

# *Planning Process*

## **Description of Planning Process**

The Arapaho National Wildlife Refuge Comprehensive Conservation Plan is guided by the mission of the U.S. Fish & Wildlife Service, the mission of the National Wildlife Refuge System, the established purposes of the Refuge, U.S. Fish & 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 (hunting, fishing, environmental education, etc), annual priorities, and budgets. 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.

Key steps in the planning process include:

- 1) preplanning;
- 2) identifying issues and developing a vision;
- 3) gathering information;
- 4) assessing environmental effects;
- 5) developing alternatives;
- 6) identifying the proposed alternative;
- 7) publishing a Draft Plan and soliciting public comments;
- 8) reviewing the comments and making appropriate changes to the Draft;
- 9) preparing the Final Plan for approval by the U.S. Fish & Wildlife Service, Regional Director.

Issues addressed in this Plan were identified by the public, Refuge staff, and cooperating agencies. Public meetings were held on February 15, 2001, in Walden Colorado, and February 16, 2001, in Fort Collins, Colorado. Questionnaires and CCP summary handouts were distributed during these public events. News releases were published in the Jackson County Star and the Fort Collin's Coloradoan newspapers. Additionally, the public meeting presentation was delivered at a Fort Collins Chapter Audubon Society meeting in April of 2000. Public comments were received and utilized throughout the planning process.

Comprehensive Conservation Plans 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. The CCP will supercede current management plans.

**Table 1. Arapaho National Wildlife Refuge Planning Process Summary**

DATE	TITLE	OUTCOME
June 2000	CCP kick off meeting	Initiate CCP process
June 2000	Notice of intent for Federal Register	Intent filed
July 2000	Stake holder involvement plan	Stakeholder plan completed
August 2000	Significant issues development	Develop and refine list of issues
September 2000	Biological workshop	Develop draft focus areas
October 2000	Biological workshop	Develop draft riparian goals
December 2000	Biological workshop	Develop draft wetland goals
January 2001	Congressional tour	Tour Refuge, discuss CCP
January 2001	Commissioner tour	Tour Refuge, discuss CCP
January 2001	Biological workshop	Develop draft meadow goals
January 2001	Biological workshop	Develop draft upland goals
February 2001	Public Scoping - Walden	Develop Issues summary
February 2001	Public Scoping - Fort Collins	Develop Issues summary
February 2001	Biological Workshop	Develop riparian objectives
April 2001	Public Scoping	Develop Issues summary
April 2001	Decision support system	Develop timelines for DSS
May 2001	Biological Workshop	Refine goals and objectives
June 2001	Landscape scales issues meeting	Issues identification
June 2001	Riparian workshop	Field visit of riparian areas
July 2001	Alternatives development	Develop range alternatives
July 2001	Alternatives development	Refine alternatives
August 2001	Alternatives development	Refine Public Use Alternatives
September 2001	CCP process meeting	Evaluate CCP status
October 2001	CCP objectives	Refine biological objectives
October 2001	CCP objectives	Refine biological objectives
October 2001	CCP objectives	Refine biological objectives
October 2001	CCP objectives	Refine public use objectives
November 2001	CCP objectives	Refine public use objectives
November 2001	CCP objectives	Refine biological objectives
December 2001	Economic impact meeting	Evaluate economic issues
January 2003	CCP preparation	Writing draft CCP
February 2003	CCP preparation	Writing draft CCP
March 2003	Internal review	Complete internal review
June 2003*	Prepare Public review document	Document completed
July 2003*	Public review - comment period	Review completed
July 2003*	Public meeting draft CCP - Walden	Presentation
July 2003*	Public meeting draft CCP - Fort Collins	Presentation
August 2003*	Follow-up Landscape scale issues	Meeting completion
August 2003*	Incorporate public comments	Complete incorporation
September 2003*	Internal final review	Complete review
October 2003*	Publish final CCP	Publish
*proposed schedule		

## **Planning Issues**

Primary issues concerning future management of Arapaho NWR include: 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, and water management. Additionally, close coordination with the state wildlife management agency is critical to plan success.

## ***Pole Mountain***

### **History**

During 1993, the Service acquired lands formerly known as the Stelbar Ranch owned by E.B. Shawver. As part of the “all-or-nothing” purchase of lands adjacent to Arapaho NWR, this acquisition included an isolated tract of land known as Pole Mountain (T7N, R81W, Sec 33 and 34, 6PM), located approximately 6 miles southwest of the Refuge in Jackson County, Colorado. With a peak elevation of 9,200 feet, this 800-acre tract contains significantly different habitats than Arapaho Refuge proper. The site has private land on three sides and a piece of 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 currently gains access across private land by virtue of a positive working relationship with a neighboring landowner.

The site is dominated by sagebrush uplands (50 percent) and mixed aspen/conifer forest (50 percent), which is common throughout the county where the uplands meet the forest edge. Currently, the Pole Mountain property is grazed annually, and invasive weeds are monitored and controlled. Minimal wildlife monitoring has been conducted at the site. Wildlife use includes mule deer, elk, blue grouse, porcupine, and a variety of passerines. Although the area has wildlife value, it does not match current or future objectives of the remainder of Arapaho NWR.

### **Issues**

The habitat 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, including: 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.

Lack of a legal access right-of-way. This makes any management effort tenuous, especially anything to do with public use as we do not want to encourage citizens to trespass on private lands to gain access to public grounds.

### **Considered Options**

1. Keep tract, survey, re-sign, change/add Refuge objectives to include this parcel;
2. Work with Colorado State Forest Service to develop and implement a forest management plan for the area;
3. Sell tract through government regulations to highest bidder;
4. Trade tract for (in priority order):
  - A. Refuge Inholdings
  - B. Lands and waters adjacent to Arapaho NWR that are manageable to reach objectives listed in this Plan
  - C. Lands and waters adjacent to other Refuges in:
    - a. Colorado
    - b. Region 6 of the FWS
    - c. any Refuge in the nation, which help these areas achieve their goals and objectives
  - D. Lands with a natural resource interest by other Federal land management agencies
5. Place a conservation easement on the property prior to divestment to limit or preclude development on the tract;
6. Secure a legal right-of-way easement to assure access to the property;
7. Open area to hunting of all species according to State regulations.

### **Proposed Action**

Divest of the Pole Mountain property within 5 years using the priority criteria listed above. Until that time, the Refuge staff will ensure proper stewardship of the land, but minimal management will occur.

### **Strategies:**

- Place a conservation easement on the property prior to sale/trade to ensure the wildlife benefits of the area remain intact.
- Continue grazing at recent levels as deemed appropriate by management.
- Continue weed 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.
- Open the tract to hunting by advertising such intentions in the Code of Federal Regulations.
- If the tract is not divested, create a forest and rangeland management plan for the area prior to update of this CCP.

## **Grazing**

The lands that now make up Arapaho National Wildlife Refuge had been grazed by cattle and sheep, prior to acquisition, for nearly a century. Since establishment of the Refuge in 1967, grazing has continued to be the most common management tool to manipulate Refuge habitats, especially the meadow areas. Immediately after land purchases, some grazing was permitted as part of purchase agreements, and some areas were rested to establish waterfowl nesting cover. From 1969 to 1982, 47 to 95 percent of the Refuge lands were grazed annually at a Refuge-wide rate varying between 0.4 and 1.2 Animal Unit Months (AUMs) per acre. Grazing records from 1982 to 1991 were destroyed by an office fire. From 1991 to 2001 (excepting 1993 for which data is unavailable) 46 to 74 percent of the Refuge lands were grazed annually at a Refuge-wide average rate between 0.52 and 0.71 AUMs per acre. Actual rates per field vary significantly depending on the site, with some upland areas being as low as 0.01 AUMs per acre and some meadow fields as high as 2.18 AUMs per acre.

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

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 management tools available at this time. All known and available management tools will be assessed for suitability of use in achieving defined habitat objectives. Other treatment options that will be considered include:

**Prescribed fire** - Some prescribed fires have occurred on the Refuge and others may be planned in the future. Burning could be used to accomplish efforts to remove excess decadent growth and reset successional stages; however, due to severe weather extremes including high winds, low humidities, and unpredictable water weather conditions, meeting burning prescriptions is difficult. Even though fire could accomplish habitat goals, manipulation may not have the chance to occur for years.

**Haying/mowing** - Minimal haying occurred on some parcels as agreements of purchase, but were 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 for 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, but success of these projects is still being assessed.

There is little Refuge specific data available to assess how past Refuge grazing practices have or will effect proposed habitat objectives due to: 1) all data prior to April 1997 was destroyed in an office fire: 2) any available data from other studies was not necessarily looking for the objectives as defined in this document and, therefore, is of limited use for assessment purposes. With this said, it is the opinion of the Refuge staff based on their knowledge of the Refuge lands, that although grazing practices on the Refuge to-date have not harmed the habitat, current levels of grazing probably do not allow us to meet the objectives as defined, 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. Anticipated grazing use of the different alternatives as identified in this CCP are as follows (refer to the Environmental Assessment for full discussion of alternatives):

#### **Alternative A**

Estimated grazing numbers are based on the 1996 to 2001 annual average AUMS of 8,470. This range of years was used because 1996 was the first year of grazing on the current Refuge acreage of 23,243 acres following the purchase of the Stelbar tract. The figures for 2002 were not included as they were considered an anomaly since one of the worst droughts on record significantly decreased use. Status quo, figuring what we have been doing is working.

#### **Alternative B**

Uses estimated grazing numbers of 3,050 to 7,650 AUMs annually, and represents approximately 36 to 90 percent of the 1996 to 2001 average. This assumes an average use of between 0.4 and 1.0 AUMs per acre of grazable acres for riparian and meadows, and 0.05 to 0.15 on uplands. Nothing is guaranteed; however, this alternative assumes some grazing will likely occur every year to help achieve objectives on and off the Refuge. Work closely with permittees to combine Refuge needs and permittees operational needs together as much as possible as far as 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 (drought, etc.).

#### **Alternative C**

Uses estimated grazing numbers of 3,050 to 7,650 AUMs per annual use based on the 1996 to 2001 average and a rate between 0.4 to 1.0 AUMs per acre of grazable acres for riparian and meadows, 0.05 to 0.15 on uplands. Since this alternative requires tighter decisions based solely on predicted habitat needs, there is the higher likelihood of significant variability in AUMs from year-to-year, and an increased possibility of no grazing under certain circumstances. The Refuge staff will set strict guidelines as to where, when, and how intense grazing will occur. Permittees in good standing should have some expectation of grazing to occur the next year, but with more variation possible. If the grazing program under this alternative proves to be too unreliable to maintain regular permittees, it may be necessary to institute a lottery or bid system. The Refuge staff would have to identify where grazing was to occur in the upcoming year, how many AUMs were being offered, and what level of stocking rate would be required, and then advertise that to any interested rancher.

#### **Alternative D (Preferred Alternative)**

Uses estimated grazing numbers of 3,050 to 7,650 AUMs annually, and represents approximately 36 to 90 percent of the 1996 to 2001 average. This assumes an average use of between 0.4 and 1.0 AUMs per acre of grazable acres for riparian and meadows, and 0.05 to 0.15 on uplands. Nothing is guaranteed; however, this alternative assumes some grazing will likely occur every year to help achieve objectives on and off the Refuge. Work closely with permittees to combine Refuge needs and permittees operational needs together as much as possible as far as 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 (drought, etc.).

**Options for implementing any needed changes to grazing program include:**

- 1) Attrition - As permittees drop out, they will not be replaced immediately - if at all. Fields that have historically been grazed by a permittee that drops out will be given to a new permittee after at least a year of rest - when assessment of ground indicates treatment is needed again. Or fields will be adjudicated among remaining permittees to better manage AUMs throughout the Refuge. Anticipated grazing needs will be identified by January 15 of each year for permittee planning purposes.
- 2) New grazing protocol is instituted immediately upon signing of the CCP. Refuge staff will establish AUMs to be used and where; and permittees will work with those numbers.
- 3) Permittees could be guaranteed a certain number of AUMs or range to expect from year-to-year. No guarantee will occur as to where these AUMs will be, so permittee must be willing to go anywhere on the Refuge. AUMs per permittee could be based on a ratio of past use, or a similar amount/range for all.
- 4) If no permittees drop out, decrease AUMs across the board a percentage (5 to 10 percent) every year until a predetermined threshold, or habitat objectives are met. Adjust annually, thereafter, based on habitat needs and outside projects.
- 5) If no permittees drop out, set a date - such as 5 years from signing of the CCP - when any changes will take effect. Refuge staff will have a chance to come up with firm numbers that will be communicated to permittees to aid them in long-term planning.
- 6) If a permittee drops out, rest all fields they grazed for 2 years to conduct intensive evaluations of fields. When it is deemed manipulation is needed, advertise the availability of a grazing permit allowing so many AUMs per year, for  $X$  out of the next  $Y$  years (e.g. 500 AUMs per year for 3 out of the next 6 years), with the permittee choosing which years to use. Permittee could be selected by lottery or bid. Permit would define available fields and maximum AUMS per year to be used in each.

**Proposed Action**

Continue working with existing permittees and adjust use to Refuge goals using attrition and across the board cuts in AUMS if needed. If a permittee has intentions of not grazing any longer on the Refuge, the fields they historically used will be utilized as they are in need of treatment to spread out use elsewhere on the Refuge. If all permittees are still interested in continued use in 2 years, all permits will be decreased annually approximately 5 to 10 percent from 1996 to 2001 averages until objective levels are met. Grazing levels will, from thereafter, be driven entirely by habitat needs based on identified objectives.

## **Elk**

### **History**

Until the mid-to-late 1980s, seeing elk on or around the Refuge at any time of year was a rarity. Then, for various known and unknown reasons, they 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. The CDOW initiated a Distribution Management hunt on private lands to thin this resident herd to try and disperse some of its numbers off the private lands. This effort was successful in reducing the resident herd size for awhile. 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. They typically are scattered into several herds that vary in size, but it is not unusual to see a herd of +/- 1,000 animals. Although a herd of this size 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 impact 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. Also, 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 should, and will, work with the Colorado Division of Wildlife to address elk issues on the Refuge.

### **Elk Issues**

Historically, ranching was the primary use of North Park lands, 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 changes. 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. The Refuge strives 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, and when that herd is on the Refuge, it may seem to some that they are on a likely spot to reduce numbers.

As mentioned, elk are grazers. When on the Refuge they are foraging, trampling and eating grasses that the Refuge staff is trying to manage as habitat for other wildlife. Elk can also have a severe impact on willow stands. Habitat objectives within this document identify maintaining grasslands and willows to varying degrees to benefit wildlife. Although the elk do 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 Refuge lands.

The number of elk using the Refuge is continuing to grow, and with recent drought conditions, recent growth may be larger than usual. Is this a short-term gain in numbers with a decrease when conditions change, or have the animals found a new place and will stick with it? Also, is the increase in elk on the Refuge proportional to the increase throughout the county, or are a higher (or lower) proportion using the Refuge?

The Refuge is a good place for the elk, since it is a place set-aside for wildlife, and if they 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. And as the numbers of animals using the Refuge grows, so will the possibility of damage to private resources grow.

### **Elk Hunting**

During the general rifle big game hunting seasons, the resident elk herd on and near 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. But as more elk move onto the Refuge, 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 (the elk 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” on National Wildlife Refuges.

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 as a result of the large herd sizes.



*Elk © Cindie Brunner*

## **Elk Management Options**

- Eliminate livestock, and manage Refuge habitats with elk grazing. This would involve trying to haze the elk on or off various fields on the Refuge, or completely off the Refuge if habitat goals are thought to be met. The problems with this include the fact that elk are wild and getting them to move where you want them to is not an easy task, and elk moved off the Refuge could very well end up on private land, potentially causing problems there.
- Eliminate elk, and manage Refuge habitats with cows and other management tools. This would decrease the likelihood of disease problems such as CWD on the Refuge, and since management would be more controllable, this would seem an appropriate option. However, we would still be into a hazing program, and where the elk go when they are not on the Refuge should be a concern. Also, is it appropriate and within Refuge purposes to keep a species native to the area off a National Wildlife Refuge?
- Try and meet habitat objectives with range management practices including prescribed livestock grazing since it is a controllable tool. Monitor elk use and impact on Refuge habitats. Develop a protocol for action when management objectives are not being met, using management tools such as elk hazing, hunting, transplant, etc. 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.
- Open an elk hunting season. Objectives of a hunt would have to be defined. Opening the Refuge during the general seasons would not meet the guidelines set out in the Refuge Manual to provide a quality hunting experience. A limited quota hunt of just the Refuge with the aim at reducing overall herd size would be minimally successful as elk would quickly leave the Refuge for safer areas. Any hunt geared toward population management would have to incorporate adjacent BLM and private lands since the elk are not on the Refuge all the time, and they will not necessarily remain on the Refuge once the shooting begins. A limited, late season youth and/or disabled hunt could supply a quality learning experience for young and disabled hunters, while contributing to countywide efforts to control herd sizes. Other hunting options would include Coordinated Management hunts, or Limited Access hunts, through the CDOW and the local Habitat Partnership Program group.
- Calculate daily impact to forage by elk and develop a means to determine when elk use is stressing habitat objectives. Management decisions for elk, livestock, or any other manipulation could then be made with that impact in mind.
- Work with the State to monitor CWD and/or other disease issues, especially those on the Refuge.

## ***Inholdings***

The following lands lie within the approved acquisition boundary of Arapaho National Wildlife Refuge.

These properties represent valuable wildlife habitat and are of interest to the Refuge. Following the Service acquisition policy and guidelines, the Refuge will attempt to acquire these properties on a willing-seller, willing-buyer basis only. Additionally, the Refuge will attempt to acquire mineral resource interests on lands within the existing acquisition boundary. Surface disturbance associated with minerals extraction may destroy wildlife habitats, and prevent Refuge goals and objectives from being met. The Refuge staff has not identified any additional lands or minerals for acquisition outside the approved boundary.

<u>Tract</u>	<u>Approximate Acreage</u>
Stephens	160
Anderson	480
Burr (Tract 1)	200
Burr (Tract 2)	2,960
Hwy 14 Tract	18
<u>Old RR grade (pieces)</u>	<u>24</u>
<b>Total</b>	<b>3,842</b>

- Initiate herbivory (elk, moose, cattle) studies to assess the independent and cumulative impacts to riparian, upland, and meadow habitats on the Refuge by these species. Willow regeneration along the Illinois River is slow, and small willow shoots are frequently grazed to one inch height. Elk damage to riparian areas is well documented in the scientific literature (see Riparian Summary - Appendix H). Currently, approximately 150 elk utilize the Refuge during the spring, summer, and fall. During winter months (November through March), elk numbers vary considerably but average 1,000 to 1,400 using the Refuge and surrounding area. 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. Therefore, the Refuge proposes to evaluate herbivory impacts of elk, moose, and cattle. Studies will be conducted in conjunction with the State and other partners to evaluate impacts. Exclosures will be installed during 2004 to begin the evaluation process.

### **Proposed Action**

Initiate studies to determine elk impact to willow communities and impact on grasslands. The Refuge staff is concerned primarily with the lack of willow regeneration, the percent cover provided by willows, and willow density along the Illinois River channel. Develop protocol outlining actions to take when impacts become severe. Work with the State to develop a hunting strategy for land on and adjacent to the Refuge. Strategy could include a late season limited youth and disabled hunt, and protocol outlining the need and administration of additional hunts based on game damage, herd reduction, Refuge habitat degradation, etc.

### **Sage Grouse Hunting**

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. Currently, North Park supports greater sage-grouse habitat and a viable grouse population. However, over the last 40 years, the population has exhibited extreme fluctuations. 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, Colorado. Historically, the Refuge has supported sage grouse hunting in accordance with State regulations and seasons. The Refuge proposes to continue offering sport hunting opportunities for sage grouse in accordance with State regulations and seasons. Additionally, the Refuge staff will monitor and evaluate upland habitats to improve conditions for nesting and brood-rearing sage grouse (See Upland Habitats, Appendix H). Finally, the Refuge will support the purpose and guiding principals of the North Park greater sage-grouse conservation plan.