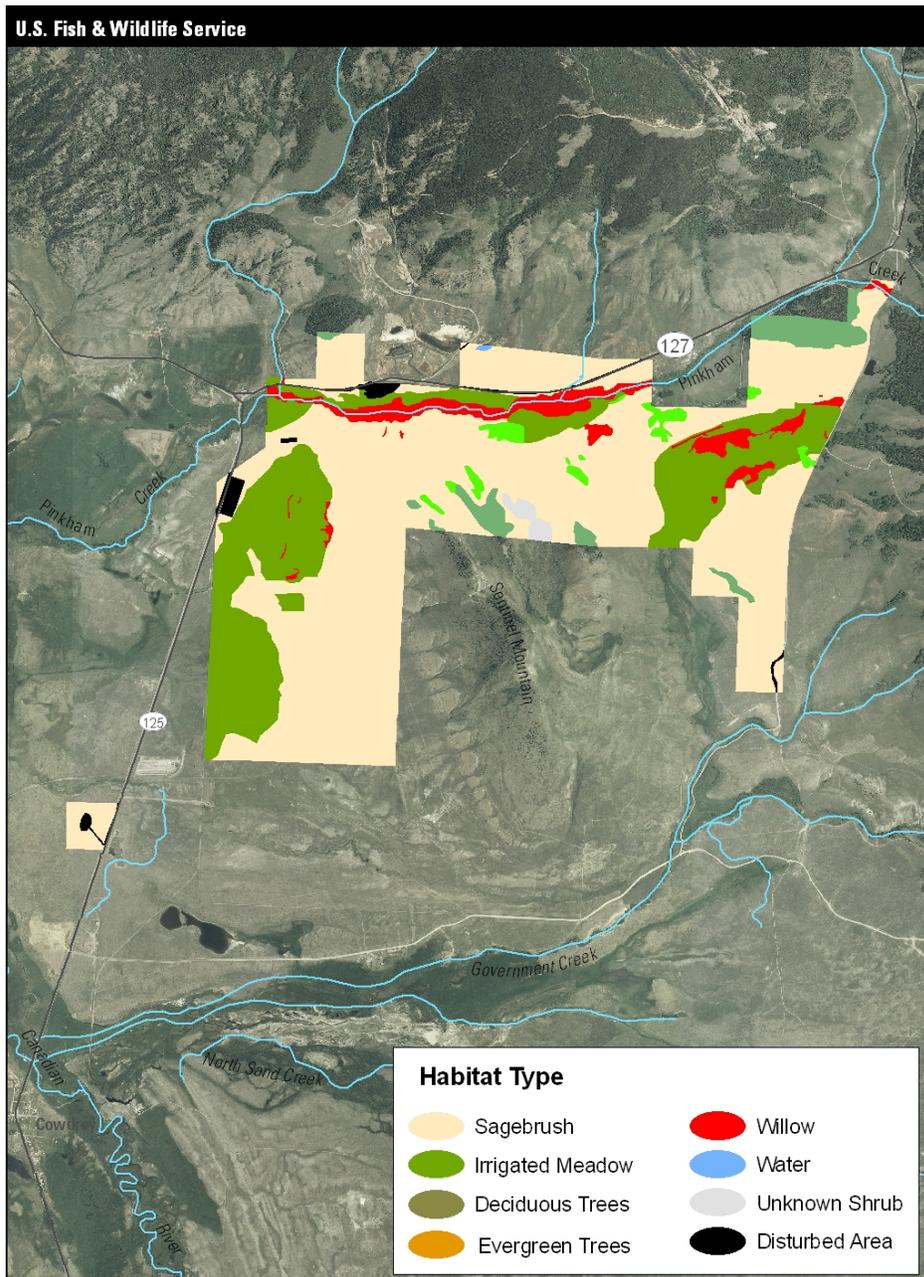


Figure 3. General habitat classes within the project area.

## Wildlife Values

The addition of the Chandler Ranch into the refuge system will enhance and ensure protection of habitats valuable to migratory birds that utilize North Park. Riparian willow habitats, in addition providing breeding habitat for numerous species, provide critical stopover areas for neo-tropical birds migrating on to northern breeding areas. Riparian habitats, especially those of high quality as occurs on this ranch, are lacking not only in North Park, but throughout the west. These areas contain the highest diversity of breeding birds among any habitat type, yet compose only a fraction of the available habitat to birds.

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Raptors such as the bald eagle, golden eagle, peregrine falcon, Swainson's hawk, short-eared owl, and northern harrier all use habitats that occur within this area, thus are likely residents throughout the year.

Grassland nesting birds such as savanna sparrows, Lincoln's sparrows, and song sparrows are also common nesters in North Park and can be expected to occur within the project area. Sandhill cranes have been documented using irrigated meadows within the area.

North Park phacelia is a federally listed endangered plant known only to occur in Jackson County, Colorado. The majority of known populations occur on a BLM Natural Resource Area located northwest of Walden. It also occurs on the Arapaho NWR in two locations. This plant appears to prefer disturbed eroding sandstone outcrops of the Coalmont Formation on west and southwest facing slopes. These types of habitat does occur within the project area, however, the plant is not known to exist there. Surveys would be conducted in the future.

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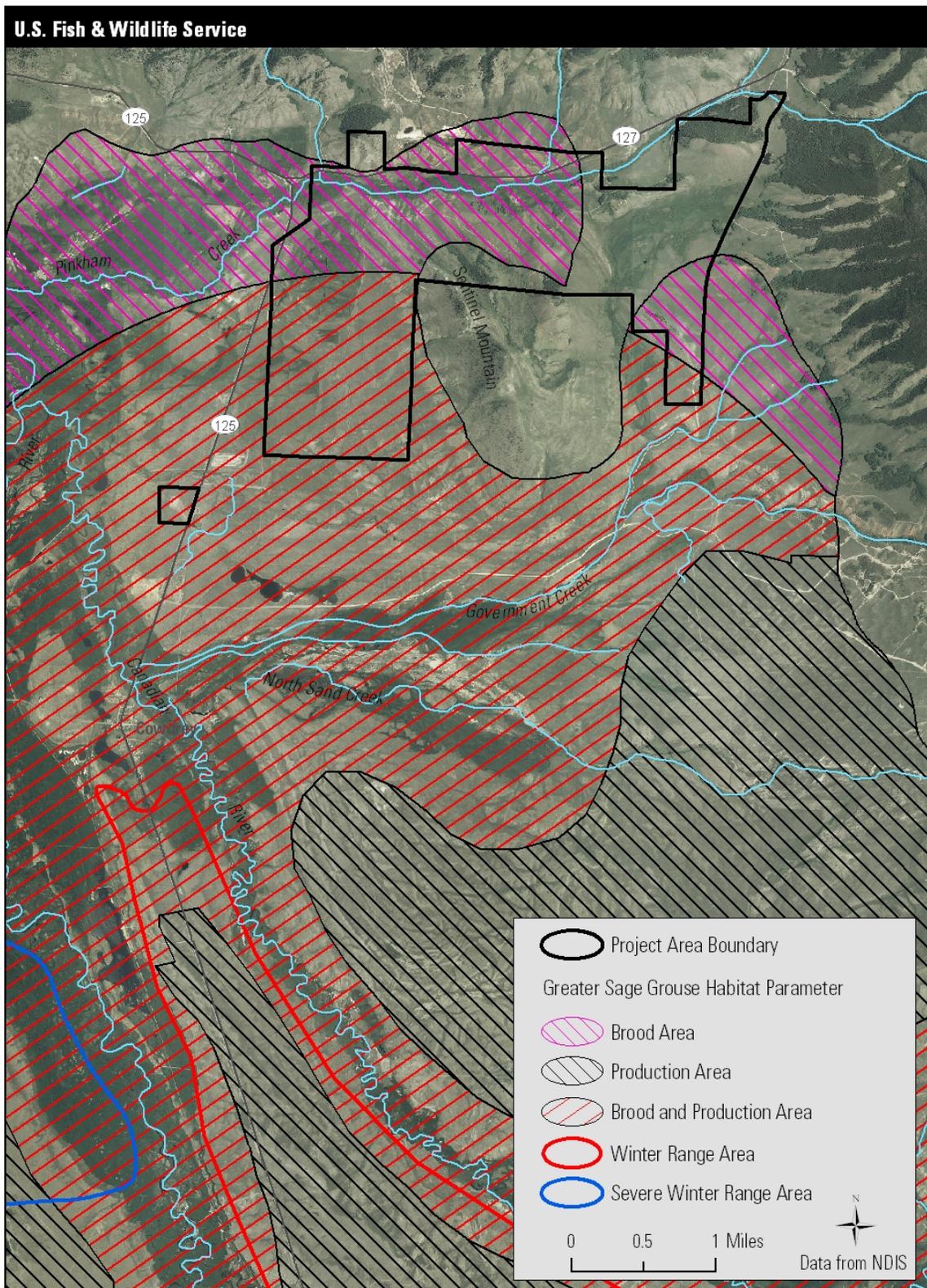


Figure 4. Key habitat parameters for greater sage grouse in vicinity of project area.

## Water Rights

The Chandler Ranch was one of the original areas homesteaded in North Park in the mid-1870's. The original homesteader, James O. Pinkham, spent the long winters in Laramie, Wyoming, and the summers panning for gold in North Park. He established a homestead on the property in 1874. Believing North Park held riches of gold, he convinced others to come to North Park and settle. By 1875, nearly 100 men were prospecting for placer gold around the Rabbit Ears, Independence, and Owl Mountains.

As a result of the early presence of Pinkham in this area, water rights associated with the property are very senior within North Park. All of the water rights are associated with Pinkham Creek, a perennial stream which runs through the north side of the property. A summary of water rights associated with the Chandler Ranch is below in table 2.

Table 2.

Name	Flow (cu ft sec)	Priority Date
Walker Ditch	2.00	6/21/1887
Hardwork Ditch	1.17	9/30/1889
Newport Ditch	3.00	9/1/1887
Newport Ditch	4.00	5/31/1894
Newport Ditch	15.50	5/27/1909
Timothy Ditch	1.00	8/31/1892
Allred Ditch	3.91	5/19/1896
	30.58	

The ranch's groundwater rights will also be transferred. The groundwater well is permitted at 33 gallons per minute, 1.0 acre-foot / annual, for domestic use. This permit is located in the northeast ¼ of the southwest ¼ of section 31, township 11 north, range 70 west.

## Mineral Rights

The acceptance of the donated ranch will be subject to outstanding mineral reservations. Although no mineral title search was conducted, it appears that at least a portion of the mineral interest has been severed in the past.

## Contaminants and Hazardous Wastes

A Level I contaminants survey of the Chandler ranch property was completed. As a portion of the property historically had been leased for purpose of storing mill tailings generated from an adjacent fluorspar mining operation, the potential for hazardous substances or other

environmental problems existed and additional investigation was conducted. One sample that was taken by the Service contaminant biologist adjacent to the road historically used for mining showed a slightly elevated level of arsenic. The elevated level found in the sample most likely resulted from windblown, fugitive dust from the previous operations on the adjacent mine. This sample was later determined to be taken outside of the project boundary. It was determined that no clean-up was necessary, but it was recommended that there be no surface disturbance in the vicinity of the sample. The affected area is much less than one acre, and is separated by a road from the remainder of the Chandler Ranch. The refuge has agreed to use institutional control.

## **Cultural Resources**

The Colorado mountains have been used by humans for thousands of years. Spears points dating to the Paleo-Indian Period have been recovered in North Park. The Paleo-Indian Period extends from 12,000 B.C. to around 5740 B.C. Although numerous other Paleo-Indian sites have been located in Middle Park, including evidence of bison hunting 10,000 years ago, known occurrences of Paleo-Indian occupation in North Park have been limited to small campsites. Some archaeologists think Paleo-Indian groups lived in the Parks year-round; others propose winter camps in the foothills with exploitation of various mountain resources during summer months. The Archaic Period followed the Paleo-Indian Period and lasted until A.D. 150. Hunters used darts and throwing sticks called atlatls. There is also a higher reliance on small game and plant resources. A major drought on the Plains (ca. 5,000 to 2500 B.C.) caused change to settlement and subsistence patterns. People moved into the mountains for longer periods of time and exploited a wider variety of plant and animal resources. Increased moisture during the latter part of the Archaic brought people back onto the Plains, but the mountains continued to be an important part of their subsistence. Activity increased in North Park during the Archaic. The Late Prehistoric Period (A.D. 150 to A.D. 1540) saw the introduction of the bow and arrow and ceramics. Bison hunting again became an important part of the economy, but the people of the Late Prehistoric continued to rely on a variety of available plant and animal resources. Researchers have proposed a seasonal round of activities. People would leave their foothills winter camps and head north into the Laramie Basin, then south through North and Middle Park collecting and hunting until fall. From there, they would turn east hunting bighorn sheep along the Continental Divide on their way back to the foothills.

The Protohistoric Period starts with European contact around A.D. 1540. Of the modern tribes, the Utes are most often associated with the mountains and long-term utilization of the resources of North Park. There are also historic accounts of visits to North Park by the Shoshone, Arapaho, and Cheyenne.

Archaeological sites in North Park are generally small in size and associated with seasonal use of the area. They include open campsites and lithic scatters with stone circles (tipi rings) located along the ridges. Culturally scarred trees and wickiups representing Protohistoric Ute use may be found in the forested area. Rock art and bison kill sites, though uncommon, have been reported in North Park. A detailed cultural resource overview of North Park (Larson and Letts, 2003) is available from the Service Regional Office.

The first European visitors to New Park (now known as North Park) were probably trappers. The first known party of trappers was headed by Alexander Sinclair and Robert Bean in 1825.

Several famous trappers, miners, and hunters made their way through North Park. Kit Carson, Jim Baker, Sublette, Gervais and Vasquesz, Calvin Jones, Henry Fraeb, John Gantt, and Pegleg Smith all visited the Park in the 1840s. The second western expedition of John C. Fremont took him through the Park in 1844. Sir George Gore passed through the Park on a hunting expedition in 1855, and found mule deer, elk, beaver, bear, and mountain sheep. By 1917, most of the game species were gone. Cyrus Mendenhall began grazing cattle in North Park in 1879. By 1885 the beef industry was booming, and North Park had its share of large ranches. Overgrazing and severe winters decimated herd sizes in the Park, and by 1889, ranching was no longer as profitable as it had been. In the late 1800s, the economy of the North Park shifted to mining; mining of coal, gravel, fluorspar, copper, silver, and gold, along with logging and ranching, became the main economic developments of the area. Over time, mining has decreased while oil and gas exploration and development has recently increased in the area.

The Service has a trust responsibility to American Indian tribes that includes protection of the tribal sovereignty and preservation of tribal culture and other trust resources. Currently, the Service does not propose any project, activity, or program that would result in changes in the character of, or adversely affect, any historical cultural resource or archaeological site within the project area. If and when such undertakings are considered, the Service will take all necessary steps to comply with section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The Service pursues compliance with section 110 of the NHPA to survey, inventory, and evaluate cultural resources.

### **Socioeconomic Environment**

Walden, neighboring Arapaho NWR near the North Boundary, is an historic mountain town established in the 1800s with a strong ranching heritage. Its business community provides most of the essential goods and services, however county residents must travel to bigger cities to purchase larger durable goods (e.g. cars and major appliances) and specialty items.

A region (and its economy) was defined as all counties within a 30-60 mile radius of the impact area. Only spending that took place within this local area was included as stimulating the changes in economic activity. The size of the region influenced both the amount of spending captured and the multiplier effects. Based on the relative self-containment in terms of retail trade and distance of Walden, Jackson County was assumed to comprise the economic region for this analysis.

#### **Population:**

The 2000 census estimated Jackson County's population at 1,577 people (U.S. Census Bureau). More than 900 of the county's residents reside in Walden, leaving more than a million acres inhabited by less than 700 people (Town of Walden, 2001).

#### **Employment:**

Ranching, retail trade, government, timbering, mining, support services and recreation are major employers in Walden. Major exports include livestock, native mountain hay, timber, oil and carbon dioxide (Town of Walden, 2001).

Tourism and construction have started to play larger roles in the county's economy (Town of Walden, 2001). Most of these jobs are found in the retail trades (supplies, souvenirs, restaurants,

and grocery stores) and service (hotel, gas stations, amusement, and recreation activities) sectors in an economy.

# Chapter 4 Environmental Consequences

This chapter assesses the environmental impacts expected to occur from the implementation of alternatives A or B, as described in chapter 2. Environmental impacts are analyzed by issues for each alternative and appear in the same order as discussed in Chapter 2.

## *Effects on the Biological Environment*

This section describes the estimated effects on wildlife habitat of carrying out alternatives A and B.

### Wildlife Habitat

The effects on wildlife habitat are described below.

- the impact of development activities and the disturbance to wintering sage grouse within the project area
- the impact of habitat fragmentation and loss of habitat connectivity resulting from future development activities

### *Alternative A (no action)*

If the Service does not accept the Chandler Ranch donation, it is likely that some form of development would occur in the future. This would significantly fragment the area, making it less attractive to wildlife, especially sage-obligate species such as sage grouse. Threats to sagebrush communities include fragmentation from increased housing development, energy development, mining activities, and new roads. Invasive species such as cheatgrass can dramatically alter fire regimes, resulting in negative impacts sagebrush communities, thereby impacting the animals that use this important habitat type. This would have farther reaching impact by the Sentinel mountain remaining in protected status due to BLM land ownership, but severing the important wet-meadow areas for sage-grouse broods and other wildlife that depend on sagebrush for nesting and meadow areas for brood rearing habitat. Though birds would have protected nesting areas, higher mortality for broods would likely occur with increased development and habitat fragmentation.

### *Alternative B (proposed action)*

Successful transfer of donated Chandler ranch land would protect in perpetuity key wintering areas for the greater sage grouse. By accepting the land in fee title, the Service ensures increased protection and connectivity for both the Chandler Ranch and adjoining BLM land. No habitat fragmentation would occur. Key corridors between larger BLM lands at Sentinel Mountain and National Forest lands to the north and east would be maintained and protected along Pinkham creek.

With oil and gas exploration and development occurring in North Park, undisturbed areas of sagebrush are important for sage grouse, sage thrashers and other sage-obligate species. The land is located in proximity to know leks. With the sagebrush nesting areas close to the irrigated meadows, it is likely that the area is used by grouse broods in the spring to feed on forbs in the meadows. The land also wraps around Sentinel Mountain, protected by BLM ownership. This juxtaposition of federal land ownership, provides a significant area of habitat for grouse and

other species. It is presumed that other sage-obligate species also use this area due to the mix of habitats to provide for life-cycle needs.

## *Effects on the Socioeconomic Environment*

This section describes the estimated effects of alternatives A and B on landownership, land use, and public use.

- public access for hunting or other recreational activities
- Rights of an individual to donate land through last will and testament
- lands owned by the Federal Government
- use of historic buildings as a public interpretive site

### **Landownership**

The effects of land ownership are described below

#### *Alternative A (no action)*

Ms. Chandler was the sole owner of this ranch. Her wishes were to donate this ranch to the National Wildlife Refuge System. The Service would not establish a refuge boundary and would not accept the donated property. If the Service fails to act and accept this donation, the executor of the Chandler estate may be forced to change course. There is a distinct possibility that this property, because of its desirable location and existing access by all-weather roads, would be developed and subdivided.

#### *Alternative B (proposed action)*

Ms. Chandler was the sole owner of this ranch. Her wishes were to donate this ranch to the National Wildlife Refuge System. The Service would establish a refuge boundary so to accept the transfer of the Chandler Ranch property and honor the wishes of Mrs. Chandler as expressed in her Will. The Service would develop a comprehensive management plan, for the property, that will guide the management of plant and animal resources for the next fifteen years.

### **Public access and recreational activities**

The effects of land ownership and uses are described below

#### *Alternative A (no action)*

With the private ownership of Gloria Chandler and now the estate, the property is currently closed to public access. Ms. Chandler did not allow public hunting or access on the property. If the property was not accepted by the Service, it would likely be accepted into private ownership. It is unlikely that private ownership would allow public access. The private owner could sell the rights to hunt on the property to individuals.

#### *Alternative B (proposed action)*

The Service would evaluate the species population base and make a determination on what species could be hunted according to State regulations. The Service would write a hunting plan to determine the type of hunting, access issues, and safety issues. It would be very likely that

some type of hunting would be allowed on the property to coincide with the State of Colorado. Wildlife observation is increasing in popularity in the United States. The 2006 National Survey of fishing, hunting and wildlife associated recreation reports the following for people 16 and older in the US:

71 million, or 31% observed wildlife and spent 45 billion on their activities

30 million, or 13% fished and spent \$41 billion on their activities

12.5 million or 5% hunted and spent \$23 billion on their activities

In Colorado-residents and non-residents:

1.8 million observed wildlife

660,000 fished

259,000 hunted

This demonstrates the opportunity the Service can provide for public use activities. Currently, no known viable fishery occurs in Pinkham creek, but opportunities for wildlife observation could easily be developed. Potentials exist for working with Colorado Department of Transportation to develop wildlife observation/interpretation areas just off of Colorado Highways 125 and 127. When a management plan is developed, the potential for hiking trails will be evaluated to ensure compatibility and appropriate resources to manage these uses.

The historic Davis Ranch buildings, particularly the existing barn, located on the property could be developed into an interpretive/educational area. This area, due to its location on the historic trail to Laramie, Wyoming has history as a stage-stop, post office and overnight lodging for travelers. It is believed on the property is also the location of the first home in North Park, built by James Pinkham. Surveys and research will confirm or refute this. These ties to the history of the area could provide public interpretation and education for visitors interested in the history of the United States.

## **Property taxes**

The effects of property taxes paid on the property are described below.

### *Alternative A (no action)*

According to the Jackson County officials the current taxes for the Chandler Ranch is \$3,449.29 (Appraisal Report of the Gloria Chandler Property January 2008). If the ranch is not accepted into the refuge system, development of houses would likely occur. This development would add revenue to the local economy through building expenses, permitting, and other costs associated with developing property.

### *Alternative B (proposed action)*

Annual refuge revenue sharing cost is estimated to be \$3,442 based on values paid to Jackson County for 2008. BLM payment-in-lieu-of-taxes (PILT) are estimated to be \$193 for a total of \$3,635.00.

## ***Unavoidable Adverse Impacts***

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

### **Alternative A (no action)**

The adverse impacts of degradation and habitat fragmentation would be expected to be more widespread and prevalent in the project area. Increased human-presence and the disturbance and habitat fragmentation and its effects on the greater sage grouse would occur.

### **Alternative B (proposed action)**

No direct or indirect unavoidable adverse impacts to the environment would result from the selection of alternative B. The acceptance of the property in fee title would not result in unavoidable adverse impacts on the physical or biological environment.

## **Irreversible and Irrecoverable Commitments of Resources**

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

### **Alternative A (no action)**

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

### **Alternative B (proposed action)**

There would not be any irreversible or irretrievable commitments of resources associated with the property being accepted into the refuge system. Once the property is transferred, irreversible and irretrievable commitments of funds would exist to ensure the management of the property, such as, expenditure for fuel and staff time. Given that the property is within several miles of the refuge complex headquarters, these expenditures are expected to be minimal.

## ***Short-term Use versus Long-term Productivity***

### **Alternative A (no action)**

The Chandler Ranch may eventually be sold to developers for short term gains, which if developed into residential housing units would result in negative impacts to the long-term biological productivity and ecological integrity of the area.

### **Alternative B (proposed action)**

The acceptance of the Chandler ranch in donation would secure and maintain the long-term biological productivity of both the upland habitats and riparian wetlands. The long-term productivity of the site as a wintering area for greater sage grouse would be secure. Increased

protection of trust resources and maintenance of biological diversity would likely result. The public would gain long-term opportunities for wildlife-dependent recreational activities.

## ***Cumulative Impacts***

This section describes the cumulative impacts that may result from the combination of expected actions in alternatives A or B, together with other biological and socioeconomic conditions, events, and developments. Cumulative impacts are the incremental environmental impact or effect of the proposed action, together with impacts of past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

### **Alternative A (no action)**

If this property is developed into residential housing or commercial facilities, such as a large campground, there exists the possibility of major negative impacts to the greater sage grouse using this site in the future. Sage grouse are relatively intolerant of human disturbances. Fragmentation caused by roads, utility, water, and sewer lines, increased ambient noise levels, increased likelihood of invasive plants, and increased predation rates on birds are possible if widespread development occurs within the project area.

### **Alternative B (proposed action)**

If the property is accepted as a donation by the Service, fragmentation and negative impacts to riparian and sagebrush habitat caused by development can be avoided. Intact riparian areas will continue to provide valuable habitat for Neotropical migratory birds, moose, waterfowl, and fish. Acceptance of this land will also maintain the riparian travel corridor utilized by a variety of other species as they move through the north end of the county. Sagebrush habitat quality will be maintained for pronghorn, greater sage grouse and other upland bird species.

Future revenue generated through taxes on possible residential or commercial facilities would not exist. The property would continue to be assessed as an agriculturally-dominated property, and the county would continue to receive those taxes. We believe this would have negligible cumulative effects on the citizens of the county.

# Chapter 5 Coordination and Environmental Review

## *Agency Coordination*

The proposal to accept the Chandler Ranch as an addition to the Arapaho NWR has been discussed with landowners, conservation organizations, federal, state and county governments, and other interested groups and individuals. The staff at Arapaho NWR has presented the project proposal to the county commissioners.

At the federal level, Service staff has coordinated with representatives from other federal agencies, including the US Bureau of Land Management, and have provided briefings for Colorado congressional delegation.

The Service held one public meeting on November 25, 2008 to provide information and discuss the proposal with landowners and other interested citizens. There were eight participants including five local residents, a County Commissioner, representatives from the Jackson County Star, CDOW and BLM.

Two of the comments were related to possible future economic impacts to the tax base (decrease)

