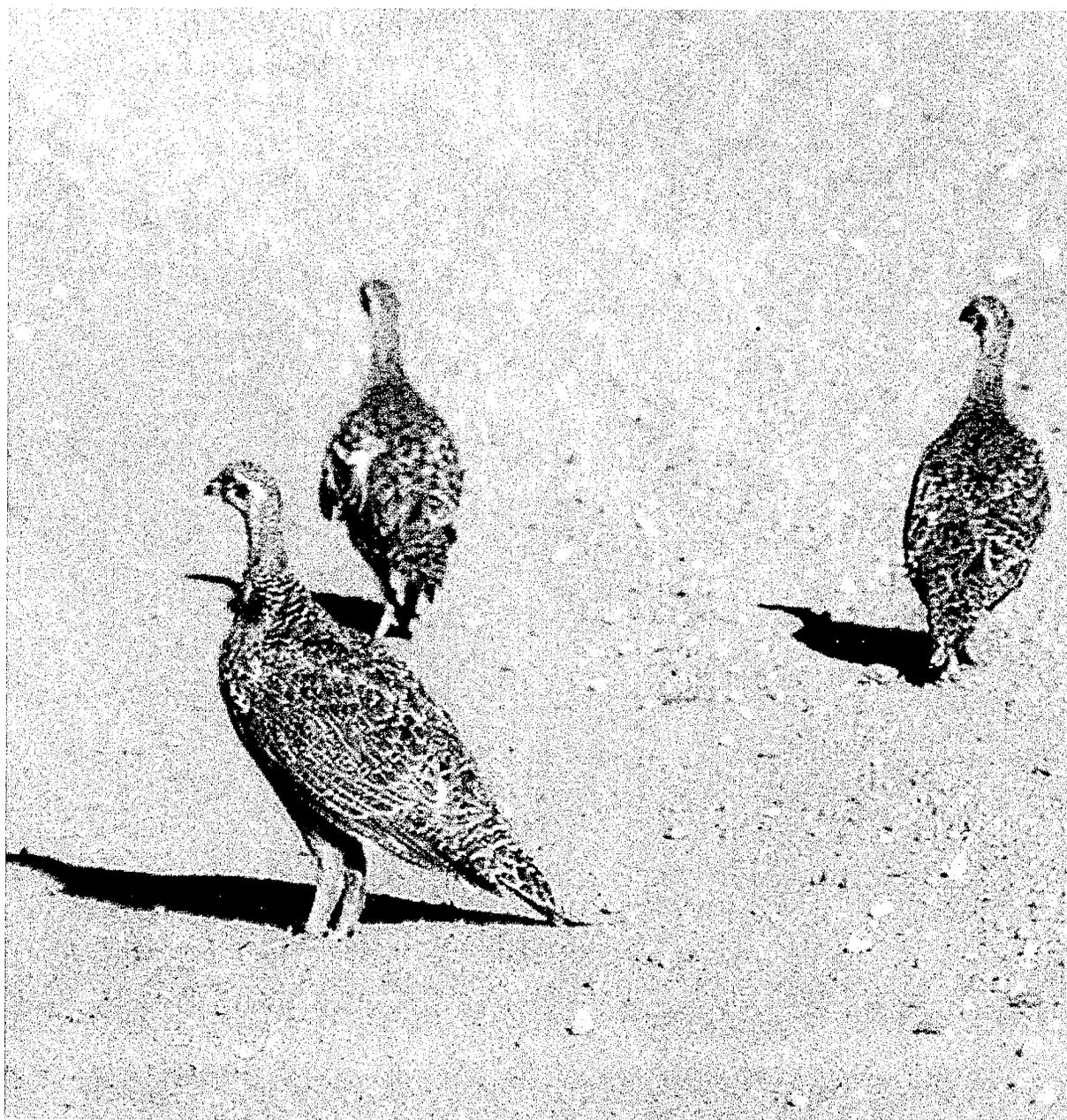


# GUNNISON SAGE GROUSE CONSERVATION PLAN



PIÑON MESA, COLORADO

24 MAY 2000

# GUNNISON SAGE GROUSE CONSERVATION PLAN PIÑON MESA, COLORADO Final Plan

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## PREAMBLE

Sage grouse are restricted to sagebrush rangelands in western North America and occur nowhere else in the world. Their distribution and abundance have markedly decreased and the species has been extirpated from at least 5 states and 1 province, and their long-term existence in at least 6 states and 2 provinces is uncertain. This uncertainty has resulted in public discussion of classifying sage grouse as federally threatened or endangered. Complicating the concern about status of sage grouse is the recent description of a new species of sage grouse from southwestern Colorado and southeastern Utah, the Gunnison sage grouse. This newly described species has a limited distribution in Colorado (Figure 1), a relatively small population size, and may become a candidate for federal listing as threatened or endangered. Five listing factors (Appendix D) are considered by the U.S. Fish and Wildlife Service (USFWS) in evaluating possible action under the Endangered Species Act.

Gunnison sage grouse are known to occur in 9 highly fragmented populations in scattered localities in southwest Colorado and southeast Utah. The largest area of contiguous distribution and, consequently, population size of this new species is in the Gunnison Basin, Colorado. One of the populations is no longer viable (Sims Mesa, less than 10 birds), another (Poncha Pass) is the result of a transplant, 2 others, Dove Creek and Monticello are undoubtedly linked (2 states), while 1 (Cimarron) is marginal (less than 50 birds). The population at Piñon Mesa is estimated to be at least 75-100 birds. The Crawford population, while small (225 birds), has increased since 1994 and probably has a relationship with the larger population in the Gunnison Basin.

Conservation plans provide unique opportunities for partnerships involving resource agencies, private groups, and individual landowners to work jointly for more effective conservation of candidate species and land management. Presently, conservation plans have been completed for Gunnison sage grouse populations at Crawford, Dove Creek, Dry Creek Basin/Miramonte, Poncha Pass, and the Gunnison Basin, and are being implemented. The goal is to have conservation plans for each of the populations that are believed to be viable. Hunting is presently allowed under tight restriction only in the Gunnison Basin with none of the other populations being hunted nor considered for future hunting opportunities.

This conservation plan addresses the 5 USFWS listing factors, and describes and sets forth a strategy for long-term management of the Gunnison sage grouse in concert with other resource values and land uses at a landscape scale. It is the intent of the Piñon Mesa Sage Grouse Partnership to frequently communicate with other Gunnison Sage Grouse Work Groups to seek and exchange information as progress is made on implementing the conservation actions. Participation by private landowners in this conservation plan will be strictly optional on a volunteer basis.



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## I. INTRODUCTION

Piñon Mesa is at the northwest end of the Uncompahgre Plateau in west-central Colorado. The area is known widely for its scenic qualities, abundant wildlife, and diverse vegetative communities. The relatively small human population has left much of the countryside in its native characteristics which offers expansive views of western Colorado and eastern Utah. Generally, the land is used for livestock grazing. In the past, domestic sheep were grazed, but today most of the ranches maintain cattle as the primary livestock.

The area where Gunnison sage grouse presently occur or have been found in the past is commonly referred to as Piñon Mesa or Glade Park and the terms are often used interchangeably. Glade Park is usually considered to be lands at lower elevation on the north half of the area, in and around the Glade Park store, but extending west to Fish Park near the Utah state line. Piñon Mesa, at higher elevations, is considered to be in the central to southern portion of the area. For this plan, the entire area will be referred to as Piñon Mesa, since this area presently supports the largest portion of the Gunnison sage grouse population in this area.

For centuries the Gunnison sage grouse, sometimes called a sage hen, has made its home in this area. Populations most likely fluctuated over the years in response to the ebb and flow of natural fires that formed the necessary sagebrush communities that are essential to these birds. At times in the past, the habitat must have looked somewhat different than it does presently. For the sage grouse to survive, it is assumed that the vegetative communities must have been more open, with less piñon-juniper woodlands and perhaps fewer areas dominated by oakbrush and serviceberry. In fact, the isolated populations of Gunnison sage grouse that exist today in southwest Colorado were likely connected in a web of sagebrush that allowed for movement of birds between populations which allowed for genetic intermingling that contributed to the characteristics in the birds we see today. At some point in the past (estimated at 300,000 years) these birds separated from their sage grouse relatives to the north and evolved to where these birds are considered a separate species today.

In the recent past, records show that sage grouse populations had a wider range than we see today on Piñon Mesa. Glenn E. Rogers, a CDOW biologist, reported active grouse leks south and west of the Glade Park store in the 1960s, and members of the Mesa County Audubon Society reported seeing birds near historic lek sites near Thompson Reservoirs up until a few years ago. Local ranchers have also reported seeing sage grouse in the last 10 years. Intensive studies by the CDOW in the mid-1990s tend to support the theory that the bird's range is contracting, with only the most favorable habitats on Piñon Mesa being used today. No confirmed sightings have been recorded near the Glade Park store portion of the Mesa for more than 10 years. It is probable that viable populations of the birds have vanished from this area. Fragmentation of habitats by urban growth and progression towards older-aged vegetation appears to be the primary reasons for the decline.

## II. THE PLAN AND ITS PURPOSE

This conservation plan establishes a process and puts in place a framework that will guide a coordinated management effort at a landscape scale directed at improving sage grouse habitat and reversing the long-term trend of declining numbers, while continuing to optimize management for the other resources. Central to this process is landowner, community, and agency involvement in determining appropriate management activities designed to meet jointly developed goals and objectives.

The plan is designed to be dynamic and flexible, allowing new information and issues, as well as results from previous conservation efforts, to be incorporated as necessary. It is also designed to answer questions and collect data for future resource management decisions.

## Guiding Principles

This process is designed to guide sage grouse and other resource management efforts, particularly developing goals, objectives, and the selection of conservation actions and the way in which they are implemented across jurisdictional/ownership boundaries. They are:

1. Landowner and public involvement is essential in all planning and management decisions.
2. Maintain an atmosphere of cooperation and participation among land managers, private landowners, and other stakeholders.
3. Implement conservation actions in ways that meets the needs of sage grouse and other resources, and are least disruptive to, and encourages the development of a stable and diverse agricultural base in the area.
4. Respect individual views and values and implement conservation actions on a collaborative basis in ways that have broad community support.
5. Make every effort among partners to seek efficiency and integration of efforts, and to select conservation actions that also promote other land health or resource management objectives whenever possible, especially among agencies in the implementation of conservation actions.
6. Active management of the habitat on Piñon Mesa is essential for the perpetuation of sage grouse populations. The elimination of planned management and manipulation of habitats is not desirable and closing of lands to management would adversely impact sage grouse, present agricultural practices, and other wildlife populations.

## III. SPECIES DESCRIPTION, DISTRIBUTION, AND POPULATION MONITORING

### A. DESCRIPTION

Gunnison sage grouse are large (2.4-5.0 lbs) brownish gray birds, sometimes called a sage hen due to its resemblance to domestic chickens. The grouse have narrow pointed tails, feathering to the base of the toes, and a diverse pattern of grayish brown, buff and black on the upper body. The flanks are pale gray and white, and there is a large dark patch extending across the lower breast and abdomen. Adults have dark green feet and toes. In early fall, a comb-like fringe appears along side each of the 3 toes which then act as snowshoes for walking on deep snow. These fringes are shed in the spring. Males are larger and more colorful than females and have a black throat and bib, and white feathers along the sides of the neck. Males also have 2 large, frontally directed air sacs of olive-green skin that they inflate during breeding displays. Both sexes have yellow-green eye combs, but these are less prominent in females.

Gunnison sage grouse, in southwestern Colorado, differ from sage grouse found in northern Colorado in size (males are 3.5 to 5.0 lbs, vs. 5.5 to 7.2 lbs in northern Colorado; females are 2.4 to 3.1 lbs vs. 3.3 to 4.0 lbs in northern Colorado), bill shape and size, and tail patterns (larger, more distinct white barring of tail feathers). Also, the difference in behavior and calls between the Gunnison and large-bodied sage grouse in Northern Colorado are striking.

### B. DISTRIBUTION

Two races of sage grouse have been described with the Western race occurring in west-central Oregon and Washington and the Eastern race from eastern Oregon east, north, and south throughout the described distribution. More recently, a third group of sage grouse has been described from the Gunnison Basin, Colorado.

This group differs from all other sage grouse populations studied by being significantly smaller in size, having different breeding behaviors and specialized feathers, and having a markedly narrow (one) range of genetic haplotypes. The present distribution of the Gunnison sage grouse is south of the Colorado-Eagle rivers in Colorado extending east to the San Luis Valley. It also occurs east of the Colorado River in extreme southeastern Utah near Monticello.

### **C. POPULATION MONITORING**

Counts of male sage grouse on leks provide wildlife managers with an estimate of minimum population size. Studies across western North America indicate there are about 2 females for each male in the spring population. Thus, if the number of males is known it is possible to calculate a minimum population size. It is important to recognize that a count will not represent all males in the population and that any calculated population estimate will be lower than the actual population size.

Personnel of the CDOW inventoried leks starting in the 1950s to document sage grouse presence and general trend within specific areas of western Colorado. Thus, locations of active leks and counts of males on leks were recorded. Generally, only accessible leks were counted and intensive searches for new or relocated leks were not made because of manpower and equipment priorities. Searches and counts were sporadic as firm procedures were not in place. Consequently, lek count data prior to 1995 for Piñon Mesa reflect only general trends in the sage grouse population. Procedures changed in the mid 1990's and now follow standard protocols. Sage grouse were counted on leks in Glade Park (leks 1-4) in 1958-1960 with 0 to 6 males/lek and Piñon Mesa (leks 1-2) with 0-17 males/lek. No other lek count data for this area are known to be available until 1988 and 1995-2000.

## **IV. THE PIÑON MESA AREA ENVIRONMENT**

### **A. GEOGRAPHY**

The area can be broadly divided into 2 sub-units: These include, Glade Park, north and west of the Glade Park store, and Piñon Mesa at higher elevations, rising to the south and west of Glade Park. The area is also sometimes called either Glade Park or Piñon Mesa and terms are often used interchangeably (Figure 2). Glade Park is at the extreme northwest end of the Uncompahgre Plateau. The topography varies greatly and highest elevations are near the center of the area and from there elevation decreases in all directions. It is noted for its canyon country, which is conspicuous near the area's borders. The highest elevation is around 9,800 feet on Piñon Mesa. The lowest elevation is about 4,600 feet where the Colorado River meets the Utah State line.

Sandstone canyons are one of the dominant geologic features in this area. The Colorado National Monument just southwest of Grand Junction is noted for its expansive sandstone canyon system. The interior portions of Piñon Mesa are composed of mesas and canyons, but the general terrain is less fragmented and more open in nature.

The Little Dolores River is the main drainage that originates in the area. Due to the significantly higher elevations in the center of the area, considerable moisture falls throughout the year and perennial streams are not uncommon. There are no large natural lakes in the area. Small reservoirs have been constructed for livestock and irrigation water and for municipal use by the town of Fruita.

### **B. VEGETATION**

Vegetation in this area varies due to the wide range of elevations that occur. At lower elevations, the vegetation is typical of most semi-arid regions in western Colorado. Saltbush, sagebrush, and greasewood are common shrub species in the open desert areas. Piñon-juniper woodlands dominate on the lower and intermediate slopes throughout the area. Oakbrush occurs in the piñon-juniper woodlands at higher elevations. A combination of sagebrush and snowberry occurs in open areas in the oakbrush zone at intermediate and higher elevations. Higher elevations, which receive substantially more moisture, have considerable aspen and spruce-fir forests.

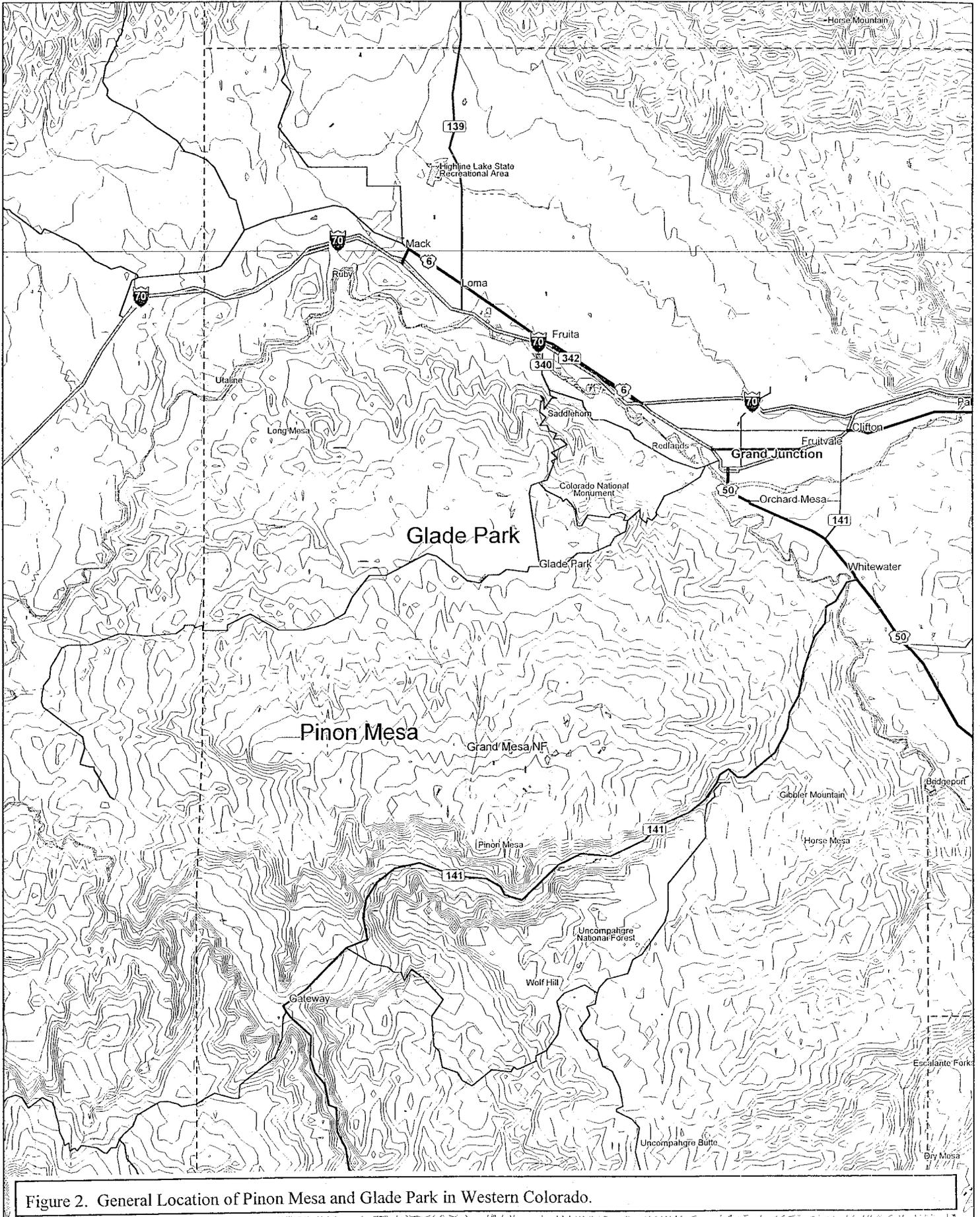


Figure 2. General Location of Pinon Mesa and Glade Park in Western Colorado.

Vegetative communities grade into each other in response to slope, aspect, and moisture conditions forming a mosaic pattern. In portions of the area, ponderosa pine is a dominant tree and some mature stands have been harvested for timber in the past.

Irrigated grasslands interspersed with shrub mixtures and grass/alfalfa meadows occur at lower elevations in the valleys. Cottonwood, willow, sagebrush, and greasewood are common in riparian areas throughout the area. Other riparian species include boxelder, tamarisk (salt cedar), and alder.

The vegetation in the area has been extensively managed for sustained livestock forage production. Cattle grazing occurs throughout the area and historically domestic sheep were grazed in significant numbers. However, today domestic sheep occur in only a few small flocks on small ranchettes.

The vegetation in the area has been influenced by man's management practices, agricultural and livestock production, and recreation. Natural fire has been excluded from many portions of the unit for many years. However, several large wild fires have occurred in the last 10 years, mostly in the southwest portion of the area near the Utah state line. One large fire occurred during 1989 in the Clark Wash area near the Glade Park Store. These lightning-caused fires burned extensive stands of mature piñon-juniper woodlands. Piñon-juniper invasion of the sagebrush steppe due to the lack of fire is a significant concern and is influencing wildlife populations in the area. In some areas it is reducing the amount of forage produced by shrubs, grasses, and forbs.

### **C. PIÑON MESA SAGE GROUSE AREA BOUNDARY**

The Partnership considered possible boundaries for the Gunnison sage grouse population that historically and presently use the Piñon Mesa area. Delineation of an area boundary was based on known historic use sites and sage grouse observations, as well as the present potential of remaining sagebrush-dominated habitats (Figure 3). Areas with rural dwellings are included within the boundary. While this was necessary to include all areas with potential for habitat development to benefit an expanded Gunnison sage grouse population, no inferences on future changes in present land uses are inferred by the boundary delineated. Participation in this plan on the part of landowners is strictly voluntary.

Generally, Black Ridge forms the northern boundary of the area. The northern boundary continues eastward along the southern boundary of Colorado National Monument to the Tabogauche Trail. From there, the Tabogauche Trail drops south and forms a portion of the east boundary with the remaining portion being a continuation of a north-south line paralleling the trail down to Unaweep Canyon. Unaweep Canyon is the southern boundary and is a well known geologic feature. This canyon is broad, steep-sided and composed of both granite and sandstone formations. It is unique in that its highest point is near the canyon's center and water drains from this site along East and West creeks. The Dolores River flows for a short distance along the southern boundary near the town of Gateway, Colorado. The Utah State line is the west boundary. However, Gunnison sage grouse inhabit the western portion of Fish Park, which lies in Utah.

### **D. SAGE GROUSE POPULATION AND HABITAT STATUS/DISTRIBUTION**

#### **Population Status:**

The present (1997-99) size of the breeding population of sage grouse in the Piñon Mesa area is estimated to be between 78 and 123 birds based on 26 males counted on 4-5 active leks (1997-99) (3 year average) on which males were observed (Appendix E). This range is based on knowledge that there are about 2 hens/males in the spring population (26 males + 52 hens = 78). Thus, there were at least 78 sage grouse in the Piñon Mesa area in May 1999. However, this estimate may be conservative as it has been repeatedly demonstrated that not all males are on leks at one time to be counted and, also, that locations of all active leks may not be known. Given the terrain and early spring access in this area, it is probable that not all active lek areas were known and counted in spring 1997-99. If we assume that locations of 90% of all leks were known, there could be 1 unknown active lek

(if 5 active leks = 90%, then  $5 \div 0.90 = 5.5$  active leks would constitute 100% of all active leks). To reach an upper estimate of population size, the 5.5 calculated active leks was rounded to 6.

Given an average of 26 males counted on 5 active known leks, there would be 31 males on 6 active leks ( $26 \div 5 = 5.2$  males/active known lek  $\times$  6 assumed leks,  $6 \times 5.2 = 31.2$  rounded to 31). Further, given that not all males associated with a lek are counted on one count day, it is reasonable to assume the actual number, based on data from radio-marked males, lies between 50 and 100%. Assuming this percentage to be 75, there would be 41 males ( $31$  [on 6 possible leks]  $\div$  75% present during the high count = 41). Thus, if there are 2 hens/male in the spring population, the upper estimate for the population would be 123 ( $41 + 82$  hens = 123).

There are problems with both lower and upper estimates as sex ratios may be closer to 1:1 (one male for every female) in un hunted populations and all active lek sites may be known and counted. However, it is probable that the true population number lies within the range calculated and, most likely, is closer to the lower estimate.

The spring population size of sage grouse at Piñon Mesa has been considerably higher in the recent past (34 males counted in 1959 on 3 active leks). These numbers, using the same assumptions, would indicate a spring population size of at least 102 birds (34 males + 68 hens) and possibly as high as 264 birds ( $34 \div 3 = 11 \times 6$  total leks = 66 males  $\div$  0.75 = 88 + 176 = 264). Thus, population size has decreased from 1959 (102-264, 11 males/lek) to 1997-99 (78-123, 5 males/lek). This is a 54% ( $11 - 5 = 6 \div 11 = 54.5\%$ ) decrease based on mean number of males counted on leks.

**Habitat status:** It is believed that the decline in the Piñon Mesa sage grouse numbers reflects a larger decline in the condition of the natural landscape in this area. Past management activities including fire suppression and selective livestock grazing appear to have created conditions suitable for establishment of young piñon and juniper trees which are slowly encroaching into sagebrush areas on the landscape, as well as creating old-age, dense shrub growth. Assessment of the potential natural disturbances in the area indicates that the plant communities and grouse evolved under a system of fairly frequent, low intensity fire and primarily dormant season grazing and browsing by native ungulates. This would have led to a highly patchy landscape with many different age groups of vegetation and high levels of herbaceous growth and ground cover. Sage grouse habitat objectives in this plan represent small steps toward this more functional landscape pattern, and are compatible with a move toward greater landscape health.

Specific habitat problems identified by the Partnership are: 1) In the Glade Park area, fragmentation of habitat components, i.e., too much distance between nesting and brooding areas, and wet areas and by housing development; 2) invasion of piñon and juniper into the sagebrush areas throughout most of the area; 3) not enough grass and forbs in the sagebrush understory in Glade Park; 4) low vegetative age class diversity throughout the area (a homogeneous old age stand exists); 5) low vegetative vigor, particularly in Glade Park; 6) poor vegetative conditions on leks (too much vegetation greater than 8" high); and 7) a short supply of wet areas and water sites in Glade Park.

**Population and Habitat Distribution:** It is believed that historically Gunnison sage grouse occurred in all suitable sagebrush habitat in the Piñon Mesa area. Thus, based on the existing location of sagebrush, suitable soil types that may have supported sagebrush in the past, and the knowledge of present sage grouse use areas, the probable historic and present distribution of sage grouse was developed (Figure 3 and 4).

Four types of sagebrush occur on Piñon Mesa. Silver sage is the dominant species on Piñon Mesa where a large portion of the occupied sage grouse range occurs. In this area, some mountain big sagebrush is scattered among the silver sage on elevated, dryer, rocky sites. Silver sagebrush is used by sage grouse extensively along both sides of the MS road on upper Piñon Mesa. However, it is considered to be less palatable than mountain big sagebrush to sage grouse. Thick stands of snowberry occur in conjunction with silver sagebrush on Piñon Mesa. Both silver sage and snowberry are fire tolerant species. On the mesas extending north of the MS road, such as Payne Mesa, mountain big sagebrush is the dominant sagebrush. Mountain big sage is important for the

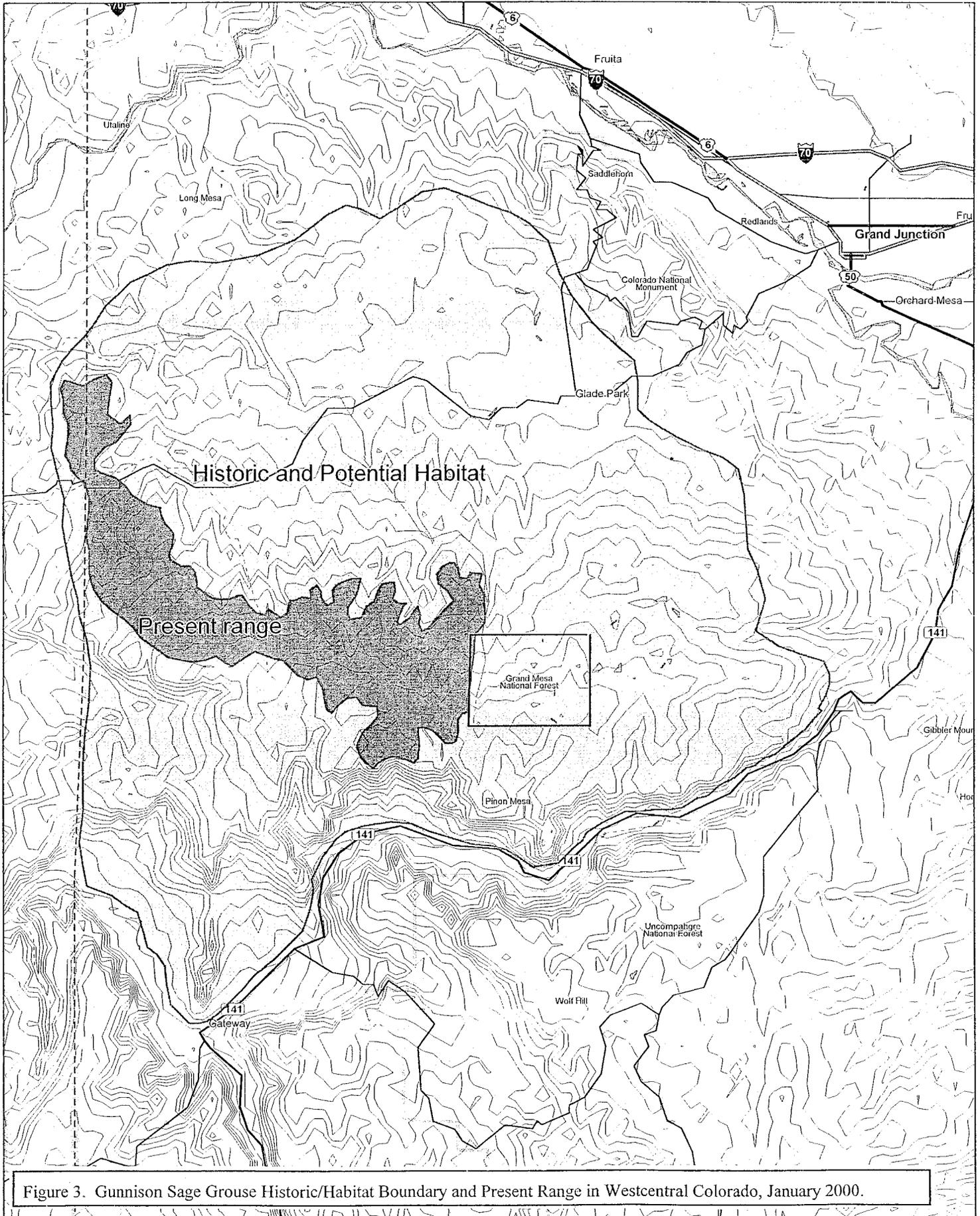


Figure 3. Gunnison Sage Grouse Historic/Habitat Boundary and Present Range in Westcentral Colorado, January 2000.

Gunnison sage grouse and is the preferred forage species. It is considered to be the most important winter food for sage grouse in this area.

Basin big sagebrush occurs more commonly in the Glade Park area and usually occurs along drainages and often, fence lines. It grows up to 10 feet high and is a dominant shrub along many of the small, dry washes and gulches. Basin big sage provides little habitat for sage grouse.

Black sagebrush is found scattered throughout the area. It tends to be found in dryer and sometimes rocky areas. One area where black sage is found is near Unaweep Canyon on Snyder Flats and this area is considered to be historic range for sage grouse. Some black sage is found northeast of Payne Mesa in the upper portions of the Little Dolores River drainage.

The CDOW believes from recent inventories in the eastern Glade Park area that a viable population of sage grouse no longer exists there. No birds have been observed at identified lek sites and extensive work by Chris Woods (CDOW temporary research worker) in 1995 revealed no observations of sage grouse. In the past, the eastern Glade Park area most likely supported a year-round population and may also have functioned as winter range for birds which migrated back and forth from Piñon Mesa. This is speculation, but migratory movements of similar distances presently occur in the Dry Creek Basin/Miramonte population of Gunnison sage grouse. Migratory movements of this type may have benefited the Piñon Mesa grouse, allowing breeding and brood rearing at higher elevations and increased winter survival by moving to lower elevations where snow depths were less and forage more widely available.

Sage grouse numbers at Fish Park, near the Utah/Colorado state line have declined to very low levels and may have reached a point that a viable population no longer exists there. One bird was observed at Fish Park in 1998 and none in 1999. No birds have been observed on the lek since 1995. Very limited numbers of sage grouse have been observed using hay meadows along the DS road near the point where it intersects the Utah state line. Apparently, the birds observed here are feeding on vegetation and insects in the alfalfa fields in summer and fall. One bird was observed on the Van Loan ranch on 2 different occasions during summer 1998 in hay meadows. In 1995, radio-marked birds moved from Fish Park to the Van Loan ranch during the summer.

The sagebrush habitat in the vicinity of Lower Bieser Creek south of the junction of DS and 5.7 roads supported a grouse population until the early 1980s. At that time, local landowners observed approximately 10 grouse displaying on one lek site for an unknown number of years. No birds have been observed in this area since that time and it likely is no longer used by sage grouse. However, this area has potential and could support grouse in the future with the development of suitable habitat.

Evidence of sage grouse (cecal droppings) was located in the area north of Renegade Point during the summer of 1998 (V. Graham 1997, pers. observ.). Although a historic lek site is located in the area, no use has been observed at this lek in many years. However, sage grouse were observed and photographed in this area in 1997. There may still be birds using this area at an unknown lek or perhaps moving into this area for nesting and feeding during the summer. The recent Triangle Fire in Summer 1995 may have positively impacted sagebrush habitat in the Upper Spring Creek/Hog Back area by reducing piñon/juniper woodlands and opening up and thinning dense mountain shrub communities. Mountain big sagebrush appears to be recovering in portions of the area burned by the Triangle Fire.

Currently, the primary sage grouse use area is in the Piñon Mesa area west and northwest of the Grand Mesa National Forest boundary. The majority of the use occurs in the open rolling sagebrush habitat from 2-V Basin east to the National Forest Boundary. The grouse also use the small mesas and benches that lie between the creeks running generally northward including Nelson Creek, Sheep Creek, Tommy Dodson, and Payne Canyon and the Little Dolores River. Sage grouse are also found north and south of the MS road in the open sagebrush in Luster Basin, the headwaters of the North Fork of West Creek, and the Fish Creek area. There is some evidence

from local ranchers that the Gunnison sage grouse exists in the Snyder Flats area north of Unaweep Canyon. No use is presently known to occur in Unaweep Canyon although it was probably used in recent times.

Elevation on Piñon Mesa ranges from about 7,500 to about 9,800 feet. Only 1 lek area is known to be active along the MS road at higher elevation. Another known active lek area (composed of 3 alternate sites) is west of the headwaters of the little Dolores River. The third known lek area on Piñon Mesa lies north of the MS road in the headwaters of Nelson Creek. All known, active leks are on private land within this area.

#### E. HABITAT REQUIREMENTS OF THE GUNNISON SAGE GROUSE IN THE PIÑON MESA AREA

Habitat needs for sage grouse in the Piñon Mesa area relate to over winter survival (Nov-Mar), escape cover adjacent to lek sites (Mar-May), nesting cover (Apr-Jun), early brood-rearing habitat (May-Jun), late brood-rearing habitat (Jul-Aug), and fall habitat (Aug-Oct). Of these habitats, winter, nesting, and early brood rearing are most important with suitable escape cover near leks of near equal importance.

**Winter Habitat:** Little is known regarding winter habitat use by sage grouse on Piñon Mesa and probable ranges can only be estimated (Figure 4). The birds most likely move from the top of Piñon Mesa to lower elevations where more sagebrush is exposed and available for food. This movement is likely dependent on winter severity and snow depths. Drier winters with less snow may allow the birds to winter at higher elevation, while harsh winters with deep snow may force the birds to move to lower elevations. It is thought that areas such as Payne Mesa and other small mesas in this same general area at about this same elevation serve as wintering sites. Most of the sagebrush at this elevation is mountain big sage, which is suitable winter forage. It is speculated that sage grouse may have wintered in Unaweep Canyon, Glade Park, Trail Canyon, Fish Park and other similar habitats at lower elevations. Perhaps Snyder Flats, due to its lower elevation, may be used by wintering grouse, since it likely has more exposed sagebrush available during these months. The small amount of suitable winter habitat may be a limiting factor for this sage grouse population. In winter 1995-96, radio-marked sage grouse were known to be on Payne Mesa.

**Lek Habitat:** There appears to be adequate habitat available for display on Piñon Mesa, but many suitable sites appear to be overgrowing with heavy stands of silver sage and snowberry. At least 6 formerly active leks are no longer occupied. Piñon-juniper invasion and loss of suitable nesting habitat that changed the structure of the sagebrush community is the probable cause for loss of these lek sites. Most sites presently used for display are those that are open and where salt is provided for cattle. These same sites were once used as domestic sheep bedding and salt grounds. Intensive use of the salting sites by cattle tends to keep the area open and free of mountain shrubs. Interestingly, the Pond Lek site on Payne Mesa is surrounded by tall juniper trees and oakbrush (greater than 15 ft). This vegetation is relatively thick and grouse have been observed displaying under the taller oakbrush which is adjacent to the opening created by the cattle salting site. There is little ground cover at this lek during the spring when males are displaying. The other occupied lek sites are more open and are dominated by big sage and silver sage surrounding the lek opening.

**Nesting Habitat:** Little is known regarding sage grouse nest site selection on Piñon Mesa. It is known that most nesting usually occurs within 2 miles of the lek site. All of the currently used lek sites have suitable nest cover in close proximity to the leks. For nesting, taller, more dense sagebrush (greater than 18 inches high and greater than 25% canopy cover) with scattered deciduous shrubs is very important for the birds. These sites are usually at higher elevations where increased moisture allows greater and more robust grass and forb cover (greater than 25 and 8% respectively, greater than 6-8 in. total herbaceous height). Nests are typically at the base of taller (greater than 18 inches) sagebrush plants. Research indicates that typically 80% of nest sites are within 2 miles of the lek.

**Early Brood Habitat:** The description of this habitat at hatch is identical to nesting with hens moving their young chicks (less than 5-10 days of age) into areas dominated by forbs and grasses with less than 20% live sagebrush canopy cover. Hens select open or disturbed sites in the sagebrush that have abundant forbs and higher moisture levels. Grasses and forbs dominate at all known use sites with a definite preference for live

sagebrush escape cover (greater than 18 in. height). Good brood habitat is apparently found in and surrounding 2-V Basin and also immediately east of this area along both sides of the MS Road. In this area, local ranchers and CDOW personnel have made numerous observations of hens with broods. The vegetation is dominated by dense stands of silver sage and snowberry. It has high moisture levels and probably provides some moist openings which support forbs and good insect populations. The insects are important for young grouse; they provide high protein necessary for rapidly growing chicks.

**Late Brood Habitat:** Hens with older broods prefer moist sites near stockponds, upper drainages, and on north slopes depending upon elevation and site. Forbs and grasses dominate at preferred use sites with some live sagebrush and other deciduous shrubs (snowberry, serviceberry, Gambel oak). Shrub cover is important for escape while most foraging is on forbs.

**Fall Habitat:** Sage grouse of all ages and gender continue to use habitats identical to those used by broods in July and August until plants become dried out (several successive killing frosts) or heavily grazed. Taller sagebrush (greater than 20 inches high) with more canopy cover (greater than 20%) becomes more important. Use increases of north and west facing slopes and diets change gradually from a high proportion of forbs to a high proportion of sagebrush. During extensive snow cover, in late fall and early winter, use of mountain big sagebrush stands is extensive.

## V. CONSERVATION STRATEGY

### A. PIÑON MESA AREA GOALS AND OBJECTIVES

To guide management efforts of the Partnership in securing the long term status of the Gunnison sage grouse and meeting the needs of the other resources, involved groups, and individuals, the following goals and objectives were developed.

**Overall Goal:** Increase sage grouse numbers and distribution in the Piñon Mesa area while maintaining current ranching uses and a healthy landscape.

**Sage Grouse Population Goal:** Maintain a sage grouse population size in the Piñon Mesa area that is in balance with the carrying capacity of the habitat, striving for a minimum spring population of at least 8 active leks (7 on Piñon Mesa, 1 on Glade Park) each with 15 males that are counted during spring lek counts. Thus, 120 males would be counted on 8 active leks (8 leks x 15 males/lek = 120) which would represent a total male population of 160 (120 males counted ÷ 0.75 of those present = 160) and a hen population of 320 (2 x 160) for a total spring population of 480 birds. This would be an optimum number to achieve within the next 10 years. If a population of 300-500 grouse could be achieved in 10 years, it would represent a reasonable population goal. Presently, it is felt by many wildlife managers that a population of about 500 birds would be sufficient to maintain a population for at least 25 years. The minimum population goal is that level, 78 to 123 birds, measured in 1997-99 (3-year average).

**Sage Grouse Habitat Goal:** Maintain and improve, on suitable sites across the Piñon Mesa landscape, relatively large, contiguous stands of sagebrush with a variety of vegetative conditions interspersed throughout, in the desired arrangement with good connectivity to provide the quantity and quality of sage grouse habitat to support the desired optimum population level by 2010.

Populations are basically products of the environment, or habitat in which they are found. Thus, habitat quality is an indicator of how well habitat meets the needs of sage grouse. Also, the health of the natural system in which populations exist, and its ability to function in a dynamic manner through time largely determines its capability for long-term sustainability. Time, space, a focus on the natural processes and their ability to function, and the relationship with surrounding communities are of primary importance and concern in achieving the habitat goal of this plan.

## B. GENERAL CONSERVATION OBJECTIVES

Using these goals as a target, the Piñon Mesa Partnership identified 3 dominant themes or categories; 1) habitat quality, 2) habitat loss/fragmentation, and 3) physical disturbance to the population, for which general conservation objectives were developed. Specific objectives were developed for habitat quality. These objectives were developed largely based on the issues and/or factors identified as in some way contributing to the static or declining population size of sage grouse or affecting the quantity or quality of sage grouse habitat in the Piñon Mesa area.

The purpose of these objectives is to guide the selection of conservation actions. These objectives are also useful to explain the overall thrust of the conservation strategy. These objectives are:

**Habitat Quality:** Maintain and/or improve the quality of sage grouse habitat.

**Description:** Habitat quality is an indication of how well habitat meets the needs of sage grouse. Habitat in poor condition is of lower quality than habitat which is in good condition because higher quality habitat provides more of the essential components such as food, water, and cover. Generally, the group of factors that affect habitat quality and/or fragmentation (discussed in the following section) are considered to be the most important to sage grouse recovery.

### Specific Objectives: (Habitat Vegetation)

#### Leks:

- Habitat Function:** Used for display and mating, require good acoustics and visibility for display activity, and for predator detection.
- Location:** Within at least 300 yards to ½ mile of nesting habitat. Within 200 yards of escape cover (large expanses of sagebrush). Typically in broad valleys or benches, broad ridges or mesas. At least 200 yards from trees or other potential raptor perches.
- Size:** 1-5 acres.
- Shape:** Irregular, but usually circular or short and linear.
- Time of use:** Mid March to early June.
- Composition:** Perennial grass cover greater than 20%.  
Total sage cover less than 10%.  
Total forb cover greater than 10%.
- Structure:** No trees or deciduous shrubs greater than 3 feet tall.  
Grass and forb height 5-10 inches.  
Sage up to 15 inches.

#### Near Lek Areas:

- Habitat Function:** Provides escape cover for displaying males, visiting females, resting birds.
- Location:** Within 200 yards of lek.
- Size:** Greater than 1 acre up to 40-60 acres.
- Shape:** Irregular, if linear, then greater than 200 yards in width, if patches, then greater than 200 yards in diameter.
- Composition:** Perennial grass cover greater than 20%.  
Total shrub cover (sage + mountain shrubs) 20-30%.  
Total forb cover greater than 10%.
- Structure:** Sagebrush and other shrubs greater than 15 inches tall.  
No potential raptor perches.

**Nesting/Early Brood Rearing Areas:**

- Habitat Function:** Provides good hiding and nesting cover and high levels of insects and succulent forbs to meet brood rearing nutritional requirements.
- Location:** Within 3 miles of a lek.
- Size:** Overall nesting area greater than 10 acres made up of 1/4-1 acre patches of sage ranging from dense to sparse.
- Shape:** Need high level of interspersed within heavier sagebrush areas.
- Time of use:** April through July.
- Composition:** Patchy: **Foraging areas:**  
 Total sage cover less than 20%.  
 Total forb cover greater than 15%.  
 Total grass cover greater than 25%.  
**Hiding areas:**  
 Total sage cover greater than 25%.  
 Total forb cover greater than 10%.  
 Total grass cover greater than 20%.
- Structure:** Sagebrush greater than 18 inches tall.  
 Abundant standing herbaceous material.  
 Herbaceous average height greater than 8 inches.

**Late Brood Rearing Areas:**

- Habitat Function:** Provides moisture and high levels of succulent forbs and insects, as well as hiding cover. Typically edges of hay meadows, riparian areas, ponds, seeps, drainage bottoms.
- Location:** Near stands of live sagebrush or other deciduous shrubs close enough for escape. Less than 1/2 mile from early brood rearing areas, often north slopes.
- Size:** Greater than 100 yards, usually around 200 yards wide.
- Shape:** Irregular, frequently linear, high interspersed of stand and cover types.
- Composition:** Sagebrush less than 20%.  
 Total shrub cover less than 25%.  
 Perennial grass cover greater than 25%.  
 Perennial forb cover greater than 15%.
- Structure:** Herbaceous vegetation greater than 10 inches tall.

**Fall and Winter Habitat:**

- Habitat Function:** Provides thermal and hiding cover, abundant supply of taller sagebrush (15-25 inches).
- Location:** Usually broad basins, ridges, and north to northwest facing slopes.
- Size:** Extensive stands of sage, usually in patches larger than 100-2200 acres.
- Shape:** Interspersed of shorter stands of sage (ridges) with taller stands (swales, valley bottoms).
- Composition:** Total sage cover greater than 20% (25-30% preferable).  
 Total forb cover greater than 10%.  
 Perennial grass cover greater than 15%.
- Structure:** Tall sage 15-25 inches.  
 Shorter sage greater than 10 inches.

**Habitat loss/fragmentation:** Reduce fragmentation by preventing, minimizing, and mitigating past, present, and future loss of sage grouse habitat.

**Description:** Loss of sage grouse habitat refers to areas that once provided habitat, but no longer do because that habitat no longer exists or is not available. It should be thought of as a permanent loss in the area. Another example of habitat loss occurs when a subdivision occupies an area that once was a sagebrush community.

Fragmentation refers to the distribution or location of habitat in terms of its physical position or connectiveness.

**Physical disturbance to the population:** Identify and manage physical disturbances to reduce adverse effects to sage grouse.

**Description:** This refers to the physical disturbance to sage grouse, the birds themselves. Physical disturbance can result in sage grouse death or exert stress particularly if disturbance occurs during biologically critical periods or times.

### C. ISSUES OR FACTORS THAT AFFECT SAGE GROUSE POPULATIONS AND THEIR HABITAT

The following issues and concerns were identified during the development of the Piñon Mesa Conservation Plan. All issues were treated equally and no limitations were placed on what could be proposed as a concern. Thus, a long and varied list of concerns and possible reasons for the Gunnison sage grouse decline was developed. The issues and concerns are listed in no particular order. The issues listed may not include all the issues discussed and some issues may not be resolved and are out of the scope of the plan.

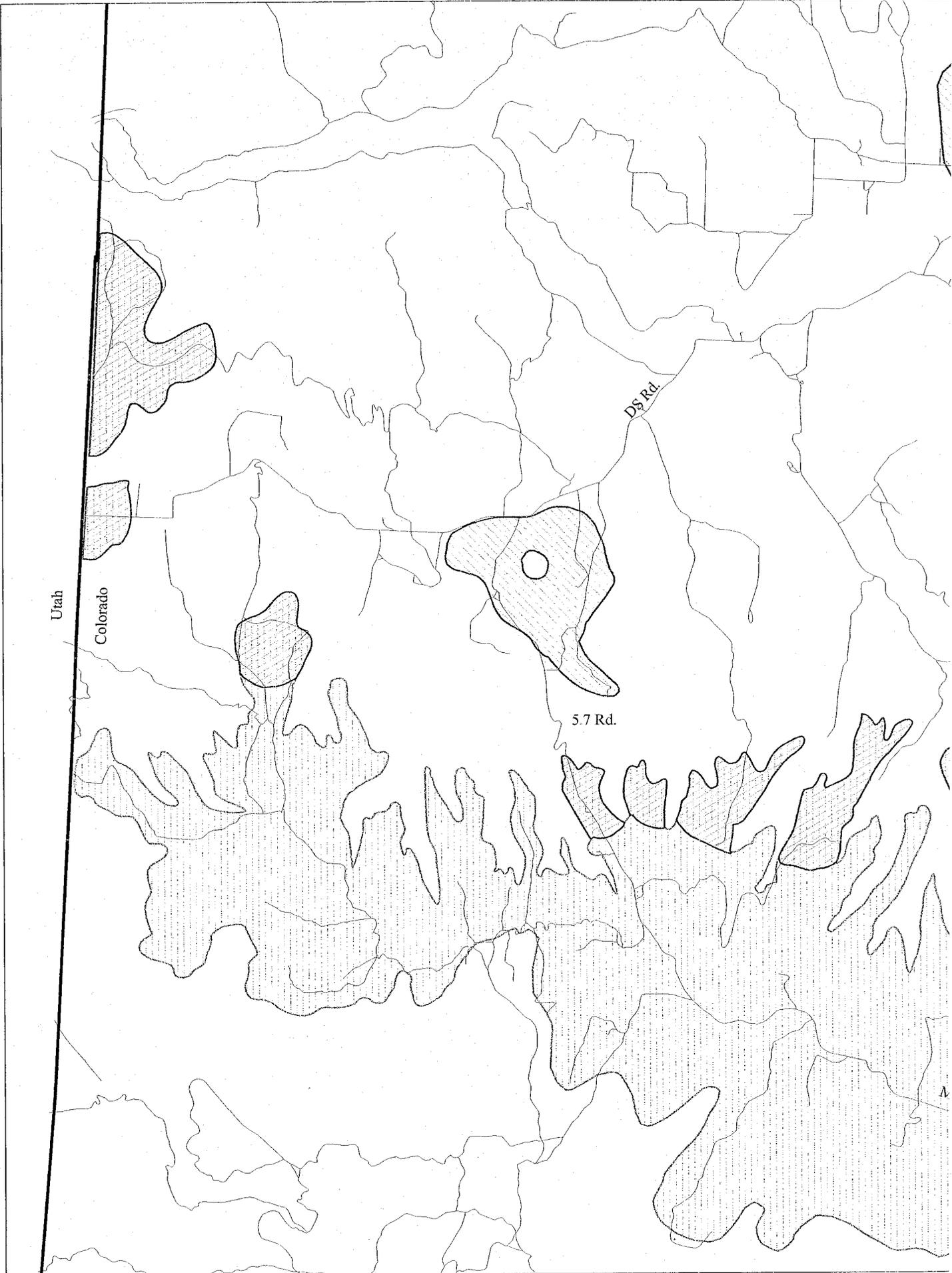
#### Issues That Effect Sage Grouse Populations and Habitat

##### ◆ Vegetative Habitat:

**Habitat quality and quantity**---The major factors that drive sage grouse populations are quality and extent of habitat. No other bird is so habitat specific to one particular plant type (sagebrush) in meeting its annual life requirements. Size of habitat is important because sage grouse move seasonally between suitable habitat types. Sage grouse are unable to adjust their life processes to fit a pattern of land use that eliminates or adversely disturbs large tracts of sagebrush.

**Grasses and forbs**---There is concern among ranchers regarding the quantity of residual grass that is recommended for optimum sage grouse habitat. Ranchers make every effort to manage their lands in a manner that meets their ranch livestock production objectives. This includes management of the vegetation for optimal production to support livestock and includes maintenance of healthy plant communities that also support wildlife. In some years, weather reduces forage production and at times livestock interests may negatively impact optimum sage grouse habitat. This is a reality of land management and wildlife managers should be aware of circumstances involving ranch management and its relationship to sage grouse management. Annual rotation of pastures for livestock grazing may offer potential in some areas such as Fish Park and on private lands. The rotation system would allow for ungrazed pastures for grouse production. Poor nest and brood survival has been attributed to the lack of herbaceous understory within the sagebrush community. Since grouse initiate nesting prior to spring herbaceous vegetation growth, it is constructive to try and maximize herbaceous residue from the previous year.

**Condition of winter habitat**---Winter habitat is critical to sage grouse because without sufficient areas of exposed sagebrush they cannot survive the winter to reproduce in spring. Although sage grouse are widely distributed in winter, suitable winter feeding sites do not constitute a large proportion of the available land area. Despite improvements made to other habitat types, sage grouse will not survive unless their wintering areas are protected from fragmentation or factors that destroy or degrade them. There may be potential for winter range development in lower areas examples include Fish Park, Spring Creek Hogback, the Little Dolores River, and BLM lands in the vicinity of 5.7 and DS roads.



Utah

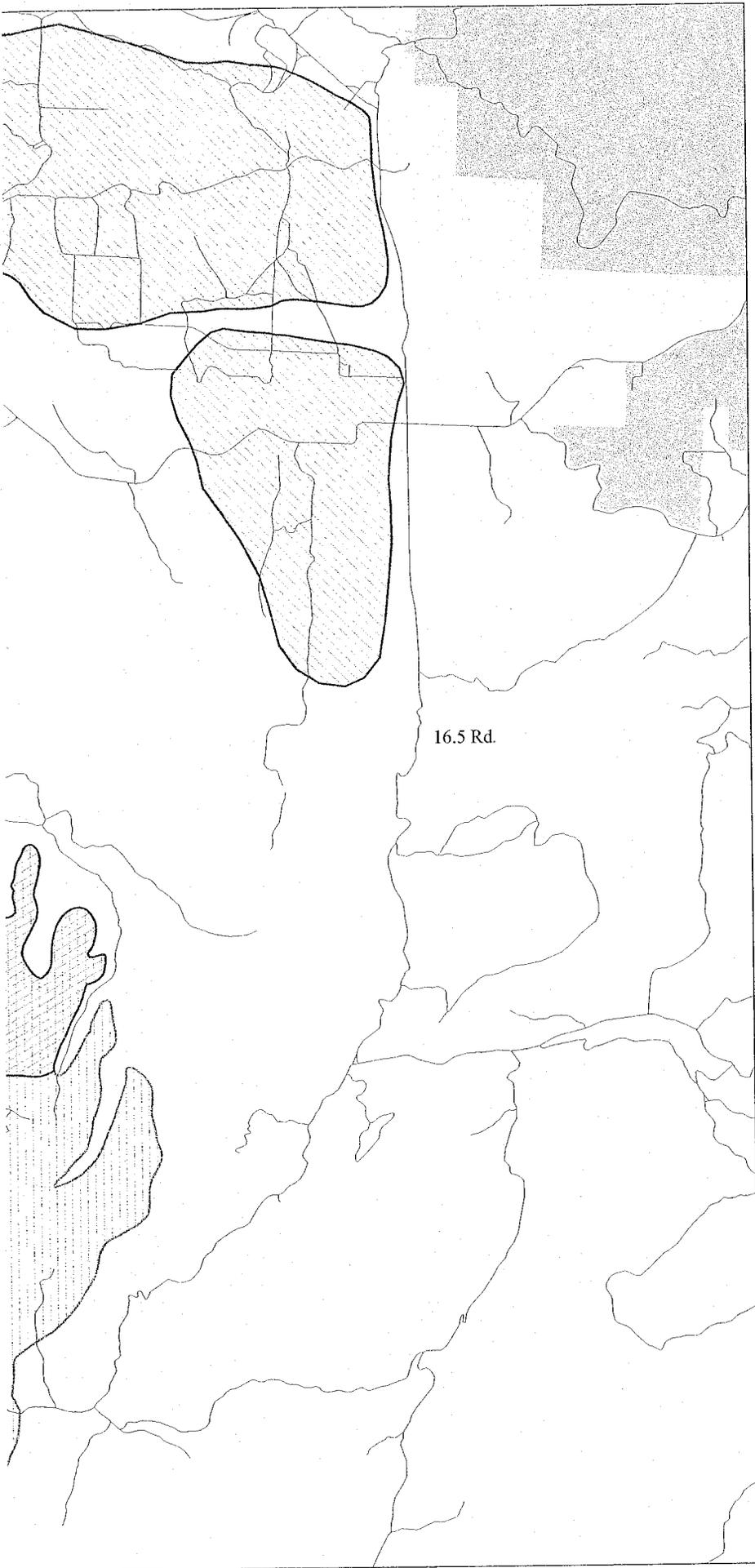
Colorado

DS Rd.

5.7 Rd.

# Selected Gunnison's Sage Grouse Habitat Pinon Mesa

Figure 4



## Legend

-  Probable Winter Range
-  Historic Habitat \*
-  Presently Occupied

## Land Ownership

-  BLM
-  National Forest
-  Colorado National Monument
-  Private

\* Also believed to be Historic Winter Range

0 0.5 1 Kilometers



0 0.5 1 Miles



GREAT OUTDOORS  
COLORADO

### Colorado Division of Wildlife Digital Data Disclaimer

This wildlife distribution map is a product and property of the Colorado Division of Wildlife, a division of the Colorado Department of Natural Resources. Care should be taken in interpreting these data. Written documents may accompany this map and should be referenced. The information portrayed on these maps should not replace field studies necessary for more localized planning efforts. The data are typically gathered at a scale of 1:24000 or 1:50000; discrepancies may become apparent at larger scales. The areas portrayed here are graphic representations of phenomena that are difficult to reduce to two dimensions. Animal distributions are fluid; animal populations and their habitats are dynamic.

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**Management of habitat improvement projects**---It needs to be recognized that habitat improvement projects that benefit sage grouse may not be the same as those practices selected by private landowners for their livestock management programs. An example would be brush beating sagebrush. For sage grouse, brush beating 1/3 of the habitat in need of management may not be in the best interest for livestock management. Ranchers may be foregoing maximum livestock benefits for practices that benefit sage grouse. Other concerns of ranchers include the practice of leaving about 6"-8" of sagebrush stubble in brush beating projects for best sage grouse benefits, and limitations on use of fire as a range improvement technique, particularly in sagebrush and piñon-juniper habitat. Cooperatively funded projects with CDOW and BLM may offset and compensate landowners for their consideration of sage grouse land management practices.

**Fire suppression**---Wildfires are natural with effects that vary depending upon size of burned areas and the intensity and severity of the fire. For many decades, public land management agency policy was to suppress all natural and man-made fires. Controlling and preventing fires may have resulted in degraded habitat conditions for sage grouse. There may be potential for the use of limited controlled burns to reduce piñon-juniper encroachment in selected locations. Presently, there are piñon-juniper ridge lines and low ridge points that extend into sagebrush habitats that lend themselves to burning without endangering larger sagebrush areas. Controlled burn options should be left open for vegetation management practices that will benefit both livestock management and sage grouse management. Soil conditions should be assessed to assure these sites are suitable for recovery of sagebrush, grass and forbs. Extreme care should be taken so that large (greater than 200 acres) fires do not burn uncontrolled in critical sage grouse habitat.

**Funding for habitat improvement**---CDOW, Bureau of Land Management (BLM), Natural Resource Conservation Service (NRCS), and USFWS through PFFW as well as other potential sources for habitat improvement projects should be used to the maximum potential to assist in maintenance and improvement of sage grouse habitats. CDOW, BLM, and NRCS should provide technical assistance and information when requested by landowners to aid in habitat projects implemented to benefit sage grouse.

**Mountain shrub management**--- Gunnison sage grouse appear to be somewhat tolerant of oakbrush, however, the biological relationship is not well understood. Large oakbrush stands often provide some areas of grass production when mixed with sagebrush communities. Some extremely heavy stands of oakbrush may be treated (thinned) when appropriate. It is recognized that oakbrush will resprout after burning or cutting.

◆ **Land Planning/Mitigation:**

**Fragmentation**---Habitat fragmentation occurs when areas of suitable habitat are fragmented and divided into smaller areas due to processes such as physical destruction or degradation. Any patch of habitat isolated by different habitats and/or unsuitable terrain may be considered fragmented. As habitat becomes increasingly fragmented, fewer individual birds exist. Sage grouse are especially sensitive to fragmentation because of their fidelity to lek, nest, winter, and brood-rearing sites. Even when their habitat is absent or degraded, they will continue to attempt to use these areas and will subsequently be exposed to higher mortality risks further reducing their population size.

**Housing development**---Housing development in the Glade Park area near the Glade Park store has severely fragmented sage grouse habitat. Currently, it is felt that as housing development occurs the chances of the area to be repopulated by sage grouse decreases. Small parcels are being fenced, new roads are being developed and power lines are being built to supply homes with electricity.

In the past, there were more homesteads with cabins than there are today on Piñon Mesa where sage grouse are currently found. Limited cabin development on Piñon Mesa may not impact sage grouse populations.

Cabins are often placed in areas surrounded by either aspen or conifers for aesthetic reasons and in these instances impacts to sage grouse may be minimal.

◆ **Utilities:**

**Powerlines**---The effects of power lines on sage grouse are severe. Powerlines have been documented to serve as predator perches in Utah and Colorado with subsequent loss of all leks visible to raptors (primarily golden eagles) from perches on power line poles. Further, counts of sage grouse pellets near power lines decrease as distance to power lines decrease up to one-half mile. Thus, a strip about one-half mile on each side of power lines is generally avoided by sage grouse. These observations are supported by measurement of distances to power lines of radio-marked sage grouse throughout sage grouse habitats in Colorado. Clearly, sage grouse avoid power lines when possible. Power lines have increased dramatically in the Glade Park area (immediately north and south of store) where sage grouse appear to have been extirpated. Housing development is the primary reason for the increase. No large-scale power lines are currently envisioned for the primary sage grouse habitat on Piñon Mesa.

**Pipelines**---No major pipeline development is currently being considered on Piñon Mesa. Pipeline development (construction) can be negative if not properly managed to avoid adverse effects to breeding (March-mid May), nesting (mid April-early July), and early brood rearing (mid May-mid July). However, reseeded areas disturbed by pipelines with desirable forbs and taller grasses can be beneficial to sage grouse especially if the width of the area disturbed is minimal (less than 100 yards) and roads/trails used during construction are closed and reseeded after completion of the pipeline construction interval.

**Roads**---Currently, and in the foreseeable future, roads do not appear to be a major concern with sage grouse population on Piñon Mesa. However, if sage grouse populations can be reestablished in the vicinity of DS road, high speed traffic may impact grouse. All other roads in occupied habitat are not suitable for high speed traffic and roadkill potential is considered to be low. Roads can be classified as primary, secondary, and as trails. Primary roads are those that are classified as state and federal highways. These roads are generally high speed and are paved. Secondary roads generally have county designations although some BLM and USFS roads can fit in this category. Some of these roads may be paved but most are generally gravel or dirt. These roads have moderate to low speed ratings. Trails generally are unsurfaced, lack formal designation, and have low speed ratings. Sage grouse prefer to walk to reach useable habitats throughout the year except when snow cover increases their conspicuousness. Sage grouse that walk across primary and secondary roads are at great risk of death from moving vehicles. The end result of all primary roads and many secondary roads is reduction in the size of the sage grouse population as those birds adjacent to the road are killed by road traffic. Because young sage grouse learn from older sage grouse, populations that traditionally used areas prior to road establishment or improvement become smaller over time as the older (and young) birds become fewer in number due to road disturbance (and death). Thus, traditional movements are often eliminated. Trails have less impact, depending upon vehicle speed.

**Fence designs**---Fences are necessary for livestock management. However, wood fence posts can provide perches for predators of sage grouse. Also, sage grouse have been observed flying into fence wires, especially near preferred use areas such as leks. Fence management that reduces potential perch sites (metal posts) and allows larger spacing between wires (2 or 3 vs. 4 or 5) could be less negative for sage grouse.

- ◆ **Loss of Topsoil & Productivity:** Soil erosion is not a major problem on Piñon Mesa. Erosion loss could occur after wildfires and rapid reestablishment of ground cover should be a primary consideration after fire. Some slumping does occur in this area, but is not widespread. Sandy soil exists in lower elevation sage grouse habitat such as Fish Park. Soil is the primary factor determining the potential for vegetation

production of a given site. With reduction of the herbaceous understory cover in sagebrush ecosystems, soils have become more vulnerable to wind and water erosion.

- ◆ **Timing, Intensity, and Duration of Livestock/Big Game Grazing:** Potentially, timing and intensity of livestock/big game grazing may affect sage grouse nesting and brood rearing success. The peak of sage grouse hatch is the last week in May and the first week in June, depending on weather conditions. On many of the ranches on Piñon Mesa, livestock production is the primary use of the land. Ranchers are aware that livestock/big game grazing can directly compete with sage grouse for food (forbs and insects) and nesting cover during this time. Likewise it is recognized that fall grazing can remove residual cover needed the following spring for nest and brood cover. On Piñon Mesa, where sage grouse are found, vegetation is usually not mature enough for livestock grazing until mid-June, which is good for sage grouse nesting and early brood rearing. The distribution and potential over browsing by deer and elk on big game winter ranges may have had effects on important forage shrubs and associated plant communities which may have influenced sage grouse habitat quality. Habitat management programs, which involve increases of forb and grass cover while maintaining live sagebrush will benefit livestock, sage grouse, deer and elk, as well as other wildlife species.
- ◆ **Drought:** Sage grouse production is indirectly affected by drought. While sage grouse are not limited by water in most cases, they are limited by the vegetative growth and insects lost during drought conditions. In the Piñon Mesa area, both nesting success of females and brood survival decline severely during years with low soil moisture. This effect is probably increased if land management practices remain unchanged during years with low soil moisture. However, drought does not appear to impact lek attendance of males.
- ◆ **Predators (coyote, ground squirrel, badger, eagle, hawk, falcon, bobcat, skunk, raccoon):** Losses of sage grouse nests and young to predation are often high and can, in some locations, be the most significant factor in determining annual recruitment to the population. Studies have shown that ground squirrels and badgers can destroy up to 50% of the current year's nest and egg production. There is also a concern over coyote populations, which appear to be increasing, and the effects they may have on sage grouse. Eagles and hawks can be effective predators on sage grouse and some feel that eagle predation is increasing. The quality and quantity of grasses and forbs and other vegetation cover influence rates of predation. Predation is reduced when there is sufficient vegetation to conceal nests. Removal of piñon and juniper trees and tall shrubs can be effective in reducing predation risk of sage grouse.
- ◆ **Scientific Lek Harassment (i.e., Physical Disturbance Resulting From Scientific Studies):** Research on sage grouse sometimes requires capture and marking (bands, radios) of individual grouse. Capture of grouse is usually most easily accomplished when birds are concentrated on or near leks for the purpose of display and mating. Methods used range from spotlighting to locate grouse that are then captured using long-handled nets to walk-in traps placed on or near leks. Repeated disturbance of sage grouse on leks has been demonstrated to make individuals more wary and flush more readily. Yearling males may change leks following marking but the available data suggest that this age/gender class commonly investigates a series of leks in their first year of life. Studies of radio-marked male and female sage grouse demonstrate strong attachment to the lek of capture despite repeated trapping activities.
- ◆ **Conflicting Uses During Critical Biological Activity Periods:** The critical biological activity periods for sage grouse are during winter, breeding, nesting, and early brood rearing (December-mid July). Conflicting uses during this period are those that physically prevent sage grouse from using preferred habitats. These uses range from human disturbance (including pets), motorized vehicles, to herding of livestock and heavy grazing/browsing by deer and elk and by domestic livestock.
- ◆ **Recognition of Private Landowners Rights:** Most landowners are willing to work collectively toward a goal, as long as the recommendations or actions concerning sage grouse do not impact their efforts to make a living. However, most private landowners are environmentally concerned and appreciate wildlife and try

not to negatively affect habitat useful to wildlife. These landowners do good things for the land without having to be forced into action by an endangered species. Landowners are concerned about the protection of their rights to manage their lands as they view appropriate with no interference by the State or Federal government. This particular issue focuses on the potential for Federal intervention on private property management, use, and development should the Gunnison sage grouse become listed as a threatened or endangered species. The issue does not actually emerge until listing occurs. The Endangered Species Act, however, does provide for protection should the bird become listed. The ramifications can become complex and are discussed in Appendix D. Generally, landowners would likely see no impacts to land management practices which are currently in use.

- ◆ **Monitoring/Research:** Monitoring of sage grouse populations through use of counts of males on leks has been used to estimate trends in population size. This effort requires vehicle access via roads and trails during the late March-mid May interval. Properly conducted, spring counts are not known to affect sage grouse. Research on sage grouse is periodically needed to learn more about specific requirements and responses to habitat treatments. The need for monitoring and periodic research will continue. Monitoring of vegetation in relation to grazing by domestic livestock and big game, especially in response to vegetation treatments, will continue on public lands. Annual lek counts are conducted by CDOW including counts of males and females at leks. Efforts are taken to gather census information with as little impact to leks as possible. Techniques usually include the use of binoculars and spotting scopes. Usually, a minimum of three to four counts are conducted at each lek during the spring, and these are spread out over about five weeks.
- ◆ **Poisonous Plants:** There was some concern that poisonous plants may be eaten by sage grouse resulting in death. There are no known problems with grouse being poisoned by eating of native plants.
- ◆ **Recreational Uses:** Sage grouse have been hunted and their mating rituals observed since prior to European settlement based on native American artifacts and ceremonies. Sage grouse are not presently hunted on Piñon Mesa and there is no organized watchable wildlife viewing for the species within the boundary of the area. Other recreational use of the area such as big game hunting, blue grouse hunting, and predator hunting are not thought to be negative, although accidental kills of sage grouse may occur. Efforts should be made by CDOW to educate and inform hunters of the potential for misidentification of grouse species. These efforts should include development of pamphlets to distribute to hunters and signs at important locations providing information about sage grouse. Use of all terrain vehicles has the potential to negatively impact sage grouse, especially in winter. However, much of the area is seasonally closed due to snow cover, which limits access.
- ◆ **Hunting:** Sage grouse hunting in the Piñon Mesa area has been closed since 1989 when it was recognized that the population appeared to be declining. Prior to that time seasons were generally open for sage grouse hunting. From 1970 to 1988 seasons were open in all years except 1973 and 1974. Generally, the CDOW recommends no hunting until populations reach a standard of 100 cocks counted in the spring for 3 consecutive years. Hunting of sage grouse in this area is not contemplated for the foreseeable future. No information on the number of grouse harvested annually is available for this population for any year.

## VI. CONSERVATION ACTIONS AND IMPLEMENTATION

The foundation of the Piñon Mesa sage grouse Conservation Plan is its goals and objectives which together establish a framework for developing conservation actions. Conservation Actions are designed to be consistent with the plan's goals and also to meet one or more of the objectives. These actions also address issues that affect sage grouse, and/or their habitat. Due to the interrelationship of the habitat components, resource values, and issues, many actions may apply to more than one objective. However, to avoid duplication, these actions have been listed in Table 1 where the link is most direct. Any additional actions identified at a later date will be

analyzed by the Partnership for the application and design to ensure the appropriateness and compliance with the goals and objectives set forth in this plan.

Plan implementation will be priority-based starting with those actions the Partnership believes to be most effective at accomplishing their goals. This group recognizes the need to be opportunistic in carrying out specific conservation actions as situations present themselves. For example, a particular conservation action might be implemented sooner than scheduled, if funding became available, or a group or individual came forward to help with completing a task.

Some actions have already begun, or are ongoing. Other actions would need to be done continually throughout the plan. These are normally a matter of policy or require small changes in the way resources are managed and land use activities take place. Sometimes a land use has to be proposed or initiated by a third party before the conservation action can be applied.

The adoption of these Conservation Actions will be the responsibility of the Partnership. Specific steps or tasks needed to carry out a conservation action will be developed as the implementation proceeds. Cost estimates, including those for monitoring and evaluation will be identified. Every effort to leverage money and resources will be made. Many actions, such as vegetation treatments are costly, and will be dependent upon seeking cooperative funding from many partners, and possibly outside sources, such as grants.

Because plan accomplishment will require a lengthy period to complete, it is important to track progress at meeting our goals. At least yearly, the Piñon Mesa Partnership will convene a meeting to examine accomplishments and keep the plan on track. As actions are completed they will become part of the yearly progress report. A consolidated report will then be prepared and disseminated to Partnership members prior to the yearly or spring planning meeting.

An important part of the yearly progress report and meeting will be to discuss and document any exceptions or deviations to planned accomplishments. Inadequate funding may preclude the completion of an action in a given period. In this instance, an adjustment to the implementation sequence would be needed. What is important is to show continual progress at accomplishing the goals in the plan.

## VII. MONITORING AND EVALUATION

Monitoring data will be gathered and used to evaluate progress in meeting the goal and objectives of this plan. Monitoring will be coordinated to insure that data collected will provide the needed information to assess the on-the-ground management actions and to measure progress in resolving resource problems and conflicts. This coordination will include appropriate consultation and cooperation with rangeland users, general public, landowners, academia, private organizations and local, State, and Federal agencies. Direct involvement by interested parties in the collection of data and in the subsequent evaluations based on these data will add to the credibility of monitoring results.

It is important that all monitoring information be easily accessed by those interested. Monitoring the response of the Gunnison sage grouse population to conservation actions will be measured by total number of active leks, and the total number of males counted. The number of active leks and total males will reflect winter survival as well as chick production in the previous year. Changes in habitat quality which result from the implementation of planned actions will be monitored using techniques applicable to the specific project or action. Three year averages of lek counts will be used to assess sage grouse population trend (1995-97, 1996-98, 1997-99, etc.).

Evaluations may be conducted anytime during the implementation of this plan. The goal of evaluation is to determine whether progress is occurring, and if progress is not occurring, to identify adjustments. It is the intent of the Partnership to frequently communicate with other Gunnison Sage Grouse Work Groups to seek and exchange information as progress is made on implementing the Conservation Actions.

Table 1. Piñon Mesa Gunnison sage grouse Conservation Actions (listed in no particular order & with examples of how to accomplish), and Implementation Schedule (when & who).

CONSERVATION ACTIONS		IMPLEMENTATION SCHEDULE		
Action	Examples of How to Accomplish	When	Who	
<b>A. Information &amp; Education</b>				
1. Provide to the public, landowners, and others information that describes sage grouse habitat needs and conditions, and identifies sage grouse population levels. Identify concerns and opportunities to improve conditions for sage grouse in this area.	<ul style="list-style-type: none"> <li>a. Maps, newspaper articles, radio &amp; TV spots, displays.</li> <li>b. Public contacts (e.g., individuals, County Commissioners, local schools, Mesa City Land Conservancy), meetings, &amp; make available copies of Conservation Plan.</li> <li>c. Videos (sage grouse &amp; habitat, treatments, etc.) in Coop with other sage grouse groups.</li> <li>d. Brochures (e.g., Living with sage grouse in your backyard - control of dogs, hunting brochure with difference between blue and sage grouse, including photographs).</li> <li>e. Coordination/communications with; the public, other sage grouse groups, Grand Valley Audubon.</li> <li>f. Information sign at Glade Park store.</li> </ul>	<ul style="list-style-type: none"> <li>a. Ongoing opportunistically.</li> <li>b. Ongoing opportunistically.</li> <li>c. 1999-00 (completed by other groups).</li> <li>d. Completed</li> <li>e. Ongoing opportunistically.</li> <li>f. 2000-2001</li> </ul>	<ul style="list-style-type: none"> <li>a. The Partnership.</li> <li>b. The Partnership.</li> <li>c. DOW Lead, BLM, NRCS, Public.</li> <li>d. Glade Park Ag. and Open Space Association</li> <li>e. The Partnership.</li> <li>f. DOW.</li> </ul>	
2. Work with interested parties, landowners and others to create a better understanding of sage grouse needs, including the value and importance of sage grouse and sage grouse habitat, and provide a basis for sharing of ideas and reaching agreement on ways to improve sage grouse habitat and increase populations.	<ul style="list-style-type: none"> <li>a. Meetings with interested landowners, government/regulatory entities (e.g., County, and livestock Associations).</li> <li>b. Maintain a current mailing list of interested citizens, and State, local, and Federal agencies.</li> <li>c. Distribute information about importance of sage grouse; availability of incentive programs, Best Management Practices, effects of certain land uses on grouse.</li> <li>d. Coordinated Management of sage grouse with other wildlife species and resource agencies.</li> <li>e. Continue to work with other groups.</li> <li>f. Communicate with other sage grouse partnerships.</li> <li>g. Provide monitoring information and training to landowners.</li> <li>h. Present programs at local schools.</li> </ul>	<ul style="list-style-type: none"> <li>a. Ongoing opportunistically.</li> <li>b. Ongoing.</li> <li>c. Ongoing opportunistically</li> <li>d. Ongoing opportunistically</li> <li>e. Ongoing opportunistically</li> <li>f. Ongoing, annually.</li> <li>g. Ongoing opportunistically.</li> <li>h. Ongoing opportunistically.</li> </ul>	<ul style="list-style-type: none"> <li>a. The Partnership.</li> <li>b. The Partnership.</li> <li>c. The Partnership.</li> <li>d. DOW, BLM, NRCS, FWS, landowners.</li> <li>e. The Partnership.</li> <li>f. The Partnership.</li> <li>g. The Partnership.</li> <li>h. The Partnership.</li> </ul>	

CONSERVATION ACTIONS		IMPLEMENTATION SCHEDULE	
Action	Examples of How to Accomplish	When	Who
<b>B. Monitoring</b>			
1. Identify and evaluate sage grouse habitat, limiting factors and activities that have the potential to impact sage grouse or their habitat. Identify and evaluate critical sage grouse habitats.	<p>a. Habitat mapping. Mapping may include but not be limited to overall range, historic habitat, winter area, severe winter range, brood area, nesting area, active lek, and inactive lek.</p> <p>b. Assess and track land-use changes, e.g., developments, roads, etc.</p> <p>c. On-site visits with landowners, holistic resource mgt. groups, livestock groups to discuss and assess habitat conditions and monitoring needs.</p> <p>d. Joint-interagency/landowner evaluation, information sharing.</p> <p>e. Provide monitoring training to landowners. Provide monitoring forms to landowners for lek counts and brood counts.</p> <p>f. Big game impacts to range conditions.</p>	<p>a. Ongoing, annually.</p> <p>b. Update 3-5 years.</p> <p>c. As needed/requested/opportunistically.</p> <p>d. As needed/requested/opportunistically.</p> <p>e. As needed/requested/opportunistically.</p> <p>f. Ongoing, annually.</p>	<p>a. BLM, DOW, NRCS, landowners, Extension.</p> <p>b. BLM, DOW, NRCS, FWS, County.</p> <p>c. The Partnership.</p> <p>d. The Partnership.</p> <p>e. BLM, DOW, NRCS, Extension.</p> <p>f. DOW, BLM, private ranches.</p>
2. Continue to gather or initiate the collection of basic resource data to better understand and document conditions for sage grouse, including response to applied conservation measures.	<p>a. Sage grouse population monitoring/census, e.g. lek counts and brood counts. Research including radiotelemetry studies i.e., movements, habitat use.</p> <p>b. Design and carry out monitoring for applied measures, e.g., treatments.</p> <p>c. Continue to identify changes in the sage grouse populations size (use 3 yr. average of lek counts).</p>	<p>a. Annually, March-May/July-August.</p> <p>b. Annually, as needed.</p> <p>c. Annually.</p>	<p>a. DOW, BLM, landowners</p> <p>b. BLM, NRCS, Extension, landowners.</p> <p>c. DOW.</p>
<b>C. Avoiding or mitigating permanent loss of habitat</b>			
1. Develop and encourage incentives for landowners to avoid or mitigate loss of sage grouse habitat.	<p>a. Land exchanges.</p> <p>b. Conservation Easements Mesa County Land Conservancy, CDOW, CCA, Rocky Mtn. Elk Foundation, etc.</p> <p>c. Transferable development rights.</p> <p>d. Payment for non use of sage grouse habitat, if funds are available for long-term agreements.</p> <p>e. Application of specific land use practices that benefit grouse, e.g., water development, grazing plans.</p> <p>f. Develop recommendations for managing sagebrush community as a whole, considering all uses.</p>	<p>a. Ongoing opportunistically.</p> <p>b. Ongoing opportunistically.</p> <p>c. Ongoing opportunistically</p> <p>d. Ongoing opportunistically</p> <p>e. Ongoing opportunistically</p> <p>f. Ongoing opportunistically</p>	<p>a. BLM/Private landowners.</p> <p>b. Private landowners.</p> <p>c. The Partnership, County, landowners, developers.</p> <p>d. DOW, NRCS (WHIP, EQIP), FWS.</p> <p>e. DOW, BLM, NRCS, Pvt., Extension.</p> <p>f. DOW, BLM, NRCS, Pvt, FWS, Extension.</p>
2. Enhance existing and restore former sage grouse habitat to offset loss of habitat elsewhere.	<p>a. Vegetation treatments, e.g., brush beat, burn, reclaim, seed, Piñon-Jumper removal, controlled fire (use extreme care).</p> <p>b. Mitigating effects of human population growth and development.</p>	<p>a. Ongoing opportunistically</p> <p>b. Ongoing opportunistically</p>	<p>a. BLM, DOW, NRCS, Extension, landowners.</p> <p>b. The Partnership, County Planners.</p>

CONSERVATION ACTIONS		IMPLEMENTATION SCHEDULE	
Action	Examples of How to Accomplish	When	Who
3. Prevent loss and fragmentation of habitat from construction of roads and utilities.	a. Relocate or modify new utility lines, roads, developments, etc. in key grouse habitat.	a. Ongoing opportunistically.	a. BLM, DOW, FWS, County, landowners.
<b>D. Restoring or improving quality of grouse habitat and populations</b>			
1. Enhance existing riparian areas, or create or enhance small wet areas to benefit sage grouse nesting and brood rearing habitat.	<ul style="list-style-type: none"> <li>a. Design and implement livestock grazing management practices to benefit riparian areas. Use fencing for rest rotation management in nesting and brood rearing habitat</li> <li>b. Modify or adapt springs to create small wet areas.</li> <li>c. Enhance and protect existing natural wet areas.</li> </ul>	<ul style="list-style-type: none"> <li>a. Ongoing opportunistically</li> <li>b. Ongoing opportunistically</li> <li>c. Ongoing opportunistically.</li> </ul>	<ul style="list-style-type: none"> <li>a. BLM on Public lands, NRCS assist landowners on private lands.</li> <li>b. BLM on Public lands, NRCS assist landowners on private lands.</li> <li>c. BLM, FWS, landowners.</li> </ul>
2. Eliminate or modify situations that cause predation.	<ul style="list-style-type: none"> <li>a. Modify power lines and wood fence posts (to remove raptor perches) in critical sage grouse areas.</li> <li>b. Cut pinyon-juniper trees near leks and elsewhere within potential sage grouse habitat to remove raptor perches, and to maintain the sagebrush habitat.</li> <li>c. Sale of Christmas trees in key sage grouse areas.</li> </ul>	<ul style="list-style-type: none"> <li>a. Ongoing opportunistically</li> <li>b. 1999 and ongoing.</li> <li>c. Opportunistically.</li> </ul>	<ul style="list-style-type: none"> <li>a. DOW, BLM, Power Company, landowners, FWS.</li> <li>b. BLM (contracts, Delta Honor Crew), landowners, NRCS, &amp; DOW, &amp; FWS (incentives to landowners).</li> <li>c. BLM (if approved), landowners.</li> </ul>
3. Implement local guidelines and use Best Management Practices to guide land uses to increase sage grouse populations and improve sage grouse habitat quantity and quality.	<ul style="list-style-type: none"> <li>a. Implement livestock grazing practices that benefit sage grouse habitat quality, and avoid physical disturbance to grouse during critical times, i.e., breeding and nesting.</li> <li>b. Restore and rehabilitate riparian areas.</li> <li>c. Proper land treatment design and construction that reduce impacts to sage grouse (e.g., how and where to plan projects).</li> <li>d. Land development options.</li> <li>e. Construction standards (placement, timing, rehab. techniques).</li> </ul>	<ul style="list-style-type: none"> <li>a. Ongoing opportunistically.</li> <li>b. Ongoing opportunistically.</li> <li>c. Ongoing opportunistically.</li> <li>d. Ongoing opportunistically.</li> <li>e. Ongoing opportunistically.</li> </ul>	<ul style="list-style-type: none"> <li>a. BLM-permittee's, NRCS/Ext-landowners.</li> <li>b. BLM, FWS, landowners.</li> <li>c. The Partnership.</li> <li>d. The Partnership.</li> <li>e. The Partnership.</li> </ul>

CONSERVATION ACTIONS		IMPLEMENTATION SCHEDULE	
Action	Examples of How to Accomplish	When	Who
<p>4. Improve sage grouse habitat quality, and improve vegetation cover, especially forbs and grasses in occupied sage grouse habitats and in historic, unoccupied habitat where vegetation treatments would improve conditions to levels capable of supporting reoccupation by sage grouse.</p>	<p>a. Develop and use sound grazing management practices in coordination with ranch management plans, BLM allotments.</p> <p>b. Plant and/or re-seed with a high proportion of forbs.</p> <p>c. Design vegetation treatments in sage grouse areas to be compatible with sage grouse needs.</p> <p>d. Improve ground cover in sage grouse areas.</p> <p>e. Manage big game population and habitat to minimize or avoid conflicts on grouse habitats, and to encourage moving them off grouse habitat, i.e., to the extent possible develop the highest quality big game habitat outside the sage grouse prime habitat.</p> <p>f. Integrate weed management with grouse needs.</p> <p>g. Vegetation treatments to improve vegetative age class diversity, improve the grass and forb component (may or may not need to seed), and reclaim any disturbed areas.</p> <p>h. Develop habitat enhancement plans for individual ranches.</p> <p>I. CDOW and BLM will develop a strategic plan for management of sage grouse habitat on BLM lands.</p> <p>j. Through detailed maps, identify essential wildlife habitat including overall range, historic habitat, winter area, severe winter range, brood area, nesting area, active lek, and inactive lek. Mapping should delineate areas of primary concern for management, protection, and enhancement of leks, nesting areas, wintering area, brood area, etc.</p>	<p>a. Ongoing opportunistically.</p> <p>b. Ongoing opportunistically.</p> <p>c. Ongoing opportunistically.</p> <p>d. Ongoing opportunistically.</p> <p>e. Ongoing opportunistically.</p> <p>f. Ongoing opportunistically.</p> <p>g. Ongoing opportunistically.</p> <p>h. Ongoing opportunistically.</p> <p>I. Ongoing and revised as necessary.</p> <p>j. Ongoing annually.</p>	<p>a. BLM, Private.</p> <p>b. BLM, NRCS, DOW, FWS, Private.</p> <p>c. BLM, RMEF, NRCS, DOW, FWS, Private.</p> <p>d. BLM, RMEF, NRCS, DOW, FWS, Private.</p> <p>e. BLM, DOW, Private.</p> <p>f. BLM, County Weed Board, Private.</p> <p>g. BLM, Private, CDOW.</p> <p>h. Individual ranches, CDOW, BLM</p> <p>I. BLM and CDOW</p> <p>j. CDOW, BLM, individual ranches</p>
<p>5. Increase opportunities for improving over-winter survival, escape cover near leks, nesting cover, and expanding the range or use areas of sage grouse, e.g. use of new lek sites and areas.</p>	<p>a. Improve quality of sagebrush dominated habitats by using grazing management and vegetation treatment, e.g., mechanical treatment, fertilization.</p> <p>b. Avoid treatment projects that remove large stands of sagebrush in critical areas.</p> <p>c. Attempt to expand existing sage grouse use areas/range by using calls to entice males during the breeding season to use new lek sites close to or adjacent to existing lek sites.</p>	<p>a. Ongoing opportunistically.</p> <p>b. Ongoing opportunistically.</p> <p>c. 2001 (start).</p>	<p>a. BLM, DOW, NRCS, FWS, Private.</p> <p>b. BLM, FWS, Private.</p> <p>c. DOW.</p>

CONSERVATION ACTIONS		IMPLEMENTATION SCHEDULE	
Action	Examples of How to Accomplish	When	Who
<b>E. Reducing Physical Disturbance to Sage Grouse</b>			
1. Mitigate or reduce conflicts with sage grouse during critical biological periods and on critical habitats.	<ul style="list-style-type: none"> <li>a. Noise or physical disturbance ordinances or restrictions during critical periods near leks, e.g. manage on-road travel and OHV use in key grouse areas to avoid disturbance during critical times.</li> <li>b. Delay or modify construction start up dates or hours during peak lek attendance dates in April and May and after 9:00 am.</li> <li>c. Control or limit pets.</li> <li>d. Coordinate grazing management to avoid conflicts on leks during April, May, and early June.</li> </ul>	<ul style="list-style-type: none"> <li>a. Ongoing opportunistically.</li> <li>b. Ongoing opportunistically.</li> <li>c. Ongoing opportunistically.</li> <li>d. Ongoing opportunistically.</li> </ul>	<ul style="list-style-type: none"> <li>a. BLM, County.</li> <li>b. BLM, FWS, County, DOW.</li> <li>c. DOW, FWS, County.</li> <li>d. BLM, FWS, Private.</li> </ul>
<b>F. Improving landowner and community support and participation</b>			
1. Incorporate economic, social and cultural values into conservation practices.	<ul style="list-style-type: none"> <li>a. Seek understanding, information sharing and maintaining communication.</li> <li>b. Adopt principle of voluntary participation.</li> <li>c. Involve landowners and, when appropriate, local communities in all aspects of sage grouse conservation.</li> <li>d. Protect and respect landowner property rights</li> </ul>	<ul style="list-style-type: none"> <li>a. Ongoing opportunistically.</li> <li>b. Ongoing opportunistically.</li> <li>c. 1999, ongoing opportunistically.</li> <li>d. Ongoing</li> </ul>	<ul style="list-style-type: none"> <li>a. The Partnership.</li> <li>b. The Partnership.</li> <li>c. The Partnership.</li> <li>d. CDOW, BLM, NRCS, FWS</li> </ul>
2. Maintain local control.	<ul style="list-style-type: none"> <li>a. Maintain Sage Grouse Partnership (must include landowners, local residents) to serve as advisory body.</li> <li>b. Continually seek input and involvement.</li> <li>c. Annual (or as needed) hold a Partnership meeting to discuss progress and future needs, and plan a yearly schedule of events and conservation action implementation.</li> </ul>	<ul style="list-style-type: none"> <li>a. Ongoing opportunistically.</li> <li>b. Ongoing opportunistically.</li> <li>c. Ongoing opportunistically.</li> </ul>	<ul style="list-style-type: none"> <li>a. The Partnership.</li> <li>b. The Partnership.</li> <li>c. The Partnership.</li> </ul>
3. Develop, improve, and encourage credibility and success.	<ul style="list-style-type: none"> <li>a. Seek outside scientific review of projects.</li> <li>b. Involve college and/or universities.</li> <li>c. Adapt and change as we go.</li> <li>d. Annually the Partnership will prepare and disseminate to the members and others a progress report.</li> </ul>	<ul style="list-style-type: none"> <li>a. Ongoing opportunistically.</li> <li>b. Ongoing opportunistically.</li> <li>c. Ongoing opportunistically.</li> <li>d. Annually.</li> </ul>	<ul style="list-style-type: none"> <li>a. The Partnership.</li> <li>b. The Partnership.</li> <li>c. The Partnership.</li> <li>d. The Partnership.</li> </ul>

## APPENDIX A

## GLOSSARY

**Canopy Cover** - The percentage of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage of plants. Small openings within the canopy are included.

**Cecal dropping**- A dark, tar-like excrement that is often observed on leks where sage grouse concentrate in the spring.

**Extirpated** - A term used for a species when it is considered to no longer be found in a specific area it once occupied. Extinct would be used when the species completely eliminated from all habitats and can no longer be found anywhere.

**Fragmentation** - Fragmentation is a term used to describe habitats or populations that have been broken up, separated, or divided due to many factors either natural or often man-made. Often this results in several or many small wildlife populations or habitats that may or may not be able to support a species over a long period of time.

**Lek** - An arena where male sage grouse display for the purpose of gaining breeding territories and attracting females. These arenas are usually open areas with short vegetation within sagebrush habitats, usually on broad ridges, benches, or valley floors where visibility and hearing acuity are excellent.

**Lek Area** - The geographic area that includes all closely allied lek sites within 1 mile. This geographic area is usually stable overtime.

**Lek Count** -The high count of males from all lek sites on the same day; which are taken at 7-10 day intervals between late March and mid May.

**Lek Site** - A particular site where sage grouse gather for display and mating in spring (Mar-May). The actual site used can vary daily, seasonally, and yearly.

**Sagebrush** - As referred to in this plan, includes the following species: **Basin Big** - *Artemisia tridentata tridentata*; **Mountain Big** - *Artemisia tridentata vaseyana*; **Black** - *Artemisia nova*; and **Silver** - *Artemisia cana*.

**Steppe** - A semi-arid grass-covered plain, usually lightly wooded.

**Strutting Ground** - See Lek.

## APPENDIX B

## LISTING FACTORS

Listing factors considered by the U.S. Fish and Wildlife Service in evaluating possible action under the Endangered Species Act.

### **Factor A. Present or threatened destruction, modification, or curtailment of its habitat or range.**

The range of the Gunnison sage grouse in the Piñon Mesa Area has been greatly reduced in size and quality through habitat loss caused by plowing, spraying, road construction, and power lines; habitat fragmentation caused by the same factors, and habitat degradation caused by the same factors as well as inappropriate livestock management. Total range reduction is estimated at greater than 50%.

This Conservation Plan will reduce destruction, modification, or curtailment of the Gunnison sage grouse's range through implementing the following management actions: Eliminating major land disturbances from housing development and industrial uses (other than farming and ranching); by reducing unnecessary roads; reducing or eliminating disturbed land by livestock operations; using mechanical means for habitat improvement; reducing unnecessary utility lines/ and improving vegetative habitat and soil conditions by reseeding with forbs, by using proper grazing and hay mowing management, by managing noxious weeds, by appropriate big game management, and by appropriate herbicide use.

### **Factor B. Overutilization for commercial, recreational, scientific, or educational purposes.**

No overuse of Gunnison sage grouse in the Piñon Mesa Area is apparent as hunting is not permitted, there is no commercial or recreational use, and scientific study (banding, radio marking) only affected 10-15 birds in 1995-96. Educational field trips may occur but are not likely to cause disturbance to the Gunnison sage grouse if proper viewing protocols are followed.

### **Factor C. Disease or predation.**

No disease/parasite problems have been identified in Gunnison sage grouse in the Piñon Mesa Area. Predation is a natural event and about 50% of the total population disappears (dies) each year. Major identified predators of adults include golden eagles, goshawks, bobcats, and coyotes. Most loss of potential productivity is through nest failure caused by ground predators such as ground squirrels, badgers, etc.

### **Factor D. Authorities and existing regulatory mechanisms.**

Members of the Piñon Mesa Gunnison Sage Grouse Partnership are committed to improving conditions for sage grouse in the area. While landowner adoption of the proposed conservation actions is voluntary, the Conservation Plan was developed with the spirit of cooperation and there is broad support for the goals and objectives contained in the Conservation Plan. The Partnership believes existing regulatory mechanisms are adequate to achieve these goals and objectives.

The Colorado Division of Wildlife, a branch of the Colorado Department of Natural Resources, has responsibility for the management and conservation of wildlife resources as defined and directed by state laws. The Division also has enforcement authority for poaching and harassment.

The Board of County Commissioners of Mesa County, Colorado has authority to regulate land use, land planning, and protection of the environment in the County. Mesa County has regulations to exercise such authorities including the review, approval or denial of proposed activities and uses of land.

The USDA Forest Service (USFS) has direction and authority for the maintenance of biological diversity on National Forests and for the protection and management of wildlife species and habitats as defined and directed by various Federal Laws and Regulations.

The USDA Natural Resources Conservation Service (NRCS) also has authority for conservation of the Gunnison sage grouse through various Federal Laws.

The USDI Bureau of Land Management (BLM) has authority for conservation of the Gunnison sage grouse and the management of natural resources and land uses on Public Lands through a number of Federal Laws and Regulations.

The USDI Fish and Wildlife Service (USFWS) has authority for conservation of the Gunnison sage grouse through the Endangered Species Act of 1973 and other Federal Laws.

Two other authorities for agencies working on Gunnison sage grouse conservation include a Memorandum of Understanding and a Memorandum of Agreement. In 1994, several federal agencies, including those listed here, signed a Memorandum of Understanding to establish a general framework for better cooperation and participation among these agencies in the management and conservation of species at risk, which are tending towards federal listing as threatened or endangered. In 1995, the state of Colorado and the U.S. Department of Interior entered into a Memorandum of Agreement which committed agencies in the Department of Interior and the state to collaborate and cooperate in management and conservation of declining populations of fish and wildlife and their habitat. This agreement has 2 important tasks: "The state and the Department agree to develop and implement programs to determine and monitor the status of species at risk;" and "The state and the Department will encourage partners and stake holders to take a leadership role in working with the state and the Department to develop and implement conservation actions through Conservation Agreements and Recovery Agreements. " A list of species for which the Department and the state would initially focus conservation actions on was written. This list specifically mentioned declining populations of sage grouse.

**Factor E. Other natural or manmade factors affecting its continued existence.**

Natural factors affecting the continued existence of Gunnison sage grouse in the Piñon Mesa Area include natural fragmentation and severe weather conditions during the nesting and early brood periods. Fire suppression is a man-made threat leading to changes in habitat through invasion of piñon-juniper and allowing sagebrush habitat types to become dominant, old-aged stands. Other man-made factors that effect sage grouse include continuous noise that impairs the acoustical components of males on leks; disturbance from construction or other projects; harassment from pets; and disturbance, death, or habitat degradation from use of off-highway-vehicles (OHV's)

To address these threats, fire or other habitat management may be prescribed to remove invasive trees and restore native plants and vitality to the sagebrush habitats used by sage grouse. Additionally, noise ordinances or restrictions during critical periods near leks may be enforced, construction start up dates may be delayed or modified, pets may be encouraged to be controlled or limited, and OHV use areas and other travel management in key sage grouse areas may be enforced.

## APPENDIX C

## LIST OF WORKING PARTICIPANTS

Aubert, Dahl	Rancher/Landowner
Braun, Clait	CDOW
Chesnick, Belle	Rancher
Creeden, Paul	CDOW
Crompton, Brad	Utah Division of Wildlife
Dollerschell, Jim	BLM
Gleason, Roy and Barbara	Rancher/Landowner
Gore, Warren	Rancher/Landowner
Graham, Van	CDOW
Ireland, Terry	USFWS
King, Doug	Rancher/Landowner
Lambeth, Ron	BLM
Meinhart, Don and Florine	Rancher/Landowner
Power, Rod	Rancher/Landowner
Tipping, Ron	Rancher/Landowner
Toolen, John	CDOW
Van Loan, Jay and Dori	Rancher/Landowner
Wallace, Guy	Utah Division of Wildlife
Yamashita, Steve	CDOW

APPENDIX D

SIGNATURE PAGE

The following parties are interested in the maintenance and enhancement of Gunnison sage grouse on Piñon Mesa. These signatures demonstrate their willingness to preserve Gunnison sage grouse and its habitat on Piñon Mesa to the best of their abilities.

*Steve Yamashita*

5-24-00

Steve Yamashita, Area 7 Wildlife Manager  
Colorado Division of Wildlife  
West Region

Date

*Catherine Robertson*

5-24-00

Catherine Robertson, Area Manager  
Bureau of Land Management  
Grand Junction Resource Area

Date

*Terry Ireland*

5/24/00

for Allan Pfister, Assistant Field Supervisor  
Department of Interior  
United States Fish and Wildlife Service

Date

*James Currier*

6-15-00

James Currier, District Conservationist  
National Resource Conservation Service  
Grand Junction Field Office

Date

*Guy Wallace*

5/24/00

Utah Division of Wildlife Resources  
Price, Utah

Date

*Belle Crossick, Mountain Island Ranch*

5/24/2000

Piñon Mesa Gunnison sage grouse partnership member

Date

*Jay Van Loan*

5/24/00

Piñon Mesa Gunnison sage grouse partnership member

Date

*D. S. VanHorn*

5-24-00

Piñon Mesa Gunnison sage grouse partnership member

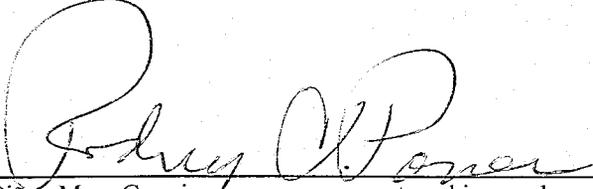
Date

*Tom Tipping*

5-24-00

Piñon Mesa Gunnison sage grouse partnership member

Date

  
Piñon Mesa Gunnison sage grouse partnership member

5-24-00  
Date

  
Piñon Mesa Gunnison sage grouse partnership member

6/2/00  
Date

Piñon Mesa Gunnison sage grouse partnership member

Date

## APPENDIX E

## MALE SAGE GROUSE COUNTS

## High Counts of male Gunnison sage grouse, Piñon Mesa, Mesa County, Colorado

Lek Site	1995	1996	1997	1998	1999	2000
Fish Park	2	+	+	+	+	--
Luster Basin	3	3	7	7	6	6
Mountain Island					+	--
Nelson Creek	6	5	4	4	3	5
Payne Mesa						
Lower (north)	1	5	+	+	2	5
Pond	0	8	8	4	8	11
Upper (south)	4	3	4	11	10	6
Thompson Reservoir	0	NC	NC	NC	NC	NC
Totals	16	24	23	26	29	33

+ Notes presence of grouse at leks as observed by sign (droppings, tracks, feathers), but no observation of birds.

-- Notes no presence of grouse noted during count.