



2 Planning Process

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The mission of the U.S. Fish and Wildlife Service guides the Arapaho National Wildlife Refuge Comprehensive Conservation Plan, along with the mission of the National Wildlife Refuge System, the established purposes of the refuge, U.S. Fish and Wildlife Service compatibility standards, and other Service policies, plans, and laws related to refuge management.

This plan establishes habitat-based goals, objectives, strategies, and monitoring priorities for refuge management. The plan will be used to prepare more specific step-down management plans that address programs such as hunting, fishing, and environmental education, with annual priorities and budgets.

Comprehensive conservation plans (CCPs) are initiated, developed, and published in a 2-year time frame. The plan duration is 15 years; however, the plan may be revised if necessary. This CCP supersedes current management plans.

Key steps in the planning process include the following:

- preplanning
- identifying issues and developing a vision
- gathering information
- developing alternatives
- assessing environmental effects
- identifying the proposed alternative
- publishing a draft plan and soliciting public comments
- reviewing the comments and making appropriate changes to the draft plan
- preparing the final plan for approval by the U.S. Fish and Wildlife Service, Region 6 regional director

The planning team for this CCP (appendix C) coordinated these steps, working with the public and partners.

The associated environmental analysis (see the draft CCP document) is the basis for the “Environmental Action Statement” and Finding of No Significant Impact” found in appendix D.

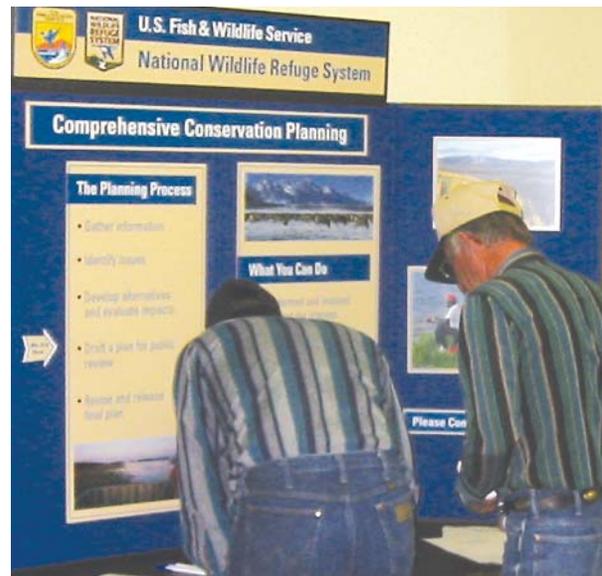
A biological evaluation for the CCP was completed in compliance with section 7 of the Endangered Species Act (appendix E).

Projects completed by the refuge will be monitored and documented to ensure progress toward

achieving overall refuge goals. Step-down plans also provide flexibility to accommodate annual changes in refuge staff levels, funding, equipment, and other resources.

Public Involvement

Issues addressed in this plan were identified by the public, refuge staff, and cooperating agencies. Details about the public involvement process are shown in appendix F. The mailing list for this document is in appendix G.



Interested participants learn more about comprehensive conservation planning.

Planning Issues

Primary issues concerning future management of the refuge include the following:

- changing from a species-based management approach to a habitat-based management approach
- sage grouse preservation and management
- use of grazing as a wildlife management tool
- water management

Additionally, continued close coordination with the Colorado Division of Wildlife (CDOW) is critical to plan success.

The following issues are described below:

- prairie dogs
- Pole Mountain
- grazing
- elk
- sage grouse hunting
- inholdings
- invasive plants

Prairie Dogs

Much of the more open upland areas, as well as drier areas within meadow/riparian habitats, on the refuge support prairie dogs. In 2002, the white-tailed prairie dog was petitioned for listing under the Endangered Species Act; a finding is expected by October 2004.

Issues

The white-tailed prairie dog is very popular with the visiting public and, to many, is a symbol of the west. However, most local ranchers see the prairie dog as a pest that competes with livestock for food, and creates burrows that are potentially dangerous to cattle and horses.



Prairie Dog

Actions

It is appropriate for the refuge to consider prairie dog needs and potential impacts to them when management decisions are being made.

The CCP process has addressed potential impacts to this species.

USFWS

Pole Mountain

During 1993, the Service acquired lands owned by E.B. Shawver and formerly known as the Stelbar Ranch. As part of the “all-or-nothing” purchase of lands adjacent to the refuge, this acquisition included an isolated tract of land known as Pole Mountain (T7N, R81W, Sections 33 and 34, 6th Principal Meridian), located approximately 6 miles southwest of the refuge in Jackson County, Colorado.

History

With a peak elevation of 9,200 feet, this 800-acre tract contains significantly different habitats than the rest of the refuge. Pole Mountain has private land on three sides and a piece of Bureau of Land Management (BLM) land to the south that has no public access to it. Similarly, the Service does not own a permanent access easement to the property, and gains access across private land by virtue of a positive working relationship with a neighboring landowner.

Pole Mountain is dominated by sagebrush uplands (50 percent) and mixed, aspen/conifer forest (50 percent), which is common throughout the county where uplands meet the forest. This property is grazed annually, and invasive plants are monitored and controlled.

Minimal wildlife monitoring has been conducted at Pole Mountain. Wildlife use includes mule deer, elk, blue grouse, porcupine, and a variety of passerine birds. Although the area has wildlife value, it does not match current or future objectives of the remainder of the refuge.

Issues

The habitat at Pole Mountain does not meet purposes of refuge establishment and is not unique in the area in terms of habitat or wildlife use. Few management options are available for habitat improvement.

Several entities are interested in the land for various reasons.

- members of the local sage grouse working group—to trade these lands for others in the county to protect sage grouse habitat
- the CDOW—for big-game management; however, they currently have a moratorium on acquiring new lands
- local ranchers—for use as grazing land
- developers—for home sites

Actions

This CCP calls for the divestiture of the Pole Mountain property within 5 years (option 3 below) using the priority criteria listed in option 4. Until that time, refuge staff will ensure proper stewardship of the land, but minimal management will occur, as follows:

- Place a conservation easement on the property prior to sale or trade to ensure wildlife benefits of the area remain intact.
- Continue grazing at recent levels, as deemed appropriate by management.

- Continue invasive plant control efforts as part of the pest management agreement with the county.
- Obtain a right-of-way access to the property for management and public use.
- If the tract is not divested, create a forest and rangeland management plan for the area prior to update of this CCP.

Seven options were considered for the Pole Mountain tract.

1. Keep the Pole Mountain tract, survey, re-sign, and change/add refuge objectives to include this parcel.
2. Work with Colorado State Forest Service (CSFS) to develop and implement a forest management plan for Pole Mountain.
3. Divest the Pole Mountain tract through appropriate government regulations.
4. Trade the Pole Mountain tract for (in priority order)
 - a. Refuge inholdings
 - b. Lands and waters adjacent to the refuge that are manageable to reach objectives listed in this CCP
 - c. Lands and waters adjacent to other refuges, where it would help achieve their goals and objectives, for refuges
 - i. In Colorado
 - ii. In Region 6 of the Service
 - iii. Anywhere in the Nation
 - d. Lands with a natural resource interest by other Federal land management agencies
5. Place a conservation easement on the Pole Mountain property prior to divestment to limit or preclude development on the tract.
6. Secure a legal right-of-way easement to assure access to Pole Mountain.
7. Open Pole Mountain to hunting of all species, according to State of Colorado regulations.

Grazing

Cattle and sheep had grazed the lands that now comprise the refuge, for nearly a century prior to acquisition. Since establishment of the refuge in 1967, grazing has continued to be the most common management tool to manipulate refuge habitats, especially meadows. Immediately after land purchases, some grazing was permitted as part of purchase agreements, and some areas were rested to establish waterfowl nesting cover.

History

From 1969 to 1982, 47–95 percent of the refuge was grazed annually at a refuge-wide rate varying between 0.4 and 1.2 animal-unit months (AUMs)

per acre. Grazing records from 1969 to 1991 were destroyed in an office fire. From 1991 to 2001 (excepting 1993 for which data is unavailable), 46–74 percent of the refuge was grazed annually at a refuge-wide average rate between 0.52 and 0.71 AUMs per acre. Actual rates vary significantly depending on the site, with some uplands being as low as 0.01 AUMs per acre and some meadows as high as 2.18 AUMs per acre.

Grazing in meadow/riparian areas has generally not commenced until after August 1 to minimize disturbance to nesting waterfowl. Uplands are sometimes grazed earlier, but grazing does not generally commence until June 1. Grazing systems used have included high-intensity, short-duration (Holistic Resource Management-type), rest-rotation, light annual grazing, and complete rest.

Issues

There is little refuge-specific data available to assess how past grazing practices have or will effect proposed habitat objectives, due to the following:

- All data from 1969–1991 was destroyed in an office fire.
- Any available data from other studies did not necessarily address the objectives as defined in this CCP and, therefore, is of limited use for assessment purposes.

Although grazing practices to date have not harmed habitats, current levels of grazing probably will not meet CCP objectives, and some reduction in grazing will be required. With more intensive monitoring of habitats to assess how well objectives are being met, a better understanding of appropriate grazing levels should be developed.

Actions

Livestock grazing has been the preferred management tool used on the refuge because the effect on vegetative communities is more controllable and predictable than other available management tools. All known and available management tools will be assessed for suitability of use in achieving defined habitat objectives.

Other treatment options include the following:

- **Prescribed fire**—Some prescribed fire has been used and more may be planned in the future. Prescribed fire, when used according to policy, can accomplish removal of excess decadent growth and reset successional stages, creating a diversity of wildlife habitat. Prescribed fire may be used in all habitat types to help meet management objectives.
- **Haying/mowing**—Minimal haying occurred on some parcels as agreements of purchase, but was short-lived. Haying would be effective in

removal of vegetative growth, but the primary objective of haying would likely be to remove decadent growth. In this case, hay quality would probably be poor, so finding someone interested in doing the work may be difficult. Mowing would successfully remove decadent growth, and the cut grass would ultimately break down to form litter and duff needed to meet objectives. This could be very costly in time and energy compared to other tools.

- **Fertilizing**—Applying fertilizers is an option to increase plant growth, and is used by many in the county to increase hay production. Cost, equipment, and time deter its use at present, but this tool should be considered if habitat objectives are not being met by other means.
- **Mechanical treatments**—These are treatments typically associated with efforts to manipulate sagebrush and could include using a disc, aerator, roller/chopper, Dixie harrow, or similar implements. Several hundred acres around the county have been treated in recent years in an effort to open up and vary the age diversity of sagebrush stands and increase plant diversity; success of these projects is still being assessed.

This CCP has estimated grazing numbers of 3,050–7,650 AUMs annually, and represents approximately 36–90 percent of the 1996–2001 average. This assumes an average use of between 0.4 and 1.0 AUMs per acre of grazable acres for riparian areas and meadows, and 0.05 to 0.15 AUMs on uplands.

Although not guaranteed, the plan assumes some grazing will likely occur every year to help achieve objectives on and off the refuge. Close coordination will occur with grazing permittees to combine and meet the refuge's needs and permittees' operational needs as much as possible for timing, areas, and to a certain extent, numbers. Permittees in good standing have a reasonable expectation of how many AUMs will be available to them for the upcoming year, barring extenuating circumstances such as drought.

If a permittee has intentions of not grazing any longer on the refuge, their previously permitted areas will be evenly distributed to the remaining permittees, to spread out use on the refuge and meet objectives. If all permittees are still interested in continued use in 2 years, all permits will be decreased annually approximately 5–10 percent from 1996 to 2001 averages until objective levels are met. Thereafter, grazing levels will be driven entirely by habitat needs based on identified objectives.

Elk

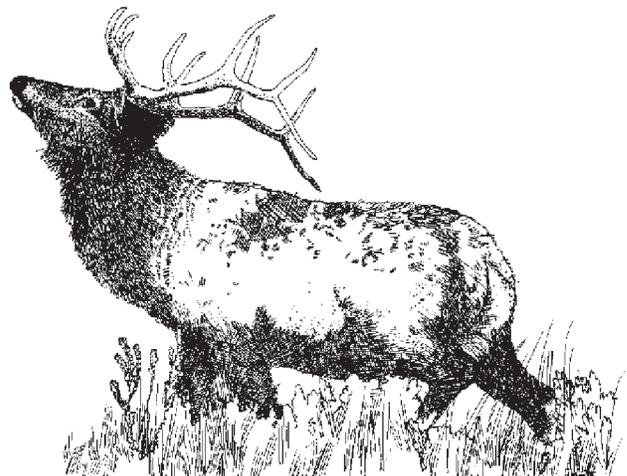
Until the mid- to late 1980s, seeing elk on or near the refuge, at any time of year, was a rarity. In the

late 1980s, elk began to show up regularly in the winter, until about 500 were common on and around the refuge from December to March. Most of the animals would disperse for higher ground as the snow melted in the spring, but some began to stay along the Illinois River year-round. By the mid-1990s, a resident herd of approximately 150 elk had become established.

History

The number of elk using the refuge is continuing to grow and, with recent drought conditions, recent growth may be more than usual. It is unknown if this is a short-term gain in numbers with a likely decrease when conditions change, or if the elk have found a new place and are here to stay. It is also unknown whether the increase in elk on the refuge is proportional to the increase throughout the county, or if elk are occurring in a higher (or lower) proportion on the refuge.

The wintering herd has continued to grow to the point that winter counts conducted by the CDOW in late December 2002 found about 2,400 elk on and near the refuge. Elk typically are scattered into several herds that vary in size, but often occur in a herd of about 1,000 animals. During winter months (November through March), elk numbers vary considerably but average 1,000–1,400 animals.



Elk
© Cindie Brunner

North Park also has a resident herd. The CDOW initiated a distribution management hunt on private lands to thin this resident herd and disperse some of its numbers off private lands. This effort had short-term success in reducing the resident herd size. Management hunts will probably continue to be used by CDOW to control the resident herd size.

During the general, rifle, big-game, hunting seasons, the resident elk herd on the refuge typically becomes more noticeable. As the later

hunting seasons progress, more elk move onto the refuge from the forested areas of the county. With the exception of some private lands scattered around the county, the refuge is the only place on the south end of North Park where the elk are not pursued during the general seasons.

Issues

Although a large, wintering elk herd is a magnificent wildlife resource to behold, other things need to be considered. The first is that the refuge, though fairly large, cannot be all things for all wildlife. A point comes where too many individuals of one species (elk) can negatively affect the habitat for another species or group of species (waterfowl). With one of the purposes for establishing the refuge being used as a sanctuary for migratory birds, too many elk could keep this purpose from being met.

When on the refuge, elk are foraging, and trampling and eating grasses that are being managed as habitat for other wildlife. Elk can also have a severe impact on willow stands. Habitat objectives in this CCP identify maintenance of grasslands and willows to varying degrees for wildlife benefits. Although elk use the refuge extensively during the winter months, they do not use it exclusively, making it more difficult to determine what the cumulative impact of their use may be. A method needs to be developed to estimate elk use and impact to the refuge.

Historically, ranching was the primary use of North Park, and that continues to be the case in much of the county. Elk, as grazers and potential competitors with cattle, can get into hay harvested for livestock and cause damage to fences and other ranch structures.

Elk will continue to concentrate in areas of the county and, depending on the landowner and the number of elk in the particular herd, the perspective of whether an elk problem exists or not may change.

A landowner that does not rely on livestock for their livelihood may view 100 elk as a valuable resource, but may view 300 as a problem. Similarly, a landowner relying on the land to make a living might view the 100 animals as too many. It is important to find an elk population size that achieves refuge goals and meets North Park herd management objectives. A large, visible, herd of elk can be a reminder that herd objectives have been surpassed. When that herd is on the refuge, it may seem to some that they are in a likely spot to reduce numbers.

Elk, by law, are a state-owned resource, and high elk numbers may lead to resource or economic problems elsewhere in the county. The refuge will work with the CDOW to address elk issues on the refuge and throughout North Park.

If elk are on the refuge, they are not on private lands potentially damaging property or consuming forage meant for livestock. The problem is that they do not stay just on the refuge, so the potential exists for them to travel to adjoining private land and do damage. As numbers of elk using the refuge grows, so will the possibility of damage to private resources.

As more elk move onto the refuge during the general, rifle-hunting season, an impression is created with some hunters that “all the elk are on the refuge,” especially if the animals are hard to find in other locations. The refuge is composed mainly of sagebrush uplands, meadow, and open areas, without many places for elk to hide, and they typically are in large herds at this time.

The lands surrounding the refuge are very open and the hunting that occurs on these areas often includes radio use, pushing animals with vehicles and all-terrain vehicles (ATVs), party hunting, and over-limits of animals. In general, this does not fit refuge system requirements, as outlined in the refuge manual, to offer a quality hunting experience that promotes “positive hunting values and hunter ethics such as fair chase and sportsmanship.”

Chronic-wasting disease (CWD) has been documented in white-tailed and mule deer and elk in Jackson County. Though these are typically state issues, the refuge staff is also concerned, since elk use is high on the refuge. The potential for other diseases and their risk of spread rises dramatically because of the large herd sizes.

Actions

Habitat objectives will be met with range management practices including prescribed livestock grazing since it is a controllable tool. Elk use and impact on habitats will be monitored.

A protocol will be developed for action when management objectives are not being met, using management tools such as elk hazing, hunting, and transplant. The protocol should define what circumstances will trigger these actions and when. Coordination with CDOW will be critical to address potential impacts to other parts of the county.

Herbivory (elk, moose, and cattle) studies will be initiated to assess the independent and cumulative impacts to riparian, upland, and meadow habitats by these species. Studies will be conducted in conjunction with the state and other partners to evaluate impacts. Exclosures were installed in 2003 to begin the evaluation process.

- The primary concerns are the lack of willow regeneration, the percent cover provided by willows, and willow density along the Illinois River channel. Willow regeneration along the

Illinois River is slow, and small willow shoots are frequently grazed to a 1-inch height. Elk damage to riparian areas is well documented in the scientific literature (see riparian habitats in appendix H).

- A hunting plan will be developed, working with the state, for land on and adjacent to the refuge. This strategy could include a late-season, limited hunt for youth and disabled hunters. A protocol would outline the need for and administration of additional hunts based on such considerations as game damage, herd reduction, and habitat degradation.
- Elk numbers and elk damage are not necessarily a linear relationship. Snow depth, temperature, duration of feeding, and a host of other factors may determine wintering elk impacts. Elk wintering on the refuge may minimize game damage on adjacent private lands.

Sage Grouse Management

Greater sage grouse are only found in sagebrush-dominated rangelands in western North America. Sage grouse are dependent on sagebrush for winter cover, nesting, and feeding habitat. North Park supports habitat for the greater sage grouse and a viable grouse population. However, over the last 40 years, the population has exhibited extreme fluctuations.



Everett and Nancy Collin

Sage Grouse Hen With Young

Issues

In 1998, because of increased local concerns about the status of sage grouse in North Park, a group of

concerned citizens and agencies formed the North Park sage grouse working group. The mission of the group is to develop, implement, and monitor a conservation plan to maintain a viable sage grouse population in Jackson County. Historically, the refuge has supported sage grouse hunting in accordance with State regulations and seasons.

Action

The refuge proposes to continue to offer sport-hunting opportunities for sage grouse, in accordance with State regulations and seasons. Upland habitats will be monitored and evaluated to improve conditions for nesting and brood-rearing sage grouse (see upland habitats in appendix H).

The refuge will support the purpose and guiding principles of the North Park greater sage grouse conservation plan.

Inholdings

Non-federally owned lands within public land areas are known as inholdings. Table 2 displays non-federally owned lands that lie within the approved acquisition boundary of Arapaho National Wildlife Refuge.

Table 2. Private lands within Arapaho National Wildlife Refuge, Colorado

<i>Tract</i>	<i>Approximate Acreage</i>
Private landowner A	160
Private landowner B	480
Private landowner C	200
Private landowner D	2,960
Private landowner E	24
<i>Total</i>	<i>3,824</i>

Non-federally owned lands that lie outside the approved boundary of Arapaho National Wildlife Refuge are described in table 3.

Table 3. Private lands outside Arapaho National Wildlife Refuge, Colorado

<i>Tract</i>	<i>Approximate Acreage</i>
Private landowner F	18
<i>Total</i>	<i>18</i>

Issues

These inholdings represent valuable wildlife habitat and are of interest to the refuge.

Action

Following the Service acquisition policy and guidelines, the refuge plans to acquire only these properties on a willing-seller/willing-buyer basis. Additionally, the refuge will attempt to acquire mineral resource interests on lands within the existing boundary. Minerals extraction may destroy wildlife habitats, and prevent goals and objectives from being met.

Invasive Plants

The refuge mirrors much of the rest of North Park in its species mix of invasive plants. Canada thistle has a strong foothold in Jackson County. This species has a noticeable presence along ditch banks, dikes, and in the edges of riparian and sub-irrigated areas. Four other species, declared by the county to be noxious, have been found on the refuge in small amounts, totaling less than 5 acres—musk thistle, yellow toadflax, whitetop, and houndstongue.

A handful of other invasive plants have been found in minute amounts on nearby lands—spotted, diffuse, and Russian knapweeds, as well as Dalmatian toadflax, and leafy spurge. These species have been especially troublesome along highway rights-of-way.

Issues

Managing invasive plants and limiting their impact on the refuge is a great concern.

Actions

As a landowner within the North Platte headwaters weed management area, the refuge works closely with Jackson County and the county weed coordinator. This partnership goes back to a 1986 weed-management document and includes 13 public, private, and local entities. Jackson County, although somewhat isolated from more serious invasive plant problems of nearby landscapes, is at the forefront in keeping out several invasive plant species.

Management approaches have been developed in conjunction with the county weed coordinator and are annually monitored for effectiveness. Mechanical, biological, cultural, and chemical tools are employed in combination, in hopes of eliminating these unwanted, invasive plants.

Treatment of Canada thistle is generally limited to areas around facilities and areas incurring heavy public use.

All known occurrences of musk thistle, yellow toadflax, whitetop, and houndstongue are attacked every year with a strategy appropriate to each

species. Progress to date for these four species has been quite good. Persistence and diligence will be necessary to keep them out over the long term.

Careful scouting and fast action will be required to prevent the following, off-refuge, invasive plants from occurring on the refuge—spotted, diffuse, and Russian knapweeds, as well as Dalmatian toadflax, leafy spurge, and Dyers woad.

