

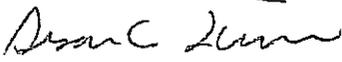


FISH AND WILDLIFE SERVICE  
Ecological Services  
Colorado Field Office  
P.O. Box 25486, DFC (65412)  
Denver, Colorado 80225-0486

IN REPLY REFER TO:  
ES/CO: GUSG CCAA Conference Opinion  
65412-LKWD

Memorandum

To: Assistant Regional Director, Fisheries and Ecological Services, Region 6

From: Field Supervisor, Ecological Services, Lakewood, Colorado 

Subject: Conference Opinion - Application for an Enhancement of Survival Permit Associated with an Umbrella Candidate Conservation Agreement with Assurances for the Gunnison sage-grouse (*Centrocercus minimus*) in the State of Colorado

This document transmits the Fish and Wildlife Service's Conference Opinion based on our review of the application for a Enhancement of Survival Permit (Permit) associated with an Umbrella Candidate Conservation Agreement with Assurances (CCAA) between the Colorado Division of Wildlife (CDOW) and the Fish and Wildlife Service for Gunnison sage-grouse (GUSG) habitat management in Colorado, in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA). The Service received the Permit application and draft CCAA on May 5, 2005. The Permit application, CCAA, and a Draft Environmental Assessment (DEA) were made available for public comment for 60 days on July 6, 2005.

An intra-Service biological evaluation was completed to evaluate effects of the proposed action on federally listed and candidate species. The biological evaluation concluded that the proposed action may affect, and is likely to adversely affect GUSG; may affect but is not likely to adversely affect the bald eagle (*Haliaeetus leucocephalus*), Mexican spotted owl (*Strix occidentalis lucida*), southwestern willow flycatcher (*Empidonax traillii extimus*), black-footed ferret (*Mustela nigripes*), and Canada lynx (*Lynx Canadensis*); will have no effect on the bonytail (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), razorback sucker (*Xyrauchen texanus*), *Eriogonum pelinophilum* (clay-loving wild-buckwheat), and *Sclerocactus glaucus* (Uinta Basin hookless cactus); and is not likely to jeopardize another candidate species, the yellow-billed cuckoo (*Coccyzus americanus*).

This conference opinion is based on information contained in the CCAA, the DEA, the intra-Service biological evaluation, the Gunnison Sage-grouse Rangewide Conservation Plan (RCP) (Gunnison Sage-grouse Rangewide Steering Committee (GSRSC) 2005), information contained in scientific literature, and other sources of information. A complete administrative record of this consultation is on file in the Service's Western Colorado Office, Grand Junction, Colorado.

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is issuance of an Permit under section 10(a)(1)(A) of the ESA to the CDOW to administer and implement an Umbrella CCAA for GUSG in Colorado. Conservation of the GUSG will require measures including habitat protection, maintenance, enhancement and/or restoration. However, there is concern over management of GUSG habitat and populations on non-Federal lands because of the potential for the imposition of restrictions on agricultural operations, or other actions, should the GUSG be listed as threatened or endangered under the ESA. To help alleviate this concern, as well as generate support from private landowners, CDOW is seeking a CCAA, for habitat management and other activities on private and other non-Federal lands. Under the Umbrella CCAA, the CDOW would issue Certificates of Inclusion (CIs) to non-Federal landowners who allow conservation measures for the GUSG.

The lands covered by the CCAA include lands in southwestern Colorado categorized as “occupied,” “vacant/unknown,” and “potentially suitable” for GUSG. Definitions and maps can be found in the CCAA or RCP (GSRSC 2005). Should additional information prove that lands in Garfield, Eagle, and Pitkin counties are within the historic range of the GUSG, and fall within one of the three categories of land covered by the CCAA, coverage under the CCAA will be extended to participating landowners in those counties.

The lands covered by the CCAA and Permit will be those lands enrolled through completion of a signed CI. The actual number of participating landowners is not known but as of the date of this conference opinion 72 landowners with approximately 102,000 acres of land have expressed interest to the CDOW to sign up under the CCAA. The CCAA will be issued for a term of 20 years.

The Permit would authorize incidental take of GUSG for the following activities that are performed in accordance with applicable local, State and Federal laws: agricultural operations (e.g., crop, hay, and livestock production and farm equipment operation); recreational activities (e.g., hunting of other species, fishing, dog training, camping, hiking, and off-highway vehicle [OHV] use), and limited construction (e.g., limited housing development, roads, utility corridors, limited energy development, etc.) and temporary impacts from GUSG habitat improvement projects.

## STATUS OF THE SPECIES

Based on the best scientific and commercial information available, we have determined that no federally listed or candidate species, other than the GUSG, will be adversely affected by the proposed action.

### A. Species Description

The sage-grouse (*Centrocercus* spp.) is the largest grouse in North America and was first described by Lewis and Clark in 1805 (Schroeder et al. 1999). Sage-grouse are most easily identified by their large size, dark brown color, distinctive black bellies, long, pointed tails and association with sagebrush habitats. They are dimorphic in size, with females being smaller. Both sexes have yellow-green eye combs, which are less prominent in females. Sage-grouse are known for their elaborate mating ritual where males congregate on strutting grounds called leks and “dance” to attract a mate. During the breeding season males have conspicuous filoplumes (specialized erectile feathers on the neck), and exhibit yellow-green apteria (fleshy bare patches of skin) on their breasts (Schroeder et al. 1999).

For many years sage-grouse were considered a single species. Young et al. (2000) identified GUSG as a distinct species based on morphological (Hupp and Braun 1991; Young et al. 2000), genetic (Kahn et al. 1999; Oyler-McCance et al. 1999), and behavioral (Barber 1991; Young 1994; Young et al. 2000) differences and geographical isolation. The GUSG are smaller than greater sage-grouse (*C. urophasianus*), weighing approximately 1/3 less (Hupp and Braun 1991; Young et al. 2000). Their filoplumes (specialized feathers on the neck) are longer and give the appearance of a “ponytail” during the courtship display, unlike the filoplumes on greater sage-grouse. The GUSG retrices (tail feathers) have distinctive barring, unlike the mottled pattern on greater sage-grouse retrices (Young et al. 2000). The GUSG mating displays are slower than greater sage-grouse (Young et al. 2000). Mating calls also are distinct. The GUSG “pop” their apteria nine times instead of twice like greater sage-grouse (Young et al. 2000). Young (1994) found that female GUSG avoided playbacks of male greater sage-grouse mating calls. She concluded that differences in courtship vocalizations were likely a barrier to mating between Gunnison and greater sage-grouse. The DNA sequence information from mitochondrial and nuclear genomes indicate there is no gene flow between Gunnison and greater sage-grouse (Oyler-McCance et al. 1999; Young et al. 2000). Based on these morphologic, behavioral, and genetic differences the American Ornithologist’s Union (2000) accepted the GUSG as a distinct species. The current ranges of the two species are not overlapping (Schroeder et al. 2004).

### B. Life History

In the spring, sage-grouse gather on traditional breeding areas referred to as leks (Patterson 1952). Lek displaying occurs from mid-March through late May, depending on elevation (Rogers 1964). For GUSG, 87 percent of all nests were located less than 6 kilometers (km) (4 miles (mi)) from the lek of capture (Apa 2004). Mean clutch size

for GUSG is  $6.8 \pm 0.7$  eggs (Young 1994). Most eggs hatch in June, with a peak between June 10 and June 20. Renesting rates following the loss of the original nest appear very low in GUSG, with one study reporting 4.8 percent (Young 1994).

During the pre-egg laying period, female sage-grouse select forbs that are generally higher in calcium and crude protein than sagebrush (Barnett and Crawford 1994). Females with chicks move to areas containing succulent forbs and insects, often in wet meadow habitat, where cover is sufficiently tall to conceal broods and provide shade. Forbs dominate the summer diet of adult grouse, and sagebrush leaves are used the rest of the year (Leach and Hensley 1954; Wallestad 1975).

Chicks are precocial and leave the nest with the hen shortly after hatching. The availability of food and cover are key factors that affect chick and juvenile survival. During the first 3 weeks after hatching, insects are the primary food of greater (and presumably Gunnison) sage-grouse chicks (Patterson 1952; Klebenow and Gray 1968; Peterson 1970; Johnson and Boyce 1990, 1991; Drut et al. 1994b; Pyle and Crawford 1996; Fischer et al. 1996b). Diets of 4- to 8-week old greater sage-grouse chicks were found to have more plant material (approximately 70 percent of the diet, of which 15 percent was sagebrush) (Peterson 1970). Succulent forbs are predominant in the diet until chicks exceed 3 months of age, at which time sagebrush becomes a major dietary component (Klebenow 1969; Connelly and Markham 1983; Connelly et al. 1988; Fischer et al. 1996).

During late summer and early fall, intermixing of broods and flocks of adult birds is common and the birds move from riparian areas to sagebrush-dominated landscapes that continue to provide green forbs. From late autumn through early spring the diet of greater and GUSG is almost exclusively sagebrush (Rasmussen and Griner 1938; Batterson and Morse 1948; Patterson 1952; Leach and Hensley 1954; Barber 1968; Wallestad et al. 1975; Young et al. 2000). Many species of sagebrush can be consumed (Remington and Braun 1985; Welch et al. 1988, 1991; Myers 1992). Flock size in winter is variable (15 to 100+), and flocks frequently consist of a single sex (Beck 1977; Hupp 1987). During particularly severe winters sage-grouse are dependent on tall sagebrush, which is exposed even above deep snow, providing a consistently available food source. In response to severe winters, GUSG have been documented moving as far as 27 km (17 mi) (Root 2002). The extent of movement varies with severity of winter weather, topography, and vegetation cover. Sage-grouse may travel short distances or many miles between seasonal ranges. Movements in fall and early winter (September-December) exceed 3 km (2 mi).

The GUSG survival from April 2002-March 2003 was 48 ( $\pm 7$ ) percent for males and 57 ( $\pm 7$ ) percent for females (Apa 2004). Higher survival rate of female sage-grouse may be due to sexual dimorphism (Schroeder et al. 1999). The GUSG female survival in small isolated populations was 52 ( $\pm 8$ ) percent, compared to 71 ( $\pm 11$ ) percent survival in the Gunnison Basin, the only population with greater than 500 individuals (Apa 2004). Other factors impacting survival rates include year and age (Zablan 1993).

### C. Habitat Use

Sage-grouse are sagebrush obligates (Patterson 1952; Braun et al. 1977; Connelly et al. 2000). They depend on a variety of shrub-steppe habitats throughout their life cycle and are considered obligate users of several species of sagebrush (Patterson 1952; Braun et al. 1976; Schroeder et al. 1999; Connelly et al. 2000; Connelly et al. 2004). Sagebrush serves as a primary food for adults year-round (Wallestad et al. 1975) and also provides cover for nests (Connelly et al. 2000). Sage-grouse move between seasonal ranges based on suitable habitat availability. Connelly et al. (2000) segregated habitat requirements into four seasons--(1) breeding; (2) summer - late brood-rearing; (3) fall; and (4) winter. Depending on habitat availability and proximity, some seasonal habitats may be indistinguishable.

Breeding habitat includes leks, pre-laying, nesting, and early brood-rearing areas. Male GUSG attend leks from mid-March to mid-May, which are typically in the same location from year to year. Some GUSG leks have been used since the 1950s (Rogers 1964). Leks are usually flat to gently sloping areas of less than 15 percent grade in broad valleys or on ridges (Hanna 1936; Patterson 1952; Giezentanner and Clark 1974; Wallestad 1975; Autenrieth 1981; Klott and Lindzey 1989). Leks have good visibility and low vegetation structure (Tate et al. 1979; Connelly et al. 1981; Gates 1985), and acoustical qualities that allow sounds of breeding displays to carry (Patterson 1952; Wiley 1973, 1974; Bergerud 1988; Phillips 1990). Leks are often surrounded by denser shrub-steppe cover, which is used for escape, thermal, and feeding cover.

Leks can be formed opportunistically at any appropriate site within or adjacent to nesting habitat (Connelly et al. 2000) and, therefore, lek habitat availability is not considered to be a limiting factor for sage-grouse (Schroeder 1997). A relatively small number of dominant males accounts for the majority of breeding on each lek (Schroeder et al. 1999).

The pre-laying period is from late-March to April. Although little is known about pre-laying habitat for GUSG, pre-laying habitats for greater sage-grouse need to provide a diversity of vegetation including forbs that are rich in calcium, phosphorous, and protein to meet the nutritional needs of females during the egg development period (Barnett and Crawford 1994; Connelly et al. 2000).

Nesting occurs from mid-April to June. The GUSG typically select nest sites under sagebrush cover with some forb and grass cover (Young 1994), and successful nests were found in higher shrub density and greater forb and grass cover than unsuccessful nests (Young 1994). The sagebrush understory of productive sage-grouse nesting areas contains native grasses and forbs, with horizontal and vertical structural diversity that provides an insect prey base, herbaceous forage for pre-laying and nesting hens, and cover for the hen while she is incubating (Schroeder et al. 1999; Connelly et al. 2000; Connelly et al. 2004). Shrub canopy and grass cover provide concealment for sage-grouse nests and young, and are critical for reproductive success (Barnett and Crawford 1994; Gregg et al. 1994; DeLong et al. 1995; Connelly et al. 2004). Few herbaceous plants are growing in April when nesting begins, so residual herbaceous cover from the previous growing season is critical for nest concealment in most areas (Connelly et al. 2000).

Female sage-grouse have been documented to travel more than 20 km (13 mi) to their nest site after mating (Connelly et al. 2000). Young (1994) found that radio-tracked GUSG nested an average of 4.3 km (2.7 mi) from the lek nearest their capture site, with almost half nesting with 3 km (2 mi) of their capture site. While earlier studies indicated that most greater sage-grouse hens nest within 3 km (2 mi) of a lek, more recent research indicated that many hens actually move much further from leks to nest based on nesting habitat quality (Connelly et al. 2004). Female Gunnison and greater sage-grouse exhibit fidelity to nesting locations (Connelly et al. 1988; Young 1994; Connelly et al. 2004). The degree of fidelity to a specific nesting area appears to diminish if the female's first nest attempt in that area was unsuccessful (Young 1994; Connelly et al. 2004). However, there is no statistical indication that movement to new nesting areas results in increased nesting success (Connelly et al. 2004).

Early brood-rearing habitat is found close to nest sites (Connelly et al. 2000), although individual females with broods may move large distances (Connelly 1982; as cited in Connelly et al. 2000). Young (1994) found that GUSG with broods used areas with lower slopes than nesting areas, high grass and forb cover, and relatively low sagebrush cover and density. Broods frequently used hay meadows, but were often flushed from interfaces of wet meadows and habitats providing more cover, such as sagebrush or willow-alder (*Salix-Alnus*). Forbs and insects are essential nutritional components for sage-grouse chicks (Klebenow and Gray 1968; Johnson and Boyce 1991; Connelly et al. 2004). Therefore, early brood-rearing habitat must provide adequate cover adjacent to areas rich in forbs and insects to assure chick survival during this period (Connelly et al. 2004).

As fall approaches sage-grouse move from riparian to upland areas and start to shift to a winter diet (GSRSC 2005). By late summer and into the early fall, individuals become more social, and flocks are more concentrated (Patterson 1952). This is the period when GUSG can be observed in atypical habitat such as agricultural fields (Commons 1997). However, radio-tracking studies in the Gunnison Basin have found that broods typically do not use hay meadows further away than 50 meters (m) (165 feet [ft]) of the edge of sagebrush stands (Gunnison Basin Conservation Plan 1997).

Movements to winter ranges are slow and meandering. Sagebrush stand selection in winter is influenced by snow depth (Patterson 1952; Connelly 1982 as cited in Connelly et al. 2000) and in some areas, topography (Beck 1977; Crawford et al. 2004). Winter areas are typically characterized by canopy cover greater than 25 percent and sagebrush greater than 30-41 cm (12-16 in.) tall (Shoenberg 1982) associated with drainages, ridges, or southwest aspects with slopes less than 15 percent (Wallestad 1975; Beck 1977). Lower flat areas and shorter sagebrush along ridge tops provide roosting areas. In extreme winter conditions, greater sage-grouse will spend nights and portions of the day burrowed into "snow roosts" (Back et al. 1987).

Hupp and Braun (1989) found that most GUSG feeding activity in the winter occurred in drainages and on slopes with south or west aspects in the Gunnison Basin. During a severe winter in the Gunnison Basin in 1984, less than 10 percent of the sagebrush was exposed above the snow and available to sage-grouse. In these conditions, the tall and vigorous sagebrush typical in drainages was an especially important food source.

#### D. Status and Distribution

Based on historical records, museum specimens, and potential sage-grouse habitat, Schroeder et al. (2004) concluded that GUSG historically occurred in southwestern Colorado, northwestern New Mexico, northeastern Arizona, and southeastern Utah. Accounts of GUSG in Kansas and Oklahoma, as suggested by Young et al. (2000), are not supported with museum specimens and Schroeder et al. (2004) did not consider those two States within the historic range of GUSG. The GUSG historical (presettlement) range is estimated to have been 55,350 square kilometers (km<sup>2</sup>) (21,370 square miles [mi<sup>2</sup>]) (GSRSC 2005).

The GUSG currently occur in seven widely scattered and isolated populations in Colorado and Utah, occupying 4,720 km<sup>2</sup> (1,820 mi<sup>2</sup>) (GSRSC 2005) (Figure 1). In order from largest to smallest, the seven populations are Gunnison Basin, San Miguel Basin, Monticello-Dove Creek, Piñon Mesa, Crawford, Cerro Summit-Cimarron-Sims Mesa, and Poncha Pass.

Gunnison Basin Population - The Gunnison Basin is an intermontane basin that includes parts of Gunnison and Saguache Counties, Colorado. The current Gunnison Basin population is distributed across approximately 240,000 hectares (ha) (593,000 acres [ac]), roughly centered on the town of Gunnison. Elevations in the area range from 2,300-2,900 m (7,500-9,500 ft). Big sagebrush (*Artemisia tridentata*) dominates the upland vegetation and has a highly variable growth form depending on local site conditions. Approximately 51 percent of the occupied sage-grouse range in Gunnison Basin is managed by the Bureau of Land Management (BLM), 14 percent by the U.S. Forest Service (USFS), 2 percent by the National Park Service, 1 percent by CDOW, 1 percent by the Colorado State Land Board, and 31 percent is privately owned (GSRSC 2005).

Up to 84 leks have been surveyed annually for breeding activity in the Gunnison Basin (CDOW, unpubl. lit. 2005a). Approximately 37 percent of these leks occur on private land and 63 percent on public land, primarily BLM (GSRSC 2005). In 2005, 44 of these leks were active, 38 inactive, and 2 are of unknown status. The 2005 Gunnison Basin sage-grouse population estimate is 4,763 (CDOW, unpubl. lit. 2005a), up from 2,443 the previous year (GSRSC 2005), but there is concern that the 2005 estimate may be high (Garton 2005). Rogers (1964) stated that Gunnison County had one of the largest sage-grouse populations in Colorado. Historically, GUSG likely occurred in all suitable sagebrush habitats in the Gunnison Basin (GSRSC 2005). The historic range has contracted 15-20 percent at its periphery.

San Miguel Basin Population - The San Miguel Basin population is in Montrose and San Miguel Counties in Colorado, and is composed of six groups using different areas—Dry Creek Basin, Hamilton Mesa, Miramonte Reservoir, Gurley Reservoir, Beaver Mesa, and Iron Springs. Some of these six areas are used year-round by sage-grouse, and others are used seasonally. Recent radio-telemetry studies have suggested that sage-grouse in the San Miguel Basin move widely and between these areas (Apa 2004; Stiver, unpubl. lit. 2005).

The area in the Dry Creek Basin occupied by GUSG is approximately 24,800 ha (61,300 ac) (GSRSC 2005). Sagebrush habitat in this area is patchily distributed and the understory is either lacking in grass and forb diversity (i.e., less than three species per acre), or nonexistent. Where irrigation is possible, private lands in the southeast portion of Dry Creek Basin are cultivated. Sagebrush habitat on private land has often been heavily thinned, or removed entirely. The Dry Creek area is managed by BLM (57 percent), CDOW (12 percent), Colorado State Land Board (1 percent), and 30 percent is privately owned (GSRSC 2005). Occupied habitat on Hamilton Mesa is approximately 1,900 ha (4,800 ac). The GUSG use this area in the summer, but use during other seasons is unknown. Hamilton Mesa is primarily in private ownership (85 percent), with limited Colorado State Land Board (11 percent) and BLM (4 percent) managed property. Miramonte Reservoir occupied sage-grouse habitat is approximately 4,700 ha (11,600 ac) (GSRSC 2005). Sagebrush stands are generally contiguous with a mixed grass and forb understory. Land ownership is 76 percent private, 15 percent CDOW, 7 percent USFS, and 2 percent BLM (GSRSC 2005). Occupied habitat at the Gurley Reservoir area is about 3,000 ha (7,500 ac) (GSRSC 2005). Sagebrush habitat is heavily fragmented and the understory is a mixed grass and forb community. Farming attempts in the early 20th century led to the removal of much of the sagebrush. Agricultural activities now are restricted primarily to the seasonal irrigation of pasture. Sagebrush has reestablished in most of the failed pastures, but grazing pressure and competition from introduced grass species have kept the overall sagebrush representation low. A large portion of the area (91 percent) is privately owned with the rest being managed by USFS (4 percent), BLM (3 percent), and the Colorado State Land Board (2 percent) (GSRSC 2005). There are approximately 2,600 ha (6,400 ac) of occupied habitat at Iron Springs and 3,600 ha (8,800 ac) at Beaver Mesa (GSRSC 2005). Sagebrush stands in these areas are contiguous with a mixed grass understory. Beaver Mesa area has numerous scattered patches of oakbrush (*Quercus gambelii*). Land ownership in both areas is mainly private (Beaver Mesa--99.5 percent, Iron Springs--89 percent). The remaining portion of Beaver Mesa (0.5 percent) is managed by BLM. At Iron Springs the remainder is managed by USFS (6 percent), and the Colorado State Land Board (5 percent) (GSRSC 2005).

The 2005 population estimate for the entire San Miguel Basin was 334 (CDOW, unpubl. lit. 2005b) on 9 leks, up from 245 in 2004 (GSRSC 2005). Rogers (1964) reported that all big sagebrush-dominated habitats in San Miguel and Montrose Counties were historically used by sage-grouse. The historic distribution was highly fragmented by forests, rocky canyons and dry basins void of sagebrush habitats.

Dove Creek Group of the Monticello-Dove Creek Population - This population has two disjunct groups of GUSG. Currently, the largest group is near the town of Monticello, Utah but is not included under the CCAA since the CDOW only has jurisdiction in Colorado. The Dove Creek group is located primarily in western Dolores County, Colorado, north and west of Dove Creek, although a small portion of occupied habitat extends north into San Miguel County. The estimated occupied area is 11,500 ha (28,300 ac). Habitat north of Dove Creek is characterized as mountain shrub habitat, dominated by oakbrush interspersed with sagebrush. The area west of Dove Creek is dominated by sagebrush, but the habitat is highly fragmented. Approximately 87 percent of occupied habitat is privately owned, and 13 percent is managed by BLM (GSRSC 2005). Lek counts in the Dove Creek area were over 50 males in 1999, suggesting a population of about 245 birds, but declined to 7 males in 2005, with a resulting population estimate of 34 (CDOW, unpubl. lit. 2005c). However, this was up from a population estimate of 10 in 2004 (GSRSC 2005). All leks are located in agricultural fields on private lands. Low sagebrush canopy cover, as well as low grass height, exacerbated by drought, may have led to nest failure and subsequent population declines (Connelly et al. 2000; Apa 2004). Rogers (1964) reported that all sagebrush-dominated habitats in Dolores and Montezuma Counties in Colorado were historically used by sage-grouse. The historic distribution was highly fragmented by pinyon, juniper, and rocky canyons. Genetic data suggest that the Monticello group and the Dove Creek group are one population (GSRSC 2005), although there appears to be a relatively recent physical separation due to habitat changes.

Piñon Mesa Population - The Piñon Mesa population occurs on the northwest end of the Uncompahgre Plateau in Mesa County, about 35 km (22 mi) southwest of Grand Junction, Colorado. The estimated occupied range is 15,700 ha (38,900 ac). Land ownership is 70 percent private, 28 percent BLM, and 2 percent USFS (GSRSC 2005). The 2005 population estimate for this area is 167 (CDOW, unpubl. lit. 2005d), which is up from a population estimate of 142 in 2004 (GSRSC 2005). Eight leks are known (CDOW, unpubl. lit. 2004). However, one is inactive and another was not active in 2005 (CDOW unpubl. lit. 2005d). The Piñon Mesa area may have additional leks, but the high percentage of private land, a lack of roads, and heavy snow cover during spring makes locating additional leks difficult. The GUSG likely occurred historically in all suitable sagebrush habitat in the Piñon Mesa area

(Rogers 1964), an area much larger than the currently occupied habitat. Sage-grouse occupied an area of the Uncompahgre Plateau to the south as recently as the 1980s.

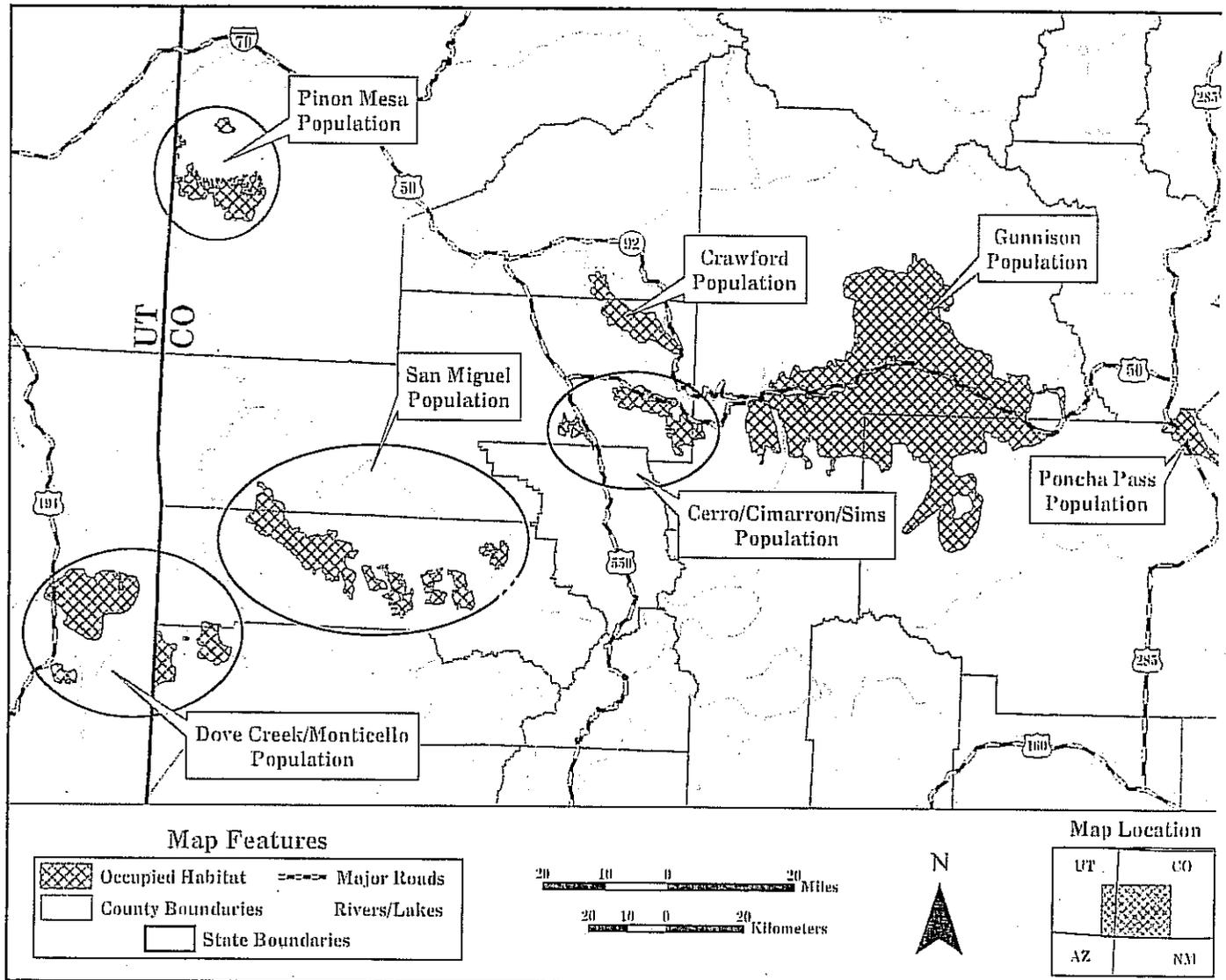
Crawford Population - The Crawford population of GUSG is in Montrose County, Colorado, about 13 km (8 mi) southwest of the town of Crawford and north of the Gunnison River. Approximately 14,000 ha (35,000 ac) of habitat are currently occupied. Basin big sagebrush (*A. t. tridentata*) and black sagebrush (*Artemisia nova*) dominate the mid-elevation uplands. Approximately 63 percent is managed by BLM, 13 percent National Park Service, and 24 percent is privately owned (GSRSC 2005). The 2005 population estimate for Crawford was 191 (CDOW, unpubl. lit. 2005e) up from 128 in 2004 (GSRSC 2005). Currently there are four active leks in the Crawford population on BLM lands in sagebrush habitat adjacent to a 11-km (7-mi) stretch of road. This area represents the largest contiguous sagebrush-dominated habitat within the Crawford boundary.

Cerro Summit-Cimarron-Sims Mesa Population - This population is in Montrose County, Colorado and had an estimated population of 25 birds in 2005 (CDOW, unpubl. lit. 2005b), down from 39 in 2004 (GSRSC 2005). The Cerro Summit-Cimarron group is centered about 24 km (15 mi) east of Montrose, and occupies approximately 13,100 ha (32,300 ac). The habitat consists of patches of sagebrush habitat fragmented by oakbrush and irrigated pastures. Land ownership is approximately 81 percent private, 12 percent CDOW (Cimarron State Wildlife Area), and 7 percent BLM land (GSRSC 2005). Three leks are known in the Cerro Summit-Cimarron group, but only one was verified to be active in 2005. Rogers (1964) noted a small population of sage-grouse in the Cimarron River drainage, but did not report population numbers. He noted that lek counts at Cerro Summit in 1959 listed four individuals.

The 2,100-ha (5,300-ac) Sims Mesa area about 11 km (7 mi) south of Montrose consists of small patches of sagebrush that are heavily fragmented by pinyon-juniper, residential and recreational development, and agriculture. Land ownership is approximately 43 percent private, 51 percent BLM, and 6 percent CDOW (GSRSC 2005). The one known lek in Sims Mesa is inactive. Rogers (1964) counted eight males in a lek count at Sims Mesa in 1960. It is not known if sage-grouse move between the Cerro-Summit-Cimarron and Sims Mesa groups.

Poncha Pass Population - The Poncha Pass sage-grouse population is located in Saguache County, approximately 16 km (10 mi) northwest of Villa Grove, Colorado. This population was established through the introduction of 30 birds from the Gunnison Basin in 1971 and 1972 during efforts to reintroduce the species to the San Luis Valley (GSRSC 2005). The known population distribution is in sagebrush habitat from the summit of Poncha Pass extending south for about 13 km (8 mi) on either side of U.S. Highway 285. The estimated range of the population is about 8,300 ha (20,400 ac). Sagebrush in this area is extensive and continuous with little fragmentation; sagebrush habitat quality throughout the area is adequate (Nehring and Apa 2000). San Luis Creek runs through the area, providing a year-round water source and lush, wet meadow riparian habitat for brood-rearing. The BLM manages 48 percent of the area, USFS manages 26 percent, 24 percent is in private holdings, and 2 percent is managed by the Colorado State Land Board (GSRSC 2005). The 2005 Poncha Pass sage-grouse population estimate was 44 (CDOW, unpubl. lit. 2005f), up from 39 in 2004 (GSRSC 2005). The only current lek is located on BLM-administered land. In 1992, a CDOW effort to simplify hunting restrictions inadvertently opened the Poncha Pass area to sage-grouse hunting and at least 30 grouse were harvested from this population. Due to declining population numbers since the 1992 hunt, CDOW transplanted 24 additional birds from the Gunnison Basin (Nehring and Apa 2000). In 2001 and 2002, 20 and 7 birds respectively also were moved to the Poncha Pass by CDOW (GSRSC 2005). Transplanted females have bred successfully (Apa, CDOW, pers. comm. 2004) and display activity resumed on the historic lek in spring 2001.

Figure 1. Locations of Current Gunnison Sage-grouse Populations (source information from the CDOW).



## ENVIRONMENTAL BASELINE

### A. Status of the Species Within the Action Area

In Colorado, the action area for the CCAA would encompass GUSG habitat defined as “occupied,” “vacant/unknown,” and “potentially suitable” as stated in the CCAA and the RCP.

### B. Factors Affecting Species Environment Within the Action Area

A population viability analysis conducted for the species (GSRSC 2005) showed a high probability that the Dove Creek group and the Cerro Summit-Cimarron-Sims Mesa and Poncha Pass populations will go extinct in the foreseeable future in the absence of intervention. We consider the CCAA to be an intervention tool that has the potential to prevent extinction, so we have included those populations in our assessment of factors affecting the species in Colorado. Those factors are summarized below using the five listing factors the Service examines for a listing determination.

#### 1. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range.

Pre-European settlement habitat for the GUSG is estimated at 55,360 km<sup>2</sup> (21,376 mi<sup>2</sup>) in central and southwest Colorado, southeast Utah, northwestern New Mexico, and northeastern Arizona (GSRSC 2005, modified from Schroeder et al. 2004). The GUSG currently occupy 4,719 km<sup>2</sup> (1,822 mi<sup>2</sup>) (GSRSC 2005, modified from Schroeder et al. 2004). The range and quality of the habitat has been reduced primarily by habitat loss, modification, and fragmentation.

Habitat fragmentation, resulting in elimination or near elimination of exchange of individual GUSG among populations, is occurring in all populations. Population isolation is most pronounced in the Pinon Mesa population and Dove Creek group of the Monticello-Dove Creek population. The San Miguel Basin population which has six groups separated by 1-4 air miles is fragmented but exchange has been documented between the groups.

Approximately 38 percent of the Dove Creek group has been converted to agricultural fields. Other occupied population areas have had lower percentages of converted land with no conversion expected in the future. There is evidence that GUSG will not use agricultural fields further than about 50 m (160 ft) from the edge for foraging. Reservoirs caused fragmentation and/or loss of a small percentage of habitat in the Gunnison Basin population and the Gurley and Miramonte groups in the San Miguel Basin population.

Other than two direct mortalities in the San Miguel Basin population, we do not have any data directly relating effects of roads to impacts on GUSG populations but roads and associated impacts from human disturbance, habitat fragmentation, weed invasion, and facilitation of predation may cause some impact to GUSG. Powerlines also may cause some impact from habitat fragmentation, collision, weed invasion, and facilitation of raptor predation in all populations but direct evidence is lacking. Urban or exurban development is an impact to the GUSG in all populations based on existing development and projections of human population growth and housing development.

High potential for oil and gas development exists in the San Miguel Basin population, the Dove Creek group, the western margin of the Cerro Summit-Cimarron group, and the entire Sims Mesa group of the Cerro Summit-Cimarron-Sims Mesa population. High to medium potential exists in the Crawford population. Low or no potential exists in the Gunnison Basin, Pinon Mesa, and Poncha Pass populations. Additionally, hardrock mining may cause some impacts in the San Miguel Basin population.

Although overgrazing can impact habitat, it is unclear whether effects from current livestock grazing management, such as reduction of vegetation below suitable conditions or spread of weeds impacts the GUSG. Cheatgrass may impact sage-grouse habitat in nearly all GUSG populations but the extent of impact is unknown.

Fires can cause spread of weeds and burn suitable sage-grouse habitat, but also may be beneficial by rejuvenating forbs and grasses and reducing encroachment of native trees and shrubs. Fire can be both beneficial and detrimental depending on location, size, and intensity. There has been low to moderate levels of native tree and shrub encroachment in nearly all the populations, most likely as a result of fire suppression.

## **2. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes.**

An inadvertent hunting season in 1992 in the Poncha Pass population resulted in its near extirpation, indicating that hunting in small populations can be an impact (GSRSC 2005). However, we have no evidence that hunting has resulted in overutilization of GUSG in the Gunnison Basin population and hunting has not been allowed in Colorado since the last season in the Gunnison Basin population in 1999. Overuse from recreational lek viewing and scientific research is minimal. We know of no commercial or educational uses for this species.

### 3. Disease or Predation.

We have a poor understanding of the actual effects of disease or parasites on GUSG populations, but we have no information suggesting that these are limiting factors for this species. We believe that West Nile virus poses the greatest potential disease threat to the GUSG but have no evidence of impacts to the GUSG. Based on limited studies, we believe predation is a minor impact to all of the populations in spite of the small size of most.

### 4. The Inadequacy of Existing Regulatory Mechanisms.

The GUSG conservation has been addressed through numerous local, State, and Federal laws, regulations, policies, and funding programs. However, only Federal land management agencies have the ability to defer or minimize activities that would negatively impact GUSG habitat that is privately owned, but over Federally-owned mineral rights. Impacts resulting from such leases may not be adequately regulated if protective stipulations were not applied at the time of leasing. Current county regulations do not provide adequate regulation to limit impacts to sage-grouse from housing development. State wildlife regulations address conservation needs of the species, but have no authority over habitat. The RCP (GSRSC 2005) identified habitat loss and fragmentation as the major threat to GUSG habitat.

Private landowners are not required to conduct activities for sage-grouse conservation unless the activity is authorized, permitted or implemented by a Federal agency. Implementation of activities described under the local and rangewide strategies in the RCP (GSRSC 2005) is voluntary.

### 5. Other Natural or Manmade Factors Affecting Its Continued Existence.

Low genetic diversity and lack of connectivity between populations may exacerbate the potential for population extirpation brought about by small population size and isolation. Without intervention by restoring habitat linkages and/or by transplanting birds the loss of genetic diversity may impact GUSG, but it is not known how far into the future genetic effects will be realized. Recreational disturbance is common throughout all populations at varying levels and may impact the GUSG to some extent, although no studies have been done to determine actual impacts.

## EFFECTS OF THE ACTION

### A. Factors to be Considered

To conserve the GUSG, the proposed CCAA has been developed to alleviate concerns about land management restrictions and regulatory penalties and to generate support for the conservation of GUSG from private landowners. Expanding the range and population size of each of the GUSG populations and enhancing their habitat conditions will provide a net benefit to the species.

### B. Analyses for Effects of the Action

To protect, maintain, enhance, and restore habitat and maintain or expand populations the CDOW, private landowners, and other partners may use the following conservation measures on enrolled lands:

- Reclaiming disturbed areas from any impacts listed above, or other activities, with plants native to the sagebrush communities;
- Protecting habitat from permanent loss;
- Protecting, enhancing, and restoring habitat linkages for interchange of sage-grouse between populations;
- Where appropriate and necessary, limiting or avoiding housing or structural development in sage-grouse habitat;
- Encouraging and obtaining conservation easements with sage-grouse management plans incorporated;

- Avoiding or minimizing placement of roads in important areas of sage-grouse habitat, and where necessary, relocating or closing roads that are impacting sage-grouse;
- Developing and implementing control measures for invasive weeds in areas of impact to sage-grouse habitat;
- If possible, incorporating suggested management practices for energy development on non-Federal land from Appendix L of the RCP, including applying a 0.6-mile radius “no surface occupancy” stipulation near lek sites for energy development, avoiding or limiting human disturbance associated with energy development, and incrementally reclaiming habitat impacted by energy development activities;
- Managing livestock grazing using various techniques to meet habitat guidelines for the sage-grouse;
- Prescribing fire in small mosaic patterns to reduce encroachment of trees and shrubs, preventing catastrophic fire and rejuvenating sagebrush communities, and suppressing wildfires where they may increase the abundance of cheatgrass or other weeds;
- Avoiding or minimizing powerline placement near lek or other important habitats, burying powerlines, marking overhead powerlines to reduce collision, and retrofitting powerlines to limit raptor predation;
- Placing new fences outside of leks or other important areas of sage-grouse habitat, marking fences to reduce risk of collision by sage-grouse, removing unused fences, and reducing facilitation of raptor predation with fencing materials or modification;
- Managing lek viewing by not allowing access for such viewing, or reducing lek viewing impacts through incorporation of lek viewing protocols;
- Monitoring and minimizing disease through vector control, to the extent feasible;
- Reducing recreational impacts to sage-grouse populations and habitat;
- Developing additional water sources for wildlife and livestock during drought, to reduce impacts to riparian, wetland, and wet meadow areas important to sage-grouse; managing invasive vegetation to improve water tables; and adjusting grazing management, prescriptive fire, and vegetation management to reduce additive impacts of drought.
- Implementing habitat treatments to enhance, maintain, or restore sage-grouse habitat. Possible techniques include removal of pinyon, juniper and gambel oak trees or encroaching shrubs, reduction in density of sagebrush if understory forbs and grasses would benefit, and planting of native or beneficial nonnative forbs, grasses, and sagebrush and other shrubs. Methods to reduce trees, shrubs or competition from other vegetation may include chaining, hydro-axing, chainsawing, bulldozing, using harrows, shredders, mowers, aerators, plows, disks, herbicides, and fire. Planting of seeds or seedlings may include use of a variety of drills, seeders, or other equipment to plant and disturb soil.

Only temporary minor adverse impacts should result from the above conservation measures. Additionally, only minor impacts should result from land management or other activities including: agricultural operations (e.g., crop, hay, and livestock production and farm equipment operation); recreational activities (e.g., hunting of other species, fishing, dog training, camping, hiking, and OHV use), and limited construction (e.g., limited housing development, roads, utility corridors, limited energy development). While the level of take for each of these activities is unknown, the actual take is expected to be low due to agreement on types and levels of land management and recreational activities, and conservation measures in the CIs that will provide for GUSG conservation.

### C. Species Response to Proposed Action

While there may be loss of some habitat and a few individual adult GUSG and their clutches and/or eggs the net benefit of the proposed action far outweighs any losses. Expected benefits include:

Habitats for the grouse will be protected on non-Federal lands enrolled through CIs. Habitat enrolled through CIs will contribute to keeping landscapes intact by protecting currently occupied, vacant/unknown, and potential habitats, and by precluding future habitat fragmentation for the duration of the CCAA. Enrolled lands may, if restoration/enhancements are determined to be needed and detailed in the CI, be enhanced by the application of recommended treatments (Monsen 2005). These efforts are intended to

contribute to the habitats necessary to achieve the population goals cited in the RCP and further contribute to the long-term conservation of the species. The scope and scale of the benefits will depend on the amount and distribution of lands enrolled.

Further, GUSG conservation will be enhanced by providing regulatory assurances for participating landowners. There will be a significant measure of security for participating landowners in the knowledge that they will not incur additional land use restrictions if the species is listed under the ESA in the future. The CCAA will provide substantial benefits to conservation of the species by offering landowners incentives, and potential State and Federal funding in exchange for utilizing best management practices to protect and enhance grouse habitat and to sustain and increase GUSG populations.

#### CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this conference opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

In general, land use activities, including agricultural activities, on non-Federal lands are expected to continue. Since current land-use activities are expected to continue for lands not enrolled under the CCAA, most of the threats to GUSG also would continue. Lands that are not enrolled under the CCAA would likely remain similar to their current habitat condition or be degraded causing cumulative effects, the extent of which cannot be quantified. As landowners enroll under the CCAA, through CIs, additional cumulative effects would stop on those enrolled lands.

If landowners not enrolled under the CCAA work cooperatively with the agencies to develop and implement similar conservation measures as those implemented under the CCAA, threats to the GUSG would be further reduced. Any such projects with a Federal nexus (permitted or authorized) outside of the CCAA would undergo separate section 7 consultation. Translocation of GUSG to enrolled lands or unenrolled lands in the covered areas by CDOW may occur, but would be authorized through a separate permit if the GUSG is listed.

#### CONCLUSION

After reviewing the current status of the GUSG, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's conference opinion that approving the CCAA and issuing the Permit, as proposed, is not likely to jeopardize the continued existence of the GUSG.

Approval of the CCAA, including issuance of the Permit, will reduce multiple threats to the GUSG and could restore the species to formerly occupied range. Specifically, conservation measures under the CCAA will provide direct GUSG population and habitat conservation benefits and facilitate a cooperative environment with participating landowners and other private landowners who manage about half of the species' range. Although incidental take will be authorized under the Permit for the CDOW, the CCAAs purpose is expected to be met. As a result, the CCAA is expected to be beneficial overall and contribute significantly to successful long-term conservation of the species.

#### INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise

lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Service so that they become binding conditions of any grant or permit issued to the Service, as appropriate, for the exemption in section 7(o)(2) to apply. The Service has a continuing duty to regulate the activity covered by the incidental take statement. If the Service (1) fails to assume and implement the terms and conditions or (2) fails to require the CDOW to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the CDOW must report the progress of the action and its impact on the species to the Service as specified in this incidental take statement [50 CFR § 402.14(i)(3)]. The prohibitions against taking the species found in section 9 of the ESA do not apply until the species is listed.

#### **A. Amount or Extent of Take Anticipated**

Based on the CCAA and on the analysis of effects of the proposed action provided above, the Service anticipates incidental take of GUSG on all enrolled lands throughout the range of the species, as a result of the following activities that are performed in accordance with applicable local, State and Federal laws: agricultural operations (e.g., crop, hay, and livestock production and farm equipment operation); recreational activities (e.g., hunting of other species, fishing, dog training, camping, hiking, and OHV use), and limited construction (e.g., limited housing development, roads, utility corridors, limited energy development, etc.) and temporary impacts from GUSG habitat improvement projects. Consistent with Regional Service policy, no take is authorized for pesticide use. The CDOW, designated agents, and landowners enrolled through CIs are authorized under the ESA to incidentally take (injure, kill, harass, harm) the GUSG, if and when it becomes listed. Take is authorized to the extent that take of this species would otherwise be prohibited under section 9 of the ESA and its implementing regulations, or pursuant to a rule promulgated under section 4(d) of the ESA. Take must be incidental to otherwise lawful activities on the enrolled lands in the action area and consistent with implementation of the CCAA and the landowner's CI.

Incidental take of GUSG is expected to be minimal. Conservation measures in the CCAA, including the site-specific plans, will ensure that impacts to the species from land use activities in these areas will be kept to a minimum. While many land use activities consistent with CIs may have minimal negative effects on GUSG, some chance of incidental take could occur. It is this level of incidental take that is intended to be authorized under the Permit. The actual level of incidental take is difficult to quantify, but may result from mortality as a result of harassment, direct mortality from covered land management actions agreed upon in CIs, or from harm through habitat destruction or modification. Take is anticipated through either harassment of individual GUSG (such as abandonment of a nest) from surveyor inventory of habitat condition or harassment from activities covered in the CIs or through direct take from incidental killing of adults, juveniles, chicks, or eggs from covered land management actions or activities on the land. In addition, some take through harm from land management actions agreed upon through CIs, and including conservation measures that may cause temporary impacts, is anticipated as described below. The anticipated amount of take through harassment or direct mortality for each population is based on the 2004 population estimate. As GUSG numbers increase the amount of take may be increased if formally requested by CDOW and approved by the Service. For estimated populations of 200 adult GUSG or less take of 1 adult/year per population on enrolled lands is anticipated. This includes the Cerro Summit-Cimarron-Sims Mesa population the Crawford population, the Dove Creek group the Pinon Mesa population and the Poncha Pass population. Take of 2 GUSG/year is anticipated for the San Miguel Basin population, which was estimated to be 334 in 2004. For the Gunnison Basin population, take of 24 GUSG is anticipated. This is based on 1 percent of the 2004 population estimate.

Two nests and eggs or chick clutches per year in the Gunnison Basin population are anticipated to be taken, but only one nest or chick clutch per year is anticipated to be taken in the other populations due to their small size. Take of nests and eggs or clutches would be through direct mortality or harassment from the covered activities.

Take through "harm" is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. The amount of anticipated take through harm was calculated based upon a formula devised during the RCP development to calculate the mean number of males expected relative to the amount of available habitat. Table 31 of the RCP (page 197) provides selected acreages and the mean number of males that could be expected to live on that acreage. However, take applies to both sexes of GUSG so the total number of GUSG was derived from the mean number of males (using the formula on page 45 of the RCP) and divided by the number of acres required for that population level of GUSG. The Gunnison Basin population, which has 196,327 acres of non-Federal land available for enrollment, therefore would need approximately 185 acres/GUSG. In each population, we anticipate that 185 acres per population will be the amount of habitat significantly modified or degraded over the 20-year life of the CCAA and Permit and is equivalent to one sage-grouse per population. The amount of take through harm should not be exceeded in the 20-year term of the CCAA because conservation measures will necessarily limit the amount of habitat alteration to meet the CCAA standard.

If the limits of take are reached during any year for the number of adults, nests (eggs), or clutches, or the anticipated loss of habitat is reached, reinitiation of this consultation will take place and the Service, CDOW, and participating landowners will identify and implement additional protective measures, as appropriate, to minimize any further incidental take. Project activities may continue during this reinitiation period, provided that all the protective measures proposed in the CCAA and the terms and conditions of this opinion have been and continue to be implemented.

In summary we anticipate that there will be take of 31 adult sage-grouse and 8 nests and eggs or clutches per year in all 7 populations. This is just over 1 percent of the GUSG population estimate for 2004. We also anticipate take through harm of 185 acres per population over the 20-year duration of the Permit or 1,295 acres throughout all seven populations.

#### **B. Effect of the Take**

Should GUSG be listed under the ESA, the CDOW and participating landowners would be authorized for incidental take from their otherwise lawful activities (stated above) on enrolled lands. By limiting ground disturbing activities the CCAA is likely to result in a reduction of take relative to that which is currently occurring, and thereby result in a net benefit to the species. Limited take will still be authorized to allow implementation of conservation commitments in these areas such as habitat monitoring and habitat enhancement actions. The effect of take in these areas is unknown due to the indefinite amount and extent of landowner enrollment. However, we expect the long-term benefits of implementing conservation commitments to greatly outweigh minor negative effects (primarily harm and harassment) of the limited take anticipated in the covered areas by this opinion. The anticipated take is expected to be just over 1 percent of the rangewide population of GUSG and is at a level at which we believe there will be overall insignificant effects to GUSG.

A notification requirement is contained in the CCAA that requires participating landowners to notify the agencies at least 60 days prior to anticipated take. If direct mortality cannot be avoided, this will give the agencies the opportunity to discuss options for avoiding take or to move GUSG prior to ground disturbance. Since GUSG are highly mobile the only reasonable things to move would be a nest with eggs and the hen. However, the chances of success after moving a hen and nest is likely small and would probably result in abandonment. Nonetheless, as consistent with the CCAA policy, the opportunity for proactive measures prior to anticipated take exists and will be attempted to reduce take.

Overall, the expected effect of the CCAA is a net reduction in take of GUSG throughout enrolled lands in Colorado and, therefore, a net benefit to the species, resulting from reduced habitat destruction or modification, improved habitat quality, and from expected increases in GUSG abundance and distribution on enrolled lands. The long-term conservation of the species will be enhanced by the CCAA, despite authorization of limited incidental take under the Permit. Incidental take that does occur under the Permit will likely occur sporadically,

both geographically and temporally, and the benefits of conservation commitments expected to accrue under the CCAA will offset the negative effects of this take.

#### C. Reasonable and Prudent Measures

The Service believes the following Reasonable and Prudent Measures are necessary and appropriate to minimize the impacts of incidental take to the GUSG. The CCAA, its associated documents, and this conference opinion, identify anticipated impacts to GUSG from implementation of the proposed action and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the CCAA and RCP, together with the terms and conditions described in the Permit issued with respect to the CCAA, are hereby incorporated by reference as reasonable and prudent measures within this Incidental Take Statement.

#### D. Terms and Conditions

The prohibitions against taking the species found in section 9 of the ESA do not apply until the species is listed. However, the Service and CDOW will implement the following terms and conditions even though the GUSG is not currently listed under the ESA. If this conference opinion is adopted as a biological opinion following listing of the GUSG, should that occur, these terms and conditions will be nondiscretionary. If the CDOW fails to adhere to these terms and conditions, the protective coverage of the Permit and section 7(o)(2) may lapse.

1. The CDOW will work with landowners and the Service to implement the conservation measures identified in the CCAA and RCP.
2. The CDOW will provide the Service an annual report summarizing the number of CIs signed, acreage involved, conservation measures implemented, as well as any incidental take that has occurred.

#### E. Reporting Requirements

Upon locating any dead, injured, or sick individuals of any GUSG, the CDOW and enrolled landowners will, within 3 working days, notify the Service's Western Colorado Field Office (970-243-2778). The notification will include the date, time, and location of the specimen, a photograph, cause of death, if known, and any other pertinent information. Care should be taken in handling the dead specimens to preserve biological material in the best possible state for later analysis. Take through harm (activities impairing essential behavioral patterns including breeding, feeding, or sheltering; (i.e., habitat loss or modification) will be reported annually along with an annual report of take as specified in the CCAA.

The CDOW and enrolled landowners will refer to Permit number TE-117730-0 in all correspondence and reports concerning Permit activities. Any questions you may have about this Permit should be directed to Al Pfister, Western Colorado Supervisor, U.S. Fish and Wildlife Service, 764 Horizon Dr., Building B, Grand Junction, Colorado 81506 or at the above mentioned number.

#### F. Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The CDOW

and Service should work with other Federal agencies, and county, city, or other local governments to ensure measures implemented through the CCAA also are implemented on non-enrolled occupied, vacant/unknown, and potentially suitable GUSG habitat.

#### G. Reinitiation-Closing Statement

This concludes the conference for the potential effects of the approval of the CCAA and issuance of the Permit on the GUSG. The CDOW may ask that this conference opinion be confirmed as a biological opinion issued through formal consultation if the GUSG is listed. The request must be in writing. During review of the proposed action if the Service finds that there have been no significant changes in the CCAA as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

After listing the GUSG, should that occur, and any subsequent adoption of this conference opinion, reinitiation of consultation will occur if--(1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat

not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action (50 CFR §402.16). In instances where the amount or extent of incidental take is exceeded, project activities may continue during this reinitiation period, provided that all the protective measure proposed in the CCAA and the terms and conditions of this opinion have been and continue to be implemented.

The incidental take statement provided in this conference opinion does not become effective until/if the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of GUSG has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of GUSG may occur between the listing of GUSG, should that occur, and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation.

Should you have any questions regarding this conference opinion, please contact Terry Ireland at 970-243-2778.

## LITERATURE CITED

- American Ornithologists' Union. 2000. Forty-second supplement to the American Ornithologists' Union Check-list of North American Birds. *Auk* 117:847-858.
- Apa, A.D. 2004. Habitat use, movements, and survival of Gunnison sage grouse in southwestern Colorado. A preliminary report. Colorado Division of Wildlife, Colorado. 73pp.
- Autenrieth, R.E. 1981. Sage grouse management in Idaho. Idaho Department of Fish and Game, Wildlife Bulletin 9, Boise. 238pp.
- Back, G.N., M.R. Barrington, and J.K. McAadoo. 1987. Sage grouse use of snow burrows in northeastern Nevada. *Wilson Bulletin* 99:488-490.
- Barber, H.A. 1991. Strutting behavior, distribution and habitat selection of sage grouse in Utah. Thesis, Brigham Young University, Provo, Utah. 70pp.
- Barber, T.A. 1968. Function of the cecal microflora in sage grouse nutrition. Thesis, Brigham Young University, Provo, Utah. Pp. 41-51.
- Barnett, J.F., and J.A. Crawford. 1994. Pre-laying nutrition of sage grouse hens in Oregon. *Journal of Wildlife Management* 47:114-118.
- Batterson, W.M., and W.B. Morse. 1948. Oregon sage-grouse. Oregon Game Commission Fauna Series 1, Portland. 29pp.
- Beck, T.D.I. 1977. Sage-grouse flock characteristics and habitat selection in winter. *Journal of Wildlife Management* 41:18-26.
- Bergerud, A.T. 1988. Mating systems in grouse. Pages 439-472 in A.T. Bergerud and M.W. Gratson, editors. Adaptive strategies and population ecology of northern grouse. University of Minnesota Press, Minneapolis.
- Braun, C.E., T. Britt, and R.O. Wallestad. 1977. Guidelines for maintenance of sage grouse habitats. *Wildlife Society Bulletin* 5:99-106.
- Braun, C.E., M.F. Baker, R.L. Eng, J.W. Gashwiler, and M.H. Schroeder. 1976. Conservation committee report on effects of alteration of sagebrush communities on the associated avifauna. *Wilson Bulletin* 88:165-171.
- Commons, M.L. 1997. Movement and habitat use by Gunnison Sage Grouse (*Centrocercus minimus*) in southwestern Colorado. Thesis, University of Manitoba, Winnipeg, Manitoba, Canada. 100pp. + appendices.
- Connelly, J.W., and O.D. Markham. 1983. Movements and radionuclide concentrations of sage grouse in southeastern Idaho. *Journal of Wildlife Management* 47:169-177.
- Connelly, J.W., W.J. Arthur, and O.D. Markham. 1981. Sage grouse leks on recently disturbed sites. *Journal of Range Management* 52:153-154.

- Connelly, J.W., H.W. Browsers, and R.J. Gates. 1988. Seasonal movements of sage grouse in southeastern Idaho. *Journal of Wildlife Management* 52:116-122.
- Connelly, J.W., S.T. Knick, M.A. Schroeder, and S. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Unpublished Report, Western Association of Fish and Wildlife Agencies. Cheyenne, Wyoming. 610pp.
- Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. *Wildlife Society Bulletin* 28:967-985.
- Crawford, J.A., R.A. Olsen, N.E. West, J.C. Mosley, M.A. Schroeder, T.D. Whitson, R.F. Miller, M.A. Gregg, and C.S. Boyd. 2004. Ecology and management of sage grouse and sage grouse habitat. *Journal of Range Management* 57:2-19.
- DeLong, A.K., J.A. Crawford, and D.C. DeLong, Jr. 1995. Relationships between vegetational structure and predation of artificial sage grouse nests. *Journal of Wildlife Management* 59:88-92.
- Drut, M. S., W.H. Pyle, and J.A. Crawford. 1994. Diets and food selection of sage grouse chicks in Oregon. *Journal of Range Management* 47:90-93.
- Fischer, R.A., K.P. Reese, and J.W. Connelly. 1996. Influence of vegetal moisture content and nest fate on timing of female sage grouse migration. *Condor* 98:868-872.
- Garton, E.O. 2005. Gunnison sage grouse population trends. Final report of statistical analysis. U.S. Fish and Wildlife Service, Cheyenne, Wyoming. 29pp.
- Gates, R.J. 1985. Observations of the formation of a sage grouse lek. *Wilson Bulletin* 97:219-221.
- Giezentanner, K.I., and W.H. Clark. 1974. The use of western harvester ant mounds as strutting locations by sage grouse. *Condor* 76:218-219.
- Gregg, M.A., J.A. Crawford, M.S. Drut, and A.K. DeLong. 1994. Vegetational cover and predation of sage grouse nests in Oregon. *Journal of Wildlife Management* 58:162-166.
- Gunnison Basin Conservation Plan. 1997. Gunnison sage grouse conservation plan. Gunnison, Colorado. 108pp.
- Gunnison Sage-grouse Rangewide Steering Committee. 2005. Gunnison sage grouse rangewide conservation plan. Colorado Division of Wildlife, Denver. 359pp. + appendices.
- Hanna, W.C. 1936. Sage grouse breeding in California. *Condor* 38:38.
- Hupp, J.W. 1987. Sage grouse resource exploitation and endogenous reserves in Colorado. Dissertation, Colorado State University, Fort Collins. 81 pp.
- Hupp, J.W., and C.E. Braun. 1989. Topographic distribution of sage grouse foraging in winter. *Journal of Wildlife Management* 53:823-829.
- Hupp, J.W., and C.E. Braun. 1991. Geographic variation among sage grouse in Colorado. *Wilson Bulletin* 103:255-261.

- Johnson, G.D., and M.S. Boyce. 1990. Feeding trials with insects in the diet of sage grouse chicks. *Journal of Wildlife Management* 54:89-91.
- Johnson, G.D., and M.S. Boyce. 1991. Survival, growth, and reproduction of captive-reared sage grouse. *Wildlife Society Bulletin* 19:88-93.
- Kahn, N.W., C.E. Braun, J.R. Young, S. Wood, D.R. Mata, and T.W. Quinn. 1999. Molecular analysis of genetic variation among large- and small-bodied sage grouse using mitochondrial control-region sequences. *Auk* 116:819-824.
- Klebenow, D.A. 1969. Sage grouse nesting and brood habitat in Idaho. *Journal of Wildlife Management* 33:649-661.
- Klebenow, D.A., and G.M. Gray. 1968. Food habits of juvenile sage grouse. *Journal of Range Management* 21:80-83.
- Klott, J.H., and F.G. Lindzey. 1989. Comparison of sage and sharp-tailed grouse leks in south central Wyoming. *Great Basin Naturalist* 49:275-278.
- Leach, H.R., and A.L. Hensley. 1954. The sage grouse in California, with special reference to food habits. *California Fish and Game* 40:385-394.
- Monsen, S.B. 2005. Restoration manual for Colorado sagebrush and associated shrubland communities. Colorado Division of Wildlife. 555pp.
- Myers, O.B. 1992. Sage grouse habitat enhancement: effects of sagebrush fertilization. Dissertation, Colorado State University, Fort Collins. 97pp.
- Nehring, J.A., and A.D. Apa. 2000. Gunnison sage grouse population augmentation to Poncha Pass, Saguache County and Sims Mesa, Montrose County, Spring 2000. Unpublished report to the Colorado Division of Wildlife.
- Oyler-McCance, S.J., N.W. Kahn, K.P. Burnham, C.E. Braun, and T.W. Quinn. 1999. A population genetic comparison of large- and small- bodied sage grouse in Colorado using microsatellite and mitochondrial DNA markers. *Molecular Ecology* 8:1457-1465.
- Patterson, R.L. 1952. The sage grouse in Wyoming. Sage Books, Denver, Colorado. 344pp.
- Peterson, J.G. 1970. The food habits and summer distribution of juvenile sage grouse in central Montana. *Journal of Wildlife Management* 34:147-155.
- Phillips, J.B. 1990. Lek behaviour in birds: do displaying males reduce nest predation? *Animal Behavior* 39:555-565.
- Pyle, W.H., and J.A. Crawford. 1996. Availability of foods of sage grouse chicks following prescribed burning in sagebrush-bitterbrush. *Journal of Range Management* 49:320-324.
- Rasmussen, D.I., and L.A. Griner. 1938. Life history and management studies of sage grouse in Utah, with special reference to nesting and feeding habits. *Transactions of the Third North American Wildlife and Natural Resources Conference* 3:852-864.

- Remington, T. E., and C. E. Braun. 1985. Sage grouse food selection in winter, North Park, Colorado. *Journal of Wildlife Management* 49:1055-1061.
- Rogers, G.E. 1964. Sage grouse investigations in Colorado. Technical Publication Number 16, Project W-37-R, Federal Aid in Wildlife Restoration. Game Resources Division, Colorado Game, Fish, and Parks Department, Denver. 132pp.
- Root, T. 2002. Gunnison sage grouse seasonal habitat use study annual report, October 1, 2001-September 30, 2002. Unpublished report to the National Park Service, Black Canyon of the Gunnison National Park and Curecanti National Recreation Area, Colorado. 21pp.
- Schoenberg, T.J. 1982. Sage grouse movements and habitat selection in North Park, Colorado. Thesis, Colorado State University, Fort Collins. 97pp.
- Schroeder, M.A. 1997. Unusually high reproductive effort by sage grouse in a fragmented habitat in north-central Washington. *Condor* 99:933-941.
- Schroeder, M.A., J.R. Young, and C.E. Braun. 1999. Sage grouse (*Centrocercus urophasianus*). No. 425 in A. Poole and F. Gill, editors. *The birds of North America*. The Birds of North America, Inc., Philadelphia, Pennsylvania. 28pp.
- Schroeder, M.A., C.L. Aldridge, A.D. Apa, J.R. Bohne, C.E. Braun, S.D. Bunnell, J.W. Connelly, P.A. Deibert, S.C. Gardner, M.A. Hilliard, G.D. Kobriger, S.M. McAdam, C.W. McCarthy, J.J. McCarthy, D.L. Mitchell, E.V. Rickerson, and S.J. Stiver. 2004. Distribution of sage-grouse in North America. *Condor*:106:363-376.
- Tate, J., Jr., M.S. Boyce, and T.R. Smith. 1979. Response of sage grouse to artificially created display ground. Pages 464-468 in G. A. Swanson, technical coordinator. *The mitigating losses of fish and wildlife habitats*. U.S. Department of Agriculture, Forest Service, General Technical Report RM-65, Fort Collins, Colorado.
- Wallestad, R.O. 1975. Life history and habitat requirements of sage grouse in central Montana. Montana Fish and Game Department, Technical Bulletin, Helena. 65pp.
- Wallestad, R.O, J.G. Peterson, and R.L. Eng. 1975. Foods of adult sage grouse in central Montana. *Journal of Wildlife Management* 39:628-630.
- Welch, B.L., J.C. Pederson, and R.L. Rodriguez. 1988. Selection of big sagebrush by sage grouse. *Great Basin Naturalist* 48:274-279.
- Welch, B.L., F.J. Wagstaff, and J.A. Roberson. 1991. Preference of wintering sage grouse for big sagebrush. *Journal of Range Management* 44:462-465.
- Wiley, R.H. 1973. The strut display of male sage grouse: a "fixed" action pattern. *Behaviour* 47:129-152.
- Wiley, R.H. 1974. Evolution of social organization and life-history patterns among grouse. *Quarterly Review of Biology* 49:201-227.
- Young, J.R. 1994. The influence of sexual selection on phenotypic and genetic divergence among sage grouse populations. Dissertation, Purdue University, West Lafayette, Indiana. 125pp.

Young, J.R., C.E. Braun, S.J. Oyler-McCance, J.W. Hupp, and T.W. Quinn. 2000. A new species of sage grouse (Phasianidae: *Centrocercus*) from southwestern Colorado. *Wilson Bulletin* 112:445-453.

Zablan, M.A. 1993. Evaluation of sage grouse banding program in North Park, Colorado. Thesis, Colorado State University, Fort Collins. 68pp.

Mail Stop 65412