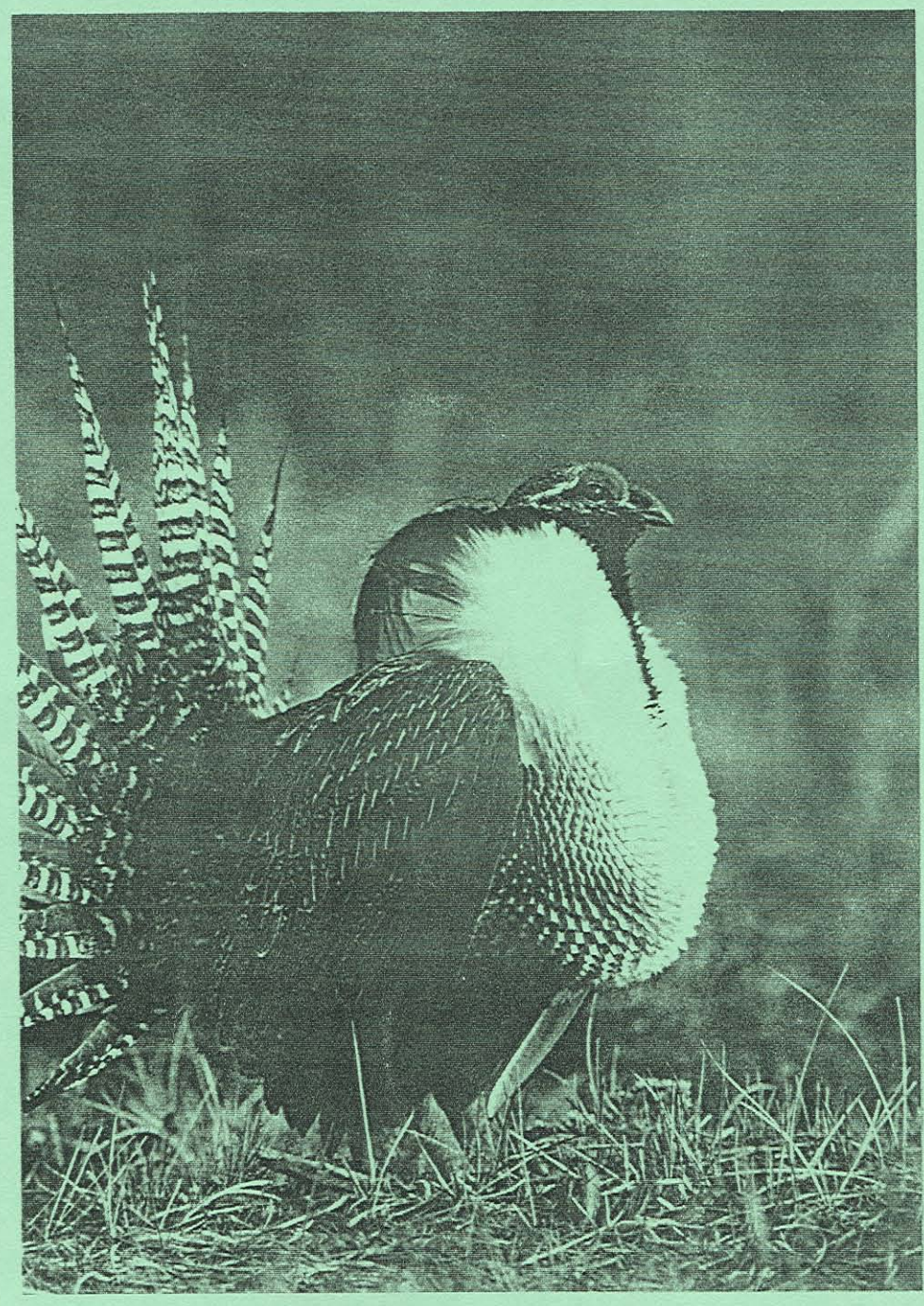
# GUNNISON SAGE GROUSE

# CONSERVATION PLAN

# DOVE CREEK, COLORADO



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# DOVE CREEK, COLORADO

FINAL

**LAST REVISED 23 November 1998**

**PLEASE NOTE:** This document is Final Draft of the Draft Conservation Plan. Work continues in developing specific parts of the conservation strategy. As these parts are completed, this document will be updated to incorporate these sections and be available for public review.

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## Appendices



Cover photo provided courtesy of Louis F. Swift

## I. PREAMBLE

Sage grouse in southwestern Colorado occur in 8 highly fragmented populations scattered in 6 different counties. These sage grouse have been identified as a new species with less than 4000 breeding individuals. Because of the fragmentation and distribution and limited size of each population, there is concern that this species may be a candidate for federal endangered or threatened status.

The Dove Creek Sage Grouse Partnership is a county level, multi-interested partnership representing landowners, sportsmen, land management agencies, local government, and the Colorado Division of Wildlife. The common goal is to develop a community supported plan to preserve and enhance Gunnison sage grouse populations and habitat in this area, while respecting private landowner rights and maintaining local control, while incorporating economic, social, and cultural values. The partnership exists to help coordinate and support localized efforts to achieve this goal.

## II. THE PLAN AND ITS PURPOSE

This document establishes a process and establishes a framework that will guide management efforts directed at improving sage grouse habitat and reversing the long term decline of the Gunnison Sage Grouse in the Dove Creek area (Figure 1). Central to this process is the idea of citizen, community, and agency involvement in determining appropriate management activities designed to meet jointly developed goals and objectives. This plan guides that effort.

The purpose of the Dove Creek Sage Grouse Conservation Plan (the plan) is to provide for coordinated management across jurisdictional/ownership boundaries and to develop wide community support that is necessary to assure the survival of the sage grouse species. Designed to be dynamic, the plan will be flexible enough to include new information and issues, as well as results from previous conservation efforts. It will also be designed to answer questions and collect data necessary for future resource management decisions.

## III. GUIDING PRINCIPLES

This overall general objective is designed to guide sage grouse management efforts, particularly the selection of conservation actions and the way in which they are implemented.

Promote public involvement in planning and decision making.

Maintain an atmosphere of cooperation and participation among land managers, private landowners, and other stakeholders.

Implement conservation actions in a way that meets the needs of sage grouse and is least

disruptive and encourages the development of a stable and diverse economic base in Dolores County.

Respect individual views and values and implement conservation actions on a collaborative basis in ways that have broad community support.

Make every effort to seek efficiency and integration of efforts especially between agencies in the implementation of conservation actions.

Area Boundary

The boundary for initial identification of potential habitats that could be managed to benefit Gunnison sage grouse was selected based on field observations during 1994-97, reports of landowners, relocation of radio-marked sage grouse, and the apparent suitability of existing habitats. Substantial areas of agricultural land are included as well as a recent subdivision. Inclusion of areas within the boundary does not infer that all sites are useful or will be considered for management actions.

The boundary of the management area is: that area within Dolores County south of the San Miguel County line, west to the Utah-Colorado State line, south to County Road P, then east to County Road 7, and north to County Road G, and then east to Dolores Canyon, and then northward along the west edge of Dolores Canyon to the San Miguel County line and then west to the Utah State line (Figure 1).

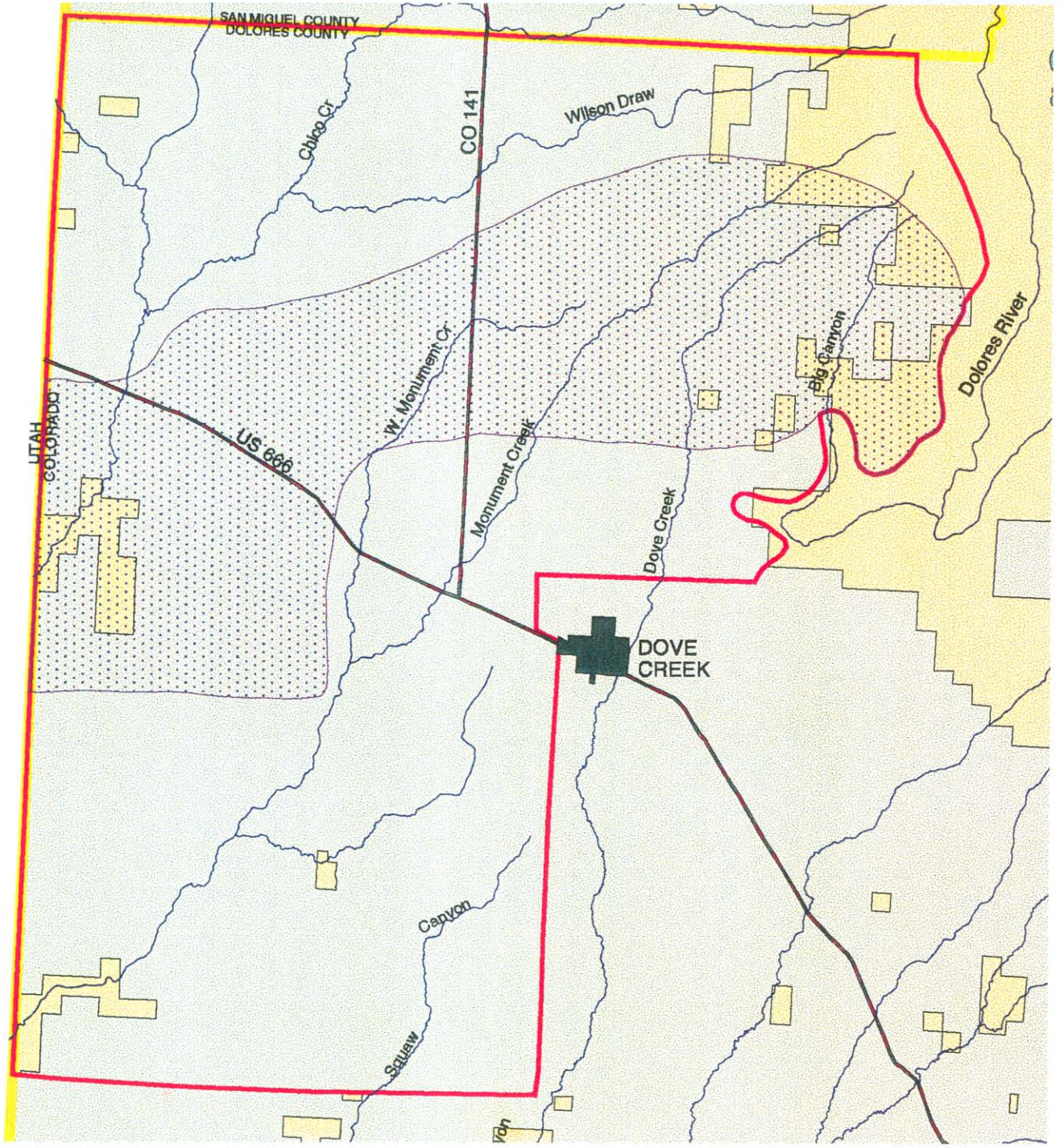
If Gunnison sage grouse populations expand outside of the boundary identified in this plan, consideration will be given to expanding the area boundary to conform to actual area used.

Participation in this plan on the part of landowners is strictly voluntary.

## IV. SPECIES DESCRIPTION

Description

Northern sage grouse (*Centrocercus urophasianus*) are large (2.4-7.2 lbs) brown/gray chicken-like birds with conspicuous black (belly, underthroat) and white markings (breast of males, undertail converts). They are brown gray above barred with black, with rounded brown wings with some black barring. Males during the breeding season (Mar-May) have conspicuous neck plumes, white upper breast with yellow-green air sacs and prominent, long spiked tail feathers. Both sexes have yellow green eye combs, which are less prominent in females, and a fringe of pectinations along the toes which are most noticeable in winter and early spring. Males weigh from 3.5 to 7.2 pounds, while females weigh from 2.4 to 4.0 pounds.




# Dove Creek Sage Grouse Conservation Plan Priority Conservation Area And Current Distribution

Map digitizing & production by the Habitat Section, Montrose Service Center Juuly 13, 1998 - JKG.

Gunnison sage grouse (*Centrocercus minimus*) found in southwestern Colorado differ 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). The mating behavior of the Gunnison sage grouse differs markedly from that of the large-bodied sage grouse in northern Colorado.

## Habitat Requirements of the Gunnison Sage Grouse in the Dove Creek Area

Habitat needs for sage grouse in the Dove Creek area of Dolores County relate to survival over winter (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 (Sept-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

Radio-marked sage grouse extensively used mountain big sagebrush areas north and southwest of Dove Creek. Some of these areas (north of Dove Creek) had significant amounts of Gambel oak present. Adequate winter habitat is unavailable in some years northeast of Dove Creek from January into March because of snow depth. Winter habitat appears to be limiting near Dove Creek. Food eaten in winter primarily appears to be mountain big sagebrush.

### Lek Habitat

Suitable habitats for display do not superficially appear to be limited anywhere in the Dove Creek area. However, numbers of males on known active leks north of Dove Creek are greatly reduced, probably because of a reduction of escape habitat near lek sites. This does not appear to be related to quality of lek sites but instead is related to the reduced amount and quality of total sagebrush-dominated habitats at those sites. Sites presently used for display are in agricultural fields with taller (>20 in.) sagebrush in the near proximity of display sites. Presence of taller sagebrush (mountain big sagebrush) with a lack of taller coniferous shrubs/trees and other obstructions appears to be critical for continued use of these sites by displaying male sage grouse.

### Nesting Habitat

Sage grouse hens (small sample sizes) at Dove Creek select sites for nesting with taller, more dense sagebrush (>20 in.,>25% canopy cover). These sites are frequently at slightly higher elevations (upper edge of the occupied habitat) where moisture allows greater and more robust grass and forb cover (>25 and 8% respectively, >6 in. total herbaceous height). Nests are typically at the base of taller (>20 in.) sagebrush plants.

### Early Brood Habitat

The description of this habitat at hatch is identical to nesting habitat with hens moving their young chicks (<5-10 days of age) into areas dominated by forbs and grasses (including wheat,

alfalfa, and bean fields) with <20% live sagebrush canopy cover. Hens select drainage channels in the sagebrush type that have abundant forbs and frequently moisture. Grass and forbs dominate at all known use sites with a definite preference for live sagebrush escape cover (>20 in. in height).

Late Brood Habitat

Hens with older broods prefer moist drainage channels and agricultural fields. 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 desiccated (several successive killing frosts), heavily grazed, or harvested (agricultural fields). Taller sagebrush (>20 in.) with more canopy cover (>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. Near Dove Creek, drainage channels and edges of agricultural fields continue to be heavily used until major snow storms. During extensive snow cover, in late fall and early winter, use of mountain big sagebrush stands is extensive.

Summary of Habitat Needs

Sage grouse are entirely dependent on sagebrush habitats throughout their range. Although some differences in specific habitat use patterns have been documented in the Dove Creek area from other studied areas, there are still many similarities. In most winters, sage grouse move into tall and relatively dense sagebrush patches. These areas provide essential food and cover. Near Dove Creek, these winter use areas may also include significant amounts of oak brush. This oak brush may provide adequate cover from winter storms and predators, but the sage grouse must still have immediate access to sagebrush for winter food. In late winter, the grouse begin moving towards leks, areas that are characterized by short vegetation, and adequate escape cover. While on the lek, sage grouse are visible to predators and are vulnerable to predation. They must have access to escape cover to feel secure. Escape cover near leks is usually fairly tall and dense sagebrush, but may include oak brush. Nesting females near Dove Creek, and elsewhere, most often nest at the base of tall sagebrush plants, in an area with fairly vigorous forb and grass growth. During the nesting season, there must be adequate cover to hide the nest, the female, and newly hatched chicks from predators. Sagebrush with or without oakbrush most often provides that cover near Dove Creek. Early brood rearing habitat is composed of escape habitat (most often sagebrush), and feeding areas. Feeding areas are usually dominated by forbs and grasses, are often more moist (like drainage areas) than the surrounding area, and often have a variety of insects present. Chicks feed extensively on insects at this stage. Near Dove Creek, grouse are seen in the agricultural fields (wheat, beans, alfalfa) at this stage, but their use is near the field margins where they have escape cover nearby. As the chicks grow older, more of their feeding is

on forbs, and wet areas (drainage areas) become even more important, with continued use of agricultural fields, but shrubby areas must be nearby for escape. Fall grouse habitat is similar to late brood habitat, but is more limited because most agricultual fields have been harvested, pastures have been grazed, and frosts have killed forbs. Grouse most often use sagebrush dominated areas, and the diet changes from forbs to predominantly sagebrush. As snowfall increases, use of sagebrush increases, and winter use patterns follow.

## V. SPECIES STATUS AND DISTRIBUTION

Geographic 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 3rd group of sage grouse has been described from southwest 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 Arkansas River and San Luis Valley. It also occurs east of the Colorado River in extreme southeastern Utah.

Historic/Current Status of the Gunnsion Sage Grouse

Rogers (1964) reported that all big sagebrush-dominated habitats in Dolores and Montezuma counties were historically used by sage grouse. The historic distribution was highly fragmented by pinyon-juniper forests and rocky canyons.

Presently, sage grouse are known to occur in Dolores County north of Dove Creek from about County Road E north to the San Miguel County boundary and east of County Road 8. They also occur west of Dove Creek from County Road J north to County Road C and west of County Road 3 to the Utah State boundary. Occasional reports are received from outside of these 2 areas. No sage grouse are presently known to occur in Montezuma County.

There are currently four known active lek sites within the Dove Creek area. These leks have been monitored for the past 5 years by the CDOW. During the last several years, the population trend is declining.

Gunnison sage grouse presently have no federal status with the U.S. Fish and Wildlife Service, Bureau of Land Management or U.S. Forest Service. Recent scientific research indicates concern

for the decline of population numbers for the Gunnison species in southwestern Colorado. Therefore, there is a potential that the U.S. Fish and Wildlife Service will list this species as threatened or endangered.

Population Monitoring

Counts of male prairie grouse on leks provide managers with an estimate of minimum population size. Studies of sage grouse 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.

Area and District personnel of the CDOW were requested starting in the 1950's to document sage grouse presence and general trend within specific areas. 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 1994 reflect only general trends in the sage grouse population. Procedures changed in the mid 1990's and now follow standard protocols. At Dove Creek, lek searches were first done in 1993 and 2 leks were found. Surveys were intensified starting in 1994.

Population Size

The present (1998) size of the breeding population of sage grouse in the Dove Creek Area is between 81 and 135 birds based on 27 males counted on 4 active leks in 1998. This range is based on knowledge that there are about 2 hens/males in the spring population (27 males + 54 hens = 81). Studies of sage grouse across western North America indicate there are about 2 females for each male in the spring population (Autenrieth 1981, Braun and Beck 1985, Willis et al. 1993, Braun and Beck 1996, Braun 1998, Hays et al. 1998). Thus, there were at least 81 sage grouse in the Dove Creek Area in 1998. 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 were counted in 1998. If we assume that locations of 90% of all leks were known, there could be 1 unknown active lek (if 4 active leks = 90%, then $4 \div 0.90 = 4.4$ active leks would constitute 100% of all active leks). To reach an upper estimate of population size, the 4.4 calculated active leks was rounded to 5.

Given a total of 27 males counted on 4 active known leks, there would be 34 males on 5 active leks ($27 \div 4 = 6.75$ males/active known lek x 5 assumed leks, $5 \times 6.75 = 33.7$ rounded to 34). 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 45 males (34 males [on 5 possible leks]÷ 0.75 present during the high count = 45). Thus, if there are 2 hens/males in the spring population, the upper estimate for the population would be 135 (45 males + 90 hens = 135).

There are problems with both lower and upper estimates as sex ratios may be closer to 1:1 in unhunted 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.

The spring population size of sage grouse in the Dove Creek area has been higher in the recent past (1994). In 1994, 5 leks were known to be active with 73 total males (5-25 males/lek). If the average number of males per lek was 15 and there were at least 6 active leks, there would have been at least 90 males and 180 hens for a total of 270 breeding birds. With a 75% correction factor for males not seen (90÷ 0.75 = 120 males + 240 hens = 360), there should have been at least 360 birds in the spring population in 1994.

Population Goals

A reasonable minimum spring population goal would be to have at least 5 active leks with an average of 10 males/lek for a total male population that is counted of 50 (5 x 10). If this number represents 75% of the cocks in the population and all active lek areas are known and counted, the male population should be 66 (50÷ 0.75) with 133 hens for a total population of 199 sage grouse (66 males + 133 hens). This number is certainly achievable. This number is higher than that measured in 1998 (81-135 birds). If the minimum population size does not increase above the 81-135 level in 1999 and 2000 or the 3-year average (1998-99-2000) does not show an increase, or if the population declines from the 1998 level, the possibility of inbreeding becomes high because of a genetic bottleneck. At that point, reintroduction of Gunnison sage grouse will be considered to increase genetic diversity. A reasonable optimum spring population goal would be to have 6 active leks each with 20 males counted. Thus, 120 males (6 x 20) would be counted in spring and all active lek areas would be known. This would translate to 160 males (120÷ 75%) and 320 hens for a spring population size of about 480 sage grouse. With proper habitat management, this goal should be achievable.

## VI. GENERAL CONSERVATION OBJECTIVES

Using that goal as a target, the Dove Creek sage grouse partnership developed general objectives. These general conservation objectives were developed largely based on the issues or factors that had been identified as in some way contributing to the declining population size of sage grouse or affecting the quantity or quality of sage grouse habitat in the Dove Creek area.

The purpose of these general conservation objectives is to guide the identification of conservation actions. These objectives are also useful to explain the overall thrust of the conservation strategy. Three dominant themes or categories emerged from the issue discussion

which helped frame these general objectives. These three objectives are:

1). Maintain and improve the quality of sage grouse habitat.

2). Reduce fragmentation by preventing, minimizing, and mitigating past, present, and future loss of sage grouse habitat.

3). Identify and manage physical disturbances to reduce adverse effects to sage grouse.

## VII. SAGE GROUSE HABITAT QUALITY

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, cover, etc. 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.

## VIII. SAGE GROUSE HABITAT LOSS/FRAGMENTATION

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. Another example of habitat loss occurs when a subdivision occupies an area that once was sagebrush community.

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

## IX. PHYSICAL DISTURBANCE TO POPULATIONS

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. Narratives of these issues can be found in Appendix A. (Issue Descriptions)

Issues that affect sage grouse populations and their habitat:

Vegetative Habitat
-poor habitat quality and quantity
-lack of grasses and forbs
-condition of winter habitat

Land Planning/Mitigation

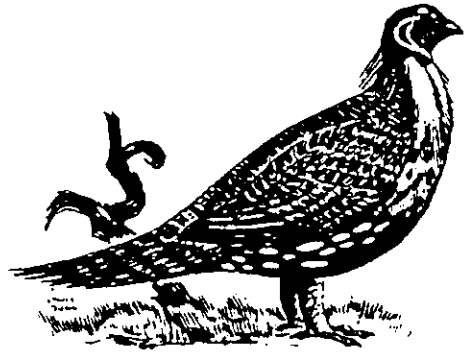
-fragmentation
-changes in land uses

Land Treatments
-effects of land treatments on winter habitat
-poor management of land treatments
-fire suppression
-lack of habitat management/need for habitat management

Utilities
-powerlines
-roads
-fence designs
-pipelines

Loss of Topsoil & Productivity
Poor Nest and Brood Survival
Timing, Intensity and Duration of Livestock/Big Game Grazing
Drought
Predators (coyotes, ground squirrels, badgers, eagles and other raptors)
Scientific Lek Harassment
Conflicting Uses During Critical Biological Activity Periods
Recognition of Private Landowners Rights
Monitoring
Cropland Retirement
Incentives
Wildlife Impacts
Poaching
Subdivision/Ranchette Development
Unintentional Agricultural Losses

## X. CONSERVATION ACTIONS



Introduction

The backbone of the Sage Grouse Conservation Plan is its goal and objectives which together establish a framework for developing conservation actions. Conservation Actions are designed to be consistent with the plan's goal and also to meet

one or more 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 under the objective where the link is most direct. Any additional actions identified at a later date will be analyzed by the Dove Creek Gunnison Sage Grouse Partnership for application and design to ensure appropriateness and compliance with the goals and objectives set forth in this plan.

| CONSERVATION ACTIONS | | IMPLEMENTATION SCHEDULE | |
|---|---|---|---|
| Action | Examples of How to Accomplish | When | Who |
| **A. Information & Education** | | | |
| 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. | A. Maps, newspaper articles, radio, television, displays, etc.<br>B. Public contacts (e.g., individuals, County Commissioners, local schools, meetings, field trips, and copies of the Dove Creek Sage Grouse Conservation Plan<br>C. Brochures, signs, fliers<br>D. Hunting regulation brochures | A. Ongoing<br>B. Ongoing<br>C. Ongoing<br>D. Ongoing | A. County Extension, CDOW<br>B. County Extension, CDOW<br>C. CDOW<br>D. CDOW |
| 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 ideas and reaching agreement on ways to improve sage grouse habitat and increase populations. | A. Meetings with interested landowners, government/regulatory entities (e.g. Counties and local associations)<br>B. Maintain a current mailing list of interested citizens, and State, Local, and Federal Agencies.<br>C. Develop management plans, cooperative agreements, etc.<br>D. Distribute information about importance of sage grouse; availability of incentive programs, Best Management Practices, effects of certain land uses on grouse.<br>E. Coordinate management of sage grouse with other wildlife species and resource agencies.<br>F. Continue to work with other groups, e.g. HPP<br>G. Communicate with other sage grouse groups. | A. Ongoing<br>B. Ongoing<br>C. Ongoing<br>D. Ongoing<br>E. Ongoing<br>F. Ongoing<br>G. Ongoing | A. The Partnership<br>B. The Partnership<br>C. The Partnership<br>D. CDOW/County Extension/ NRCS<br>E. CDOW/BLM/NRCS/USFWS<br>F. The Partnership<br>G. CDOW/BLM/NRCS/USFWS |

| CONSERVATION ACTIONS | | IMPLEMENTATION SCHEDULE | |
|---|---|---|---|
| Action | Examples of How to Accomplish | When | Who |
| **B. Monitoring** | | | |
| 1. Identify important 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. | A. Habitat mapping and condition monitoring.<br>B. Assess and track land-use changes, e.g., developments, roads, etc.<br>C. On-site visits with landowners, Holistic Resource Mgmt, groups, Livestock growers, agricultural growers, to discuss and assess habitat conditions and monitoring needs.<br>D. Joint interagency/landowner evaluation, information sharing. | A. Ongoing, annually<br>B. Update 3-5 yeears<br>C. As needed/requested /opportunistically<br>D. As needed/requested /opportunistically | A. CDOW<br>B. The Partnership<br>C. The Partnership<br>D. The Partnership |
| 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. | A. Sage grouse population monitoring/census<br>B. Design and carry out monitoring for applied measures, e.g., treatments<br>C. Continue to identify changes in the sage grouse population size using 3 year average of lek counts | A. Annual March-May lek counts<br>B. Annually, as needed<br>C. Annually | A. CDOW<br>B. CDOW/NRCS/BLM<br>C. CDOW |
| **C. Avoiding or mitigating permanent loss of habitat** | | | |
| 1. Develop and encourage incentives for landowners to avoid or mitigate loss of sage grouse habitat | A. Land exchanges<br>B. Conservation Easements with LaPlata Open Space, CCA, RMEF<br>C. Transferrable development rights<br>D. Payment for non-use of sage grouse habitat<br>E. Application of specific land use practices that benefit grouse, e.g., water developments, grazing plans<br>F. Develop recommendations for managing sag brush community as a whole, considering all uses | A. Ongoing<br>B. Ongoing<br>C. Ongoing<br>D. Ongoing<br>E. Ongoing<br>F. Ongoing | A. The Partnership<br>B. Interested Landowners<br>C. Interested Landowners<br>D. CDOW<br>E. Interested Landowners<br>F. CDOW/NRCS/BLM |
| 2. Enhance existing and restore former sage grouse habitat to offset loss of habitat elsewhere | A. Vegetation treatments, e.g., brush beat, reclaim, seed<br>B. Mitigate effects of human population growth and development | A. Ongoing<br>B. Ongoing | A. Interested Landowners<br>B. Dolores County |
| 3. Prevent loss and fragmentation of habitat from construction of roads, utilities, subdivisions, etc. | A. Relocate or modify new utility lines, roads, developments, etc. in key grouse habitat | A. Ongoing | A. BLM, Dolores County, Utility Companies |

| CONSERVATION ACTIONS | | IMPLEMENTATION SCHEDULE | |
|---|---|---|---|
| Action | Examples of How to Accomplish | When | Who |
| **D. Restoring or improving quality of grouse habitat and populations** | | | |
| 1. Enhance existing riparian areas, or create or enhance small wet areas to benefit sage grouse nesting and brood rearing habitat | A. Design and implement livestock grazing management practices to benefit riparian areas<br>B. Modify or adapt pipelines/springs to create small wet areas<br>C. Enhance and protect existing natural wet areas | A. Ongoing<br>B. Ongoing<br>C. Ongoing | A. NRCS/BLM/CDOW<br>B. NRCS/BLM/CDOW<br>C. NRCS/BLM/CDOW |
| 2. Eliminate or modify situations that cause predation | A. Modify power lines and wood fence posts to remove raptor perches in critical sage grouse areas<br>B. Cut pinyon-juniper trees near leks and elsewhere within potential sage grouse habitat to remove raptor perches, and to maintain the sagebrush habitat<br>C. Sale of Christmas trees in key sage grouse areas | A. Ongoing<br>B. 1997, 1998, ongoing<br>C. Ongoing | A. Landowners, BLM, Utility Companies, CDOW<br>B. BLM, Landowners<br>C. BLM |
| 3. Implement local guidelines and use Best Management Practices to guide land uses to increase sage grouse populations and improve sage grouse habitat quantitiy and quality | A. Livestock grazing practices that benefit sage grouse<br>B. Restore and rehabilitate riparian areas<br>C. Proper land treatment design and construction that reduce impacts<br>D. Land development options<br>E. Construction standards (placement, timing, rehab., techniques) | A. Ongoing<br>B. Ongoing<br>C. Ongoing<br>D. Ongoing<br>E. Ongoing | A. NRCS/BLM<br>B. NRCS/BLM<br>C. The Partnership<br>D. Dolores County, Landowners, CDOW<br>E. BLM, CDOW, Dolores County |
| 4. Improve sage grouse habitat quality, and improve vegetation cover, especially forbs and grasses in sage grouse areas | A. Develop and use sound grazing management practices<br>B. Plant and/or reseed with a high proportion of forbs<br>C. Design vegetation treatments in sage grouse areas to be compatible with sage grouse needs<br>D. Improve ground cover in sage grouse areas<br>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 big game habitat outside the sage grouse prime habitat<br>F. Integrate weed management with grouse needs (mow after 15 July)<br>G. Vegetation treatments to improve vegetative age class diversity, improve the grass and forb component (may or may not need to seed), and reclaim disturbed areas | A. Ongoing<br>B. Ongoing<br>C. Ongoing<br>D. Ongoing<br>E. Ongoing<br>F. Ongoing<br>G. Ongoing | A. NRCS/BLM/The Partnership<br>B. NRCS/The Partnership<br>C. NRCS/BLM/The Partnership<br>D. NRCS/BLM/The Partnership<br>E. CDOW<br>F. NRCS/BLM/Landowner/County<br>G. NRCS/BLM/The Partnership |

| Action | Examples of How to Accomplish | When | Who |
|---|---|---|---|
| 5. Increase opportunities for improving overwinter 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 | A. Improve quality of sagebrush dominated habitats by using grazing management and vegetation treatment, e.g., mechanical treatment, fertilization<br>B. Avoid treatment projects that remove large stands of sagebrush in critical areas<br>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 | A. Ongoing<br>B. Ongoing<br>C. When determined necessary | A. The Partnership<br>B. The Partnership<br>C. CDOW |
| **E. Reducing Physical Disturbance to Sage Grouse** | | | |
| 1. Mitigate or reduce conflicts with sage grouse during critical biological periods and on critical habitats | A. Noise or physical disturbance 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<br>B. Delay or modify construction start up dates or hours<br>C. Control or limit pets<br>D. Coordinate grazing management to avoid conflicts | A. As identified<br>B. As needed<br>C. Ongoing<br>D. Ongoing | A. The Partnership<br>B. The Partnership<br>C. CDOW/Private landowners<br>D. CDOW/BLM/Private landowners |
| **F. Improving Community Support and Participation** | | | |
| 1. Incorporate economic, social, and cultural values into conservation practices | A. Seek understanding, information sharing and maintaining communications<br>B. Adopt principle of voluntary compliance and participation<br>C. Involve landowners and local communities in all aspects of sage grouse conservation | A. Ongoing<br>B. Ongoing<br>C. Ongoing | A. The Partnership<br>B. The Partnership<br>C. The Partnership |
| 2. Maintain local control | A. Maintain sage grouse Partnership that includes landowners to serve as advisory body<br>B. Continually seek public input and involvement<br>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 | A. Ongoing<br>B. Ongoing<br>C. Ongoing | A. The Partnership<br>B. The Partnership<br>C. The Partnership |
| 3. Develop, improve, and encourage credibility and success | A. Seek outside review of projects<br>B. Involve college and/or universities<br>C. Adapt and change as we go<br>D. Annually the Partnership will prepare and disseminate to the members and others a progress report | A. Ongoing<br>B. Ongoing<br>C. Ongoing<br>D. Annually | A. The Partnership<br>B. The Partnership<br>C. The Partnership<br>D. The Partnership |

## XI. IMPLEMENTATION

Plan implementation will be priority-based starting with those actions the Dove Creek Sage Grouse Partnership believes to be most effective at accomplishing their goal. This group recognizes the need to be opportunistic and carry 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 Dove Creek Sage Grouse 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 on 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 Dove Creek Sage Grouse 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. The public will be invited to attend the annual meeting and copies of the progress report will be available to those interested.

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 toward accomplishing the goals in the plan.

Based on the data available, the BLM and CDOW will schedule a public meeting each year to discuss and distribute results of the previous year's efforts and to plan or adjust future conservation actions.

## XII. MONITORING AND EVALUATION

Monitoring data will be gathered and used to evaluate progress in meeting the goals 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 to include mining and exploration, 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 can be easily accessed by those interested in reviewing the data. Monitoring the response of the Gunnison sage grouse population to conservation actions will be measured by total number of active leks, and total number of males counted in the Dove Creek area. 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.

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.

## XIII. GLOSSARY

Big Sagebrush - As referred to in this plan, includes the following species of sagebrush: *Artemisia tridentata tridentata*- Basin big sagebrush, *A. t. vaseyana* - Mountain big sagebrush. These species are typically tall with a fairly open growth form

Black Sagebrush - *Artemisia nova* This species is typically short with a dense growth form.

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.

Ecological Site - A kind of land which differs from other kinds of land, in its potential natural community and physical site characteristics and thus differs also in its ability to produce vegetation and in its response to management.

Ecological Status - The present state of vegetation and soil protection of an ecological site in relation to the potential natural community (PNC) for the site. The vegetation rating is an expression of the relative degree to which the kinds, proportions and amounts of plants in a community resemble that of the potential natural community. The four ecological status classes

correspond to 0-25, 26-50, 51-75, or 76-100% similarity to the PNC and are called early seral, mid seral, late seral, and PNC, respectively. Soil status is a measure of present vegetation and litter cover relative to the amount of cover needed on the site to prevent accelerated erosion.

Endangered - Immediate threat of extinction. The Gunnison sage grouse is not currently listed as endangered.

Haplotype - A single genetic marker found in blood, tissues, and feathers; usually associated with mitochondrial DNA analysis.

Integrated Weed Management - a strategy using a comprehensive, interdisciplinary approach to weed management. The purpose of integrated weed management (IWM) is to achieve healthy and productive natural and agricultural ecosystems through a balanced program. This program includes, but is not limited to, education, prevention measures, good stewardship, and control methods.

Lek - An area where male sage grouse display or strut 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. At Dove Creek, sage grouse frequently strut in plowed agricultural fields.

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.

Potential Natural Plant Community (PNC) - The biotic community that would become established if all successional sequences were completed without interferences by man under the present environmental conditions. The potential natural plant community of an ecological site is the assumed end point of natural succession for that site in the absence of disturbances and physical site deterioration. It is the plant community that is best adapted to a unique combination of environmental factors and that is in dynamic equilibrium with the environment. Natural disturbances, such as drought, wild fires, grazing by native fauna, and insects are inherent in the development of any natural plant communities.

Strutting Ground -See Lek.

Threatened - Not in immediate danger of extinction but population so small or range so restricted that it may become endangered. The Gunnison sage grouse is not currently listed as threatened.

Uncommon - A term used by bird watchers, in reference to sightings or observations and may be defined as seeing sage grouse or recent sign 20% of the time in the field in suitable habitat, for example one in five days.

## Appendix A: Issue Description

### 1). Vegetative Habitat

#### a). Poor habitat quality and quantity

The major factors that drive sage grouse populations are quality and quantity 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.

Sage grouse require several distinct habitat types during different times of the year, which can be divided as following:

1. Winter
2. Nesting and early brood-rearing (uplands)
3. Late summer (riparian, wet meadow)
4. Escape and hiding cover (needed yearlong)
5. Lek (breeding areas)

The key to sage grouse management is habitat, but in many locations of the Dove Creek area key components of the sagebrush ecosystem are either insufficient or have been altered. Over the years, many factors have had a role in affecting sage grouse habitat, including livestock, agricultural practices, human developments, roads, improper grazing/browsing by wildlife and livestock, and practices by land management agencies. These factors have resulted in increased soil erosion and compaction, and changes in plant community composition, all of which have contributed to decreases in the Gunnison sage grouse population.

#### b). Lack of grasses and forbs

The quality and quantity of residual herbaceous cover have important roles in sage grouse production and survival. Residual herbaceous vegetation (grasses and forbs) in sagebrush areas which provide adequate cover, both horizontal and vertical, is necessary to hide nests and nesting hens, and broods, as well as provide habitat for insects upon which chicks depend. The number and distribution of high quality nesting and early brood-rearing areas appear to be a limiting factor for sage grouse in the Dove Creek area.

#### c). Condition of winter habitat

Winter habitat is most critical to Gunnison 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.

**2). Land Treatments**

Land treatments include such projects as: plowing and seeding, prescribed burning, herbicide, and chaining/cabling. The effects of land treatments on sage grouse populations can be either positive or negative, depending upon location, method, objective of the treatment, and follow-up management. Some historic land treatments conducted in the Dove Creek area have not benefited sage grouse. Effects of poorly designed treatments on sage grouse include reduction of brood carrying capacity of an area, loss of escape cover around leks making birds more vulnerable to predators, elimination of nesting habitat, and loss of winter habitat.

**a). Effects of land treatments on winter habitat**

Some land treatments which attempt to remove sagebrush to increase livestock and/or big game forage in sage grouse wintering areas, can have a detrimental impact on sage grouse. As snow begins to accumulate, sage grouse winter use areas become limited and are restricted to areas that support dense sagebrush stands such as south facing slopes. Removal of sagebrush at those sites would force sage grouse to use other terrain where sagebrush forage could be buried by snow. This would reduce survival due to greater exposure to winter weather, predators, and starvation. As a result, treatment of sagebrush in critical areas has a disproportionate detrimental effect on winter habitat availability.

**b). Poor management of land treatments**

A major problem resulting from historic land treatments in the Dove Creek area involve alteration of plant community structure in each of the sage grouse use types. The increases in alterations combined with a lack of subsequent management needed to maintain the health of plants, resulted in treated areas often being overgrazed and reinvaded with sagebrush with little herbaceous understory, especially forbs and native grasses.

**c). Fire suppression**

Wild fires are natural with effects that vary depending upon size of burned areas and the intensity and severity of the fire. In the past, natural fires were not a problem because they burned relatively small areas and burned areas did not have large numbers of confined grazing animals using them afterwards. For the past several decades, public land management agency policy was to suppress all natural fires. Controlling and preventing fires may have resulted in degraded habitat conditions for sage grouse. Because of the small size of sagebrush patches near Dove Creek, fire should be discouraged and suppressed except where pinon/juniper has invaded sagebrush tracts.

### d). Lack of land treatments

Within the sagebrush habitat, there are many areas near Dove Creek where vegetative components other than sagebrush are needed for sage grouse survival and production. As sagebrush densities increase, about 30% canopy cover of sagebrush may depress production of herbaceous understory species. Sage grouse could benefit from beating of sagebrush in limited areas, and in removal of pinon and juniper. Control of Gambel oak could also benefit sage grouse in some areas.

## 3). Land Planning/Mitigation

### a). Fragmentation

Habitat fragmentation occurs when areas of suitable habitat are fragmented and divided into smaller areas due to such processes as physical destruction or degradation. Any patch of habitat isolated from similar habitat or 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.

### b). Subdivision/Ranchette Development

Demand for second or summer homes in Colorado has increased as has demand for rural residences. Most rural subdivision and ranchette development has occurred when large parcels have been divided and sold in 35 to 90 acre tracts. When these developments have occurred within sage grouse range, they have caused habitat fragmentation, habitat degradation, and habitat loss. Sage grouse tend to avoid areas within 1/3-1/2 mile of permanently occupied dwellings.

### c). Changes in land uses

Sage grouse require habitats dominated by sagebrush from October through April. During May through September they prefer habitats with abundant forbs (food) and grasses (cover plus habitat for insects used as food) with some live sagebrush or adjacent to live sagebrush which is used as escape cover. Removal of sagebrush cover to benefit livestock grazing and development of agricultural production areas has changed sage grouse use patterns (in some cases positively or negatively) in the Dove Creek area.

## 4). Utilities

### a). Powerlines

The effects of powerlines 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 powerline poles. Further, counts of sage grouse pellets near powerlines decrease as distance to powerlines decrease up to one-half mile. Thus, a strip about one-half mile on each side of powerlines is generally avoided by sage grouse. These observations are supported by measurement of distances to powerlines of radio-marked sage grouse throughout sage grouse habitats in Colorado. Clearly, sage grouse avoid powerlines when possible.

### b). Pipelines

Development of pipelines is becoming more common in sage grouse habitats. Pipeline development (construction) can be negative if not properly managed to avoid adverse effects to breeding (Mar-mid May), nesting (mid Apr-early Jul), and early brood rearing (mid May-mid Jul). However, reseeding of 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 (<100 yards) and roads/trails used during construction are closed and reseeded after completion of the pipeline construction interval.

### c). Roads

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.

### d). 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.

### 5). Poor Nest and Brood Survival

Poor nest and brood survival has been attributed to the lack of herbaceous understory within the sagebrush community. This lack of herbaceous cover in sagebrush stands also negatively affects the survival of young sage grouse and nests. Since grouse initiate nesting prior to spring herbaceous vegetation growth, it is important that sufficient herbaceous residue remains from the previous year. Such residual cover is lacking in several areas near Dove Creek. Further, sagebrush patches suitable for nesting are limited at Dove Creek in both number and size. This has the potential to greatly affect nest success by concentrating the birds into smaller areas where they are more susceptible to predation.

### 6). Timing, Intensity, and Duration of Livestock/Big Game Grazing

Livestock grazing, timing, and intensity can affect sage grouse nesting and brood rearing success. Livestock/big game grazing during the early spring and summer in some areas can compete directly with sage grouse for food and cover. Historic livestock and big game use patterns and season of use have contributed to the present conditions. Currently, livestock use on public and private ranges corresponds to seasonal limitations of the ranges, such as: forage and water availability and snow depth.

The historic intensity of use combined with existing timing and duration has had a negative impact on the quality and quantity of nesting and brood rearing habitats in some areas, particularly riparian areas. Grazing of riparian areas can be useful for providing forb regrowth. Some grazing use on uplands does not allow the understory to recover to its full potential in some locations. Topography and water availability also have key roles in the distribution of grazing and resulting levels of use.

The distribution and overbrowsing by deer and elk on big game winter ranges has had significant effects on important forage shrubs and associated plant communities. Browsing of forage shrubs on winter range by elk generally occurs during winters of heavy snowfall. In some areas, desirable shrubs are currently much smaller in canopy and height than what is desired and possible. The impact to sage grouse includes not only a reduction in areas that have nesting cover but also reduction in areas with herbaceous species that provide food and cover for broods. In terms of grazing, big game species are not as easily controlled as livestock.

**7). Drought**

Sage grouse production is indirectly affected by drought. While sage grouse are not limited by free standing water in most cases, they are limited by the vegetative growth and insects lost during drought conditions. In the Dove Creek area, both nesting success of females and brood survival decline severely during years with low soil moisture as calculated by the Palmer Drought Index. This effect is probably compounded if land management practices remain unchanged during years with low soil moisture. However, drought does not appear to impact lek attendance of males.

**8). Predation**

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 populations. Eagles and hawks can be effective predators on sage grouse and some feel that eagle predation is increasing. A difficult issue faces government agencies in trying to manage for golden and bald eagles (Federally protected) and managing for the Gunnison sage grouse, which they are trying to protect. The quality and quantity of grasses and forbs and other vegetation cover may influence the effects of predation. Predation is reduced when there is sufficient herbaceous vegetation to conceal nests.

9). **Scientific Lek Harassment** (i.e., Physical Disturbance Resulting From Scientific Studies).

Research on sage grouse frequently 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. Radio marking of sage grouse may inadvertently result in higher mortality rates, and will only be used when needed in specific studies. The least intrusive method of marking will be used in scientific studies.

**10). 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. Farming practices on presently cultivated land are generally tolerated by sage grouse. However, mowing of fields has the potential to cause direct mortality of sage grouse, and timing of mowing should be after mid-July. Mowing of fields should be rotated so that large contiguous areas are not mowed in the same year.

### 11). Recognition of Private Landowners Rights

Private landowners are integral to the private/public effort to manage habitats to maintain and enhance the Gunnison sage grouse population that occurs in the Dove Creek area. Private lands are frequently those that were homesteaded because they had better water, better herbaceous vegetation and generally, were most productive, thus, making private lands important for sage grouse. Most private landowners encourage wildlife and mitigate possible impact of their management actions as long as wildlife does not have negative impacts to their operations. While in Colorado (and the United States), wildlife remains the property of the state, wildlife exists on private lands largely because of the desires of individual landowners. It is recognized that private landowners are important as to the kind and number of wildlife on their private lands. Timely and consistent communication among government agencies and private landowners will be a major priority of this Plan.

### 12). Monitoring

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. Monitoring of 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 response to vegetation treatments, will continue on public lands.

### 13). Crop Land Retirement

Agricultural land in Dolores County has voluntarily been retired from production for periods as long as 10 years dating from the early 1960's (Soil Bank) to the present (Conservation Reserve

Program) through federal farm bill programs. In 1997, the Colorado Division of Wildlife identified Dolores County as a Conservation Priority Area based on the greatly reduced distribution and abundance of Gunnison sage grouse. Approximately 30,000+ acres were enrolled into the Conservation Reserve Program (CRP) in Dolores County in 1997-98. This has reduced agricultural commodity production (primarily wheat and beans) and may affect income to specific farm service suppliers. These federal programs have stabilized income to farmers enrolled in CRP and have improved habitats for wildlife, including Gunnison sage grouse.

### 14). Incentives

Recent programs (State and Federal) have specifically been designed to improve habitat for Gunnison sage grouse. These programs are voluntary but landowners are encouraged to participate. Financial incentives are available to landowners to participate in Federal and State conservation programs designed to reduce erosion, maintain wildlife habitat, preserve water quality, reduce crop surpluses, and stabilize farm income.

### 15). Wildlife Impacts

Wildlife are a product of the land and, while dependent upon both private and public lands for survival, belong to the people of Colorado. That is, they are not privately owned except in certain defined situations. Sage grouse and other wildlife do not recognize land boundaries and may forage on agricultural crops on private land. In these situations, they may reduce the amount or value of the agricultural crop. Elk and mule deer are managed under herd objectives for specific data analysis units (groups of several game management units). The State provides damage control materials and, in certain instances, financial reimbursement for demonstrable losses to private property from big game animals. The State's preference is to manage herd objectives to keep damage to low levels on private lands. It is possible that big game herd objectives may conflict with sage grouse population goals. This possibility is presently exceedingly low in Dolores County. By Statute, the State does not provide reimbursement for agricultural crop loss due to sage grouse. However, if this loss can be identified when sage grouse populations increase, incentives may be used to increase landowner acceptance of sage grouse numbers that meet the population goals of this Conservation Plan.

### 16) Poaching

Poaching is the intentional harvest of sage grouse outside of established seasons; it includes intentional harvest of more than the established bag/possession limit during legal hunting seasons. Intentional harvest of sage grouse outside of established seasons has occurred in all months in Colorado but most commonly occurs during big game seasons (October-November) and in winter when flocks of sage grouse may be more visible. It has also been documented in the spring during the display period. No particular age or sex class is more susceptible than another to poaching.

## 17) Unintentional Agricultural Losses

Agricultural practices have the potential to enhance (by providing high quality seasonal food and habitat) or detrimentally impact sage grouse populations. Detrimental practices may be those that increase field size (eliminating native cover), result in loss of nests or young broods (timing of mowing and plowing activities), or reduce overall habitat security (grazing, cultivation, trail maintenance, etc.). Some unintentional losses of sage grouse due to agricultural practices can be minimized by slight alterations in timing of cultivation/grazing/farm maintenance practices. For example, cultivation and mowing of agricultural fields used by sage grouse could be discouraged in the 15 April-15 July period to benefit nesting sage grouse hens and their subsequent young (<2 months of age) chicks.

## Appendix B: List of Participants

Jack Acree
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Newton Birge
Clait Braun
Teresa Chavez
Gary Crowley
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Joe Duran
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Doug Funk
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George Fury
John Fury, Jr.
Robert Fury
Sally Fury
Leroy Gore
Eric Guynes
Dave Harper
John Humphreys
Terry Ireland
Jack Knuckles
John Lestina
Richard Marsh
Cory Perkins
Douglas Perkins
Raymond Perkins
Wayne Perkins
Monie Pribble
Ron Pribble
Richard Redshaw
Robin Rice
Becky Rumsey
Barbara Smith
Ron Steele
Ogrita Vinger
Scott Wait
Wayne Werkmeister
Paul White
Bert Wood
Beverly Wood
Bob Woyedwodzic
Mike Zgainer

## Appendix C: Additional Reading Material


Autenrieth, R.E. 1981. Sage grouse management in Idaho. Idaho Dep. Fish and Game, Wildl. Bull. 9. 238 pp.

Braun, C.E. 1995. Distribution and status of sage grouse in Colorado. Prairie Nat. 27:1-9.

Braun, C.E. 1998. Sage grouse declines in western North America: what are the problems? Proc. Western Assoc. State Fish and Wildl. Agencies 78:In Press.

Braun, C.E., and T.D.I. Beck. 1985. Effects of changes in hunting regulations on sage grouse harvest and populations. Pages 335-343 *in* S.L. Beason and S.F. Robertson, eds., Proc. 3rd Game Harvest Symp.Kingsville, TX.

Braun, C.E., and T.D.I. Beck. 1996. Effects of research on sage grouse management. Trans. North Am. Wildl. and Nat. Resour. Conf. 61:429-436.

Braun, C.E., T. Britt, and R. O. Wallestad. 1977. Guidelines for maintenance of sage grouse habitat. Wildl. Soc. Bul. 5:99-106.

Commons, M. L. 1997. Movement and habitat use by Gunnison sage grouse (Centrocercus minimus) in southwestern Colorado. M.S. thesis, Univ. Manitoba, Winnipeg. 108 pp.

Dunn, P.O., and C.E. Braun. 1986. Late summer-spring movements of juvenile sage grouse. Wilson Bull. 98:83-92.

Franklin, I.R. 1980. Evolutionary changes in small populations. Pages 135-140 in M.E. Soule and B.A. Wilcox, editors. Conservation Biology: an evolutionary-ecological perspective. Sinauer Associates, Sunderland, Mass.

Hays, D., M.Tirhi, and D. Stinson. 1998. Washington State status report for the sage grouse. Washington Dep. Fish and Wildl. Olympia. 62pp.

Hupp, J.W., and C.E. Braun. 1989. Topographic distribution of sage grouse foraging in winter. J. Wildl. Manage. 53:823-829.

Hupp, J.W., and C.E. Braun. 1991. Geographic variation among sage grouse in Colorado. Wilson Bull. 103:255-261.

Rogers, G.E. 1964. Sage grouse investigations in Colorado. Colorado Dep. Game, Fish and Parks, Tech. Publ. 16. 132pp

Soule, M.E. 1980. Thresholds for survival: maintaining fitness and evolutionary potential. Pages

151-170 in M.E. Soule and B.A. Wilcox, editors. Conservation Biology: an evolutionary-ecological perspective. Sinauer Associates, Sunderland, Mass.

Willis, M.J., G.P. Keister, Jr., D.A. Immell, D.M. Jones, R.M. Powell, and K.R. Durbin. 1993. Sage grouse in Oregon. Oregon Dep. Fish and Wildl., Wildl. Res. Rep. 15. 56pp.

Young, J.R. 1994. The influence of sexual selection of phenotypic and genetic divergence among sage grouse populations. Ph.D. diss., Purdue Univ., West Lafayette, Indiana. 123pp.

Young, J.R., J.W. Hupp, J.W. Bradbury, and C.E. Braun. 1994. Phenotypic divergence of secondary sexual traits among sage grouse, Centrocercus urophasianus, populations. Anim. Behav. 47:1353-1362.

## Appendix D: Male Sage Grouse Counts

High counts of male sage grouse, Dove Creek area, Dolores County, Colorado

| Lek | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|---|
| Alfalfa | 11 | 25 | 17 | 14 | 6 | 3 |
| Panoramic View | NL | 5 | 0 | 0 | 0 | 0 |
| Phantom | NL | 6 | 0 | 0 | 0 | 0 |
| Sage* | 32 | 15 | 9 | 8 | 6 | 2 |
| Sage Southeast* | NL | NL | NL | NL | NL | 13 |
| Section 18 | NL | NL | NL | NL | 5 | 3 |
| Wheatfield | NL | 22 | 22 | 12 | 10 | 6 |
| TOTALS | 43 | 73 | 48 | 34 | 27 | 27 |

NL= not located yet
*=Counts at these leks must be made on the same day due to movement of grouse

## Appendix E: Determination of Endangered and Threatened Species

The U.S. Fish and Wildlife Service uses five factors to determine whether any species is endangered or threatened. These are:

1). The present or threatened destruction, modification, or curtailment of its habitat or range.

The range of the Gunnison sage grouse in the Dove Creek area has been greatly reduced in size and quality through habitat loss caused by plowing, spraying, road construction, and power lines; habitat fragmentation and habitat degradation caused by the same factors, as well as inappropriate livestock management. Total range reduction is estimated at greater than 70%. Action recommended in this plan that address these threats include: payment for non-use, changes in seed mixtures for Conservation Reserve Program enrolled lands, payment for changes in land use or timing/intensity of grazing, and relocation or modification of new utility lines, roads, and developments in key grouse areas.

2). Overutilization for commercial, recreational, scientific, or educational purposes.

No overuse of Gunnison sage grouse in the Dove Creek area is apparent as hunting has not been permitted for >20 years, there is no commercial or recreational use, and scientific study (banding, radiomarking) only affected 20-30 birds in 1995-97, and most of those birds survived the handling. Educational field trips may occur but are not likely to cause disturbance to the sage grouse if proper viewing protocols are followed.

3) Disease or predation.

No disease/parasite problems have been identified in Gunnison sage grouse in the Dove Creek area. Predation is a natural event and about 50% of the total population disappears (dies) each year. Major identified predators of adults includes eagles (golden primarily), bobcats, and coyotes. Most loss of potential productivity is through nest failure caused by ground predators, such as ground squirrels, badgers, etc. Some accidental loss due to livestock management has been documented. The action recommended in this plan that addresses predation is to manage predators in key areas by existing and legal methods.

4). The inadequacy of existing regulatory mechanisms.

Members of the Dove Creek Sage Grouse Partnership are committed to improving conditions for sage grouse in the Dove Creek 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 Division of the Colorado Department of Natural Resources, has responsibility for the management and conservation of wildlife resources. The Division also has enforcement authority for poaching and harassment.

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

land.

The USDA Natural Resources Conservation Service (NRCS) 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 two 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 Department will encourage partners and stake holders to take a leadership role in working with the State and 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 was written. This list specifically mentioned declining populations of sage grouse.

5). Other natural or man made factors affecting its continued existence.

Fire suppression is a man-made threat leading to changes in habitat through invasion of pinyon-juniper and allowing sagebrush habitat types to become decadent. Other man-made factors that affect sage grouse include continuous noise that impairs the accoustical components of males on the lek; disturbance from construction or other projects; harassment from pets; and disturbance, death, or habitat degradation from use of Off Highway Vehicles (OHV's). Actions recommended in this plan that address these threats include: fire or other habitat management may be prescribed for areas in the Dove Creek sage grouse population area to remove invasive trees and restore native plants and vitality to the sagebrush habitats used by sage grouse; noise ordinance or restrictions during critical periods near leks, delay or modify construction startup dates, control or limit pets, designate OHV use areas and manage travel in key sage grouse areas.

## Appendix F: Signature Page

By signing below, the following parties have agreed to implement the Dove Creek Sage Grouse Plan to the best of their organizational ability.

Mike Zgainer, Area Wildlife Manager
Colorado Department of Natural Resources
Colorado Division of Wildlife
12-9-98
Date

Cal Joyner, Field Office Manager
USDI, Bureau of Land Management
1/22/99
Date

Leroy Gore
Board of Dolores County Commissioners
12-9-98
Date

LeRoy Carlson, Colorado Field Supervisor
USDI, Fish and Wildlife Service
12-9-98
Date

John Lestina
USDA, Natural Resources Conservation Service
12-28-98
Date

Dan Fernandez
Colorado State University Cooperative Extension Service
12/9/98
Date

Members of the Public
12-09-98
Date

Raymond Perkins — 12-9-98
Members of the Public — Date

[illegible] — 12-9-98
Members of the Public — Date

Sarah + George Fury — 12-9-98
Members of the Public — Date

Mack + Ada Dickson — 12-9-98
Members of the Public — Date

Albert J. Fury — 12-9-98
Members of the Public — Date

John E. Fury Jr. — 12-9-98
Members of the Public — Date

Members of the Public — Date

Members of the Public — Date

Members of the Public — Date

Members of the Public — Date

Members of the Public — Date