

**Candidate Conservation Agreement with Assurances
for
Gunnison Sage-grouse (*Centrocercus minimus*)
between the
Colorado Division of Wildlife and the U.S. Fish and Wildlife Service**

15 July 2006

This Candidate Conservation Agreement with Assurances (CCAA) effective and binding on the date of the last signature below, is between the Colorado Division of Wildlife (CDOW) and the U.S. Fish and Wildlife Service (Service). Participating landowners may also be included under the CCAA by signing a Certification of Inclusion (CI), subject to approval by CDOW and concurrence by the Service. Administrators of this Agreement are:

CDOW: Colorado Division of Wildlife
6060 Broadway
Denver, CO 80216
(303) 297-1192

Service: Western Colorado Supervisor
U.S. Fish and Wildlife Service
764 Horizon Drive, Building B
Grand Junction, CO 81506
(970) 245-3920

Tracking Number: TE117730-0

1. Responsibilities of the Parties

(a) Landowners:

Enroll in the CCAA by completing and submitting a CI application (Appendix A), which will include conservation measures. An approved CI will provide landowner protection under the Enhancement of Survival Permit (Permit) associated with the CCAA if the species is listed.

(b) CDOW:

Implement and administer the CCAA by:

1. Encouraging enrollment of landowners under the CCAA through CIs when their property is occupied, vacant/unknown or potentially suitable habitat as defined below.
2. Working with landowners to ensure CIs incorporate applicable conservation strategies in the Gunnison Sage-grouse Rangewide Conservation Plan (RCP) (Gunnison Sage-grouse Rangewide Steering Committee 2005) and best management practices in Monsen's Restoration Manual for Colorado Sagebrush and Associated

Shrubland Communities (Monsen 2005), and other provisions consistent with this CCAA.

3. Reviewing and signing CIs. At least 30 days prior to enrolling participating landowners under this CCAA, CDOW will provide the completed CI to the Service for concurrence and signature.
4. Being the primary party responsible for conducting monitoring activities as specified in Sections 12 and 13 of this CCAA.
5. Working with landowners to ensure appropriate implementation of the provisions of CIs.
6. Submitting an annual report to the Service that documents activities implemented under the CCAA, their effects, and effects of activities undertaken in prior years that require multi-year monitoring.

(c) Service:

1. Issue a permit to CDOW, under section 10(a)(1)(A) of the Endangered Species Act (ESA), in accordance with 50 CFR 17.22 and 17.32 (d), with a term of 20 years, that will provide the CDOW with authorization for incidental take of Gunnison Sage-grouse and provide regulatory assurances should the species be listed under the ESA in the future. The permit will authorize incidental take of Gunnison Sage-grouse resulting from otherwise lawful activities on the lands enrolled under CIs approved by CDOW and the Service. Such activities will be specified in each CI, as applicable, and may include, but are not limited to crop cultivation and harvesting, livestock grazing, farm equipment operation and recreational activities.
2. Within 30 days of receipt of a completed CI notify CDOW as to whether the Service concurs that the CI is adequate to enroll the subject lands. If the Service concurs with the CI, it will sign it and return it to CDOW. If the Service does not concur, it will contact CDOW to agree on measures that would create an adequate CI for Service signature. If after 30 days the Service has not responded, concurrence is automatically conveyed.
3. Review within 60 days those monitoring and other reports submitted by CDOW to the Service for compliance with the terms of the CCAA and the CIs, and notify CDOW of any possible amendments to the CCAA or CIs that may warrant consideration.

2. Covered Species

This CCAA covers the Gunnison Sage-grouse (*Centrocercus minimus*).

3. Authorities and Purpose

Sections 2, 7, and 10 of the Endangered Species Act ("Act") of 1973, as amended, allow the U.S. Fish and Wildlife Service to enter into this CCAA. Section 2 of the Act states that encouraging interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs is a key to safeguarding the Nation's heritage in fish, wildlife, and plants. Section 7(a)(1) of the Act requires the Service to review programs that it administers and to utilize such programs in furtherance of the purposes of the Act. By entering into this CCAA, the Service is utilizing its Candidate Conservation Programs to further the conservation

of the Nation's fish and wildlife. Lastly, section 10(a)(1)(A) of the Act authorizes the issuance of permits to "enhance the survival" of a listed species.

The purpose of this CCAA is for the Service to join with the CDOW and participating private landowners to implement conservation measures for Gunnison Sage-grouse in a manner that is consistent with the Service's Policy on Candidate Conservation Agreements with Assurances (64 FR 32726) and applicable regulations. The conservation goal of this Agreement is to achieve the protection and management necessary to preclude listing by obtaining agreements for grouse habitat protection and/or enhancements on private lands. The conservation goal will be met by giving the State of Colorado and private landowners incentives to implement conservation measures. Landowners will be provided with regulatory certainty concerning land use restrictions that might otherwise apply should Gunnison Sage-grouse become listed under the ESA. The CCAA supports CDOW's ongoing efforts to sustain and enhance the existing populations of the species. This CCAA is considered an umbrella CCAA under which owners of non-Federal properties comprising occupied, vacant/unknown, or potentially suitable Gunnison Sage-grouse habitat (as defined in Section 4, below) are eligible to participate.

4. Enrolled Lands

This CCAA pertains to non-federal lands in Colorado encompassed by the current distribution of Gunnison Sage-grouse, and to those non-Federal lands that provide potential habitat that may be occupied by the species in the future, referred to in the RCP as 'vacant/unknown' and 'potentially suitable' habitats (Gunnison's Sage-grouse Rangewide Steering Committee 2005). In Colorado, the currently occupied habitat on all land ownerships covers approximately 850,000 acres while another 200,000 acres are classified as 'vacant/unknown' and 700,000 acres are 'potentially suitable habitat' (Gunnison's Sage-grouse Rangewide Steering Committee 2005).

"Suitable habitat," as used in the definitions below, means habitat that currently meets one or more life history requirements of Gunnison Sage-grouse.

Definitions of mapped categories of habitat, taken from RCP are as follows:

Occupied Habitat: Areas of suitable habitat known to be used by Sage-grouse within the last 10 years from the date of mapping. Areas of suitable habitat contiguous with areas of known use, which do not have effective barriers to Sage-grouse movement from known use areas, are mapped as occupied habitat unless specific information exists that documents the lack of Sage-grouse use. The habitat may be mapped from any combination of telemetry locations, sightings of Sage-grouse or Sage-grouse sign, local biological expertise, Geographic Information System (GIS) analysis, or other data sources.

Vacant or Unknown Habitat: Suitable habitat for Sage-grouse that is separated (not contiguous) from occupied habitats that either:

- 1) Has not been adequately inventoried, or
- 2) Has not had documentation of grouse presence in the past 10 years

Potentially Suitable Habitat: Unoccupied habitats that could be suitable for occupation of Gunnison Sage-grouse if practical restoration were applied. Soils or other historic information

(photos, maps, reports, etc.) indicate sagebrush communities occupied these areas. As examples, these sites could include areas overtaken by pinyon-juniper invasions or converted rangelands

5. Description of Existing Conditions

Sage-grouse are known for their elaborate mating ritual wherein males congregate and perform a courtship dance on a specific strutting ground called a lek. Sage-grouse species in North America were once abundant and widespread but have declined throughout their range. Currently two distinct species of Sage-grouse are recognized by the American Ornithologists' Union: the Greater Sage-grouse (*Centrocercus urophasianus*) and the Gunnison Sage-grouse (*Centrocercus minimus*) (American Ornithologists' Union 2000). Gunnison Sage-grouse are significantly smaller than Greater Sage-grouse and there are distinctive plumage differences. Geographic isolation, distinct genetic differences, and behavioral differences in strutting display also separate these species (Kahn et al. 1999, Oyler-McCance et al. 1999, Schroeder et al. 1999, Young 1994, Young et al. 2000).

Most research exploring the life history and habitat requirements of Sage-grouse has been conducted on the Greater Sage-grouse. Comparably little research has been done specifically on Gunnison Sage-grouse. Except where referenced, the following brief life history information is taken from Schroeder et al. (1999) which was written prior to species separation, but the information still applies to both greater and Gunnison Sage-grouse.

Gunnison Sage-grouse populations are closely associated with sagebrush (*Artemisia* spp.) habitats. Sage-grouse require sagebrush throughout the year for food and cover, but also require moist bottomlands (e.g., riparian areas and wet meadows) during brood rearing. Breeding activities occur from March to early June. Male Sage-grouse display on leks in early morning and late evening to attract hens. Lek sites are typically open areas within sagebrush stands that have good visibility for predator detection and acoustical qualities so the sounds of display activity can be heard by other Sage-grouse. Dominant males will breed with more than one female. Males provide no paternal care or resources. Hens leave the lek and begin their nesting effort after mating.

Nests are typically shallow bowls lined with leaves, feathers and small twigs placed on the ground at the base of a live sagebrush. Eggs are incubated by the female for approximately 25-29 days after the last egg is laid. Clutch size ranges from 6-10 eggs. If the first nest is lost, some hens will re-nest but second clutch sizes are smaller. Gunnison Sage-grouse are less apt to re-nest than Greater Sage-grouse (Young 1994).

Chicks are able to leave the nest with the hen shortly after hatching. Hens with chicks feed on succulent forbs and insects where cover is sufficiently tall to conceal broods and provide shade and cover from predators. As chicks mature, hens typically move with their broods to riparian areas and wet meadows. Groups of unsuccessful hens and flocks of males follow similar habitat use patterns but are less dependent on riparian areas and wet meadows than are hens with broods.

As fall approaches intermixed flocks of young and adult birds move from riparian areas to sagebrush dominated landscapes that continue to provide green forbs. During the winter, Sage-

grouse feed exclusively on sagebrush and are generally found in areas with extensive sagebrush stands. During severe winters, Sage-grouse are dependent on very tall sagebrush where sagebrush exposure above snow is maximized, providing a consistently available food source (Hupp 1987). Gunnison Sage-grouse are capable of making long movements of as much as 27 miles to find appropriate habitat (Apa 2004). As spring approaches, flocks of Sage-grouse return to breeding areas used the prior year.

Determination of the historic range of Gunnison Sage-grouse is problematic for many reasons, most notably the widespread loss of sagebrush habitats, which preceded scientific study of Gunnison Sage-grouse. Additionally, the species may have been extirpated from many areas for which no useful zoological records or specimens exist. A recent review of historical records, museum specimens and potential Sage-grouse habitat concluded that the Gunnison Sage-grouse is believed to have historically occurred in southwestern Colorado, northwestern New Mexico, northeastern Arizona, and southeastern Utah. Currently Gunnison Sage-grouse are estimated to occupy only 8.5% of their historical range (Schroeder et al. 2003).

Gunnison Sage-grouse currently occur in seven widely scattered and isolated populations in Colorado and 1 in Utah. The following table (Table 1) summarizes information about the Colorado populations and is from the RCP (Gunnison Sage-grouse Rangewide Steering Committee 2005)

Table 1. Population and land ownership summary for Colorado Gunnison Sage-grouse populations.

Local Population	Estimated Population Size (2004)	Population Target, as long-term average:	Occupied Habitat (# acres)	Current Range in Private Ownership (# acres and %)	Conservation Easements on Private Land within Occupied Habitat (# acres and %)
Cerro/ Cimarron/ Sims Mesa	39	TBD	37,160	28,219 (76%)	2,805(7.5%)
Crawford	128	275	35,014	8,240 (24%)	523 (1.6%)
Dove Creek	10	200	28,262	24,538(87%)	1,012(3.6%)
Gunnison Basin	2,443	3,000	592,926	182,916(31%)	26,145 (4%)
Piñon Mesa	142	200	38,890	27,295(70%)	7,314 (19%)
Poncha Pass	39	75	20,415	4,845(24%)	
San Miguel Basin	245	450	100,537	52,423(52%)	884(<1%)
Totals	3,046		853,216	328,819(39%)	38,683(4.5%)

On January 18, 2000, the Service designated the Gunnison Sage-grouse as a candidate species for listing as threatened or endangered. The Service’s 2004 annual assessment of the species and the RCP describe potential threats to the Gunnison Sage-grouse. The size of the range and habitat quality have been reduced by direct habitat loss, fragmentation, and habitat degradation from building development, road and utility corridors, fences, energy development, conversion of native habitat to hay or other crop fields, alteration or destruction of wetland and riparian areas, drought, inappropriate livestock management, competition for winter range by big game, and creation of large reservoirs. In particular, on-going and potential land subdivision has been identified as being of particular concern for habitat on non-Federal land in the Gunnison Basin,

Sims Mesa, Dove Creek, Pinon Mesa, and Poncha Pass areas. Such development also poses a risk of indirect losses through degradation of surrounding habitat, including that on public lands, due to increased human activities associated with larger human populations in the area. The RCP includes additional information regarding the current and projected conditions of each of the local populations (RCP, pages 255-304).

6. Conservation Measures

A. General Description of Conservation Measures

Primary threats to the species that can be addressed under a CCAA include habitat loss, fragmentation, and degradation from urban/human population growth, roads, energy development, invasive weeds, grazing, conversion to agriculture, fire, powerlines, and fences. Based on a review and analysis of information regarding the overall status of the species and each of the local populations, the RCP states: “There is no other issue more fundamental to the longer-term preservation of GUSG than protection of the sagebrush and other habitats on which they depend.” (Gunnison Sage-grouse Rangewide Steering Committee 2005, p. 149). Therefore, emphasis will be placed on Type 1 agreements as described below. Other concerns include lek viewing, disease, predation, recreational disturbance, and drought.

The CCAA incorporates by reference all conservation strategies in the RCP (including local conservation plan strategies) that are relevant to non-Federal lands. The CDOW and Service will draw from those strategies and Best Management Practices from Monsen (2005) while developing conservation measures in the CIs and implementing actions for the Gunnison Sage-grouse on lands enrolled in this CCAA. However, it is possible that the RCP or Monsen (2005) does not cover all needs for certain circumstances, so site specific measures outside of these references will be determined as necessary in consultation with landowners.

Conservation measures from the RCP and Monsen (2005) may include, but are not limited to the following activities:

- Reclaiming disturbed areas from any threats 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 non-native 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.

B. Certificates of Inclusion

The CDOW will contact individual non-Federal landowners within Gunnison Sage-grouse range to encourage their participation in the CCAA program. The CDOW will provide interested landowners with information regarding current Gunnison Sage-grouse use of their property and will ask landowners for any additional information they may have about Sage-grouse populations and habitats on their property. CDOW will work with willing landowners in the development of the materials necessary for successful CI application. CIs will be of two basic types:

- Type 1 -- CIs maintain existing conditions and broad management actions, and
- Type 2 -- CIs that enhance habitat conditions through changes or additions to existing management actions (this may be in addition to maintaining some existing conditions and management actions).

In addition to including a description of conservation measures to be taken on the enrolled property, the CI will provide, or reference, appropriate background information on the specific covered parcels to facilitate reporting and monitoring of the CCAA progress and effects. The information will be maintained by the CDOW. CIs will include specific agreements for monitoring based on the type of CI. The monitoring information required for each type of CI is described below.

Type 1: Securing Habitat Only Agreements: For landowners participating in a CI that does not include habitat treatments or enhancements of their property, the following information will be assembled as part of the CI process:

- a. Map of area and general description of habitat type covered by the CI's with photo point locations, as well as a legal description.
- b. Baseline inventory information on habitat condition at the time of enrollment. This report will be a narrative description of current uses and current management practices with sufficient description to allow assessment of any change in management practice (such as livestock numbers, periods, recreation use, etc.), general assessment of condition of habitat, and an estimate of current Gunnison Sage-grouse use.
- c. Established permanent photo point locations per general CDOW instruction on photo points, with GPS coordinates and initial photos taken.

Type 2: Enhancement of Habitat Through Changes or Additions to Management Actions: Those CI applications that include treatments to improve or restore habitat resources will address the improvements to be made, the expected effectiveness of the improvements to Sage-grouse, the source of funding for improvements, responsibility for completion of improvements, a time frame, and a monitoring plan to ascertain the success of improvements. The following information will be assembled during the CI development process:

- a. Map of area and general description of habitat type covered by the CI with photo point locations, as well as a legal description. Areas where treatments are to be applied would be specifically delineated.
- b. A baseline inventory of conditions using techniques described below, at the time of enrollment in the CCAA to include description of the current condition of various habitat features. For those areas that will receive treatments to enhance habitat conditions, the report will also include the treatment type, conditions under which treatments are to occur, timeline for treatment and expected condition or objectives for treatment including management to be applied during or post-treatment.
- c. Photo point locations per general photo point instruction with GPS coordinates.
- d. Sampling area for treatment monitoring with respect to the baseline conditions. Sampling will use standard techniques (e.g. Daubenmire, line transect, etc.) applicable to the type of treatment, and will use fixed points associated with photo points. Sampling timelines, protocols and schedules will be based on the treatment type.
- e. A list assembled by CDOW of applicable monitoring and treatment methodologies, application of the methods, and reporting protocols will be developed and incorporated in the CI.

Rangeland health assessment techniques will be used to measure how close a range site is to its site potential following guidance in U.S. Department of Interior TR1734-6 (Pellant et al. 2000). By examining attributes of a range site's soil/site stability, hydrologic function and the integrity

of its biotic community, managers can determine the site's current condition (Pellant et al. 2000). By determining deviation from the potential, managers can determine if restoration is advisable and how it can be accomplished. Deviations are measured as none to slight, slight to moderate, moderate, moderate to extreme, and extreme. Seventeen criteria used to measure rangeland health and the dominance of a particular vegetation type will be recorded for each range site and used to rank deviation from its site potential. These rankings will then be applied to the three attribute categories that rank soil/site stability, hydrologic function, and biotic integrity.

Properties being considered for a CI that contain range sites where deviations from potential are ranked as none to slight, or slight to moderate will not require improvements (i.e. they can be Type 1 CIs), although voluntary improvements may be implemented at the joint discretion of the landowner, CDOW, and the Service. Properties being considered for a CI that contain range sites that rank as moderate or moderate to extreme may require improvements if the indicators that score as moderate or extreme are limiting function of important Sage-grouse habitat. Properties that are ranked extreme will require improvements to be enrolled in the CCAA program, i.e. they will be Type 2 CIs.

Habitat measurement transects will be conducted and the measurements will be directly compared to Gunnison Sage-grouse habitat guidelines. The combination of the rangeland health measurements and the habitat transects will provide direction on habitat conservation measures that need to be implemented for Type 2 CIs.

For purposes of the CCAA, lands in public ownership are assumed to be protected and should be managed for grouse benefits, and hence, were not considered when establishing CCAA protection targets. Lands or habitats meeting any of the following conditions will be considered under protection in assessing progress toward the overall habitat protection targets for each population listed in Tables 2-4:

- a. A parcel has a conservation easement that restricts incompatible uses.
- b. A CI agreement has been negotiated, signed, and approved for that parcel.
- c. The parcel is enrolled in a Farm Bill or other recognized program that preserves compatible land use and provides for one or more habitats identified in the RCP.
- d. Federal, State, or local land use regulations prohibit incompatible uses on a parcel.
- e. A parcel is in an area of expansion of seasonally important habitats (documented by CDOW) not previously identified or mapped, which may occur in vacant/unknown or potentially suitable habitats.
- f. A habitat modification project is implemented that converts a parcel into a seasonally important habitat.
- g. If parcels at risk of being developed are converted to incompatible uses, this conversion may be offset by the protection of other equivalent lands in the population area, thereby leading to "no net loss" of protected habitat.
- h. Private lands that are not at risk of development and where current land use practices are compatible with Gunnison Sage-grouse management goals will be considered in assessing progress toward, and maintenance of, protection targets. Inclusion of a parcel in this consideration would be lost if incompatible uses are identified on the parcel, or if the parcel becomes at risk for conversion to incompatible uses or development.

The RCP objective (Gunnison Sage-grouse Rangewide Steering Committee 2005) is to secure and maintain 90% of the identified seasonally important habitats (breeding, summer-fall, and winter) for each Gunnison Sage-grouse population area. The protection goal of the RCP is adopted herein as the enrollment objective for occupied habitat under CIs, with the assumptions regarding protected acreages listed in a-h above. The only exception is for the Cerro/Cimarron/Sims Mesa population, where the management objective is 75% of the occupied habitat; this area appears to act as a habitat linkage to the San Miguel Basin population from the Gunnison, and possibly Crawford, populations. The protection goal of the RCP is adopted herein as the enrollment objective for occupied habitat under CIs as displayed in Tables 2, 3 and 4. There is no enrollment objective for potentially suitable or vacant/unknown habitat, but enrollment of those lands is desirable to allow for future restoration or enhancement of habitat to encourage expansion of the Gunnison Sage-grouse. These are targets that the CDOW and Service believe are reasonable to achieve and that we believe will contribute substantially to conserving the Gunnison Sage-grouse into the foreseeable future, based on the best scientific information available. If seasonally important habitats are not mapped for a given population, the objective is to maintain 90% of all “likely used vegetation communities” within currently mapped occupied habitats. These vegetation communities are a subset of the presently mapped occupied range and exclude vegetation types not typically used by Gunnison Sage-grouse.

The goal of the CCAA is to reduce threats to the Gunnison Sage-grouse and help provide for secure, self-sustaining local populations by enrolling, protecting, maintaining, and enhancing or restoring necessary non-federally owned Colorado habitats of Gunnison Sage-grouse. To help achieve this goal a prioritization of lands to enroll under the CCAA is needed and is described below. For each Gunnison Sage-grouse population, the CDOW will identify non-Federal lands of high habitat importance (i.e. either seasonal habitat mapped as breeding, summer-fall, and winter habitat or unmapped important habitat per local CDOW biologists) to focus on initially for enrollment in CIs. The RCP and the knowledge of local CDOW biologists will be used in establishing priority for enrollment in CIs. The “Prioritization of Habitat Protection Efforts” (RCP page 160) and the “Spatially Explicit Analysis of additional housing units in GUSG Habitat” (Gunnison’s Sage-grouse Rangewide Steering Committee 2005) will also be used in considering initial focus areas for enrollment. Many factors, including the importance of a specific property to Gunnison Sage-grouse, willingness of the landowner to participate in the CCAA, and the size of the parcel will also influence decisions on which lands are enrolled in the CCAA. Therefore, the following priorities are recognized as broad guidance and not an absolute ranking system. The general priorities for enrolling land under the CCAA are as follows:

- Non-Federal lands that contain important occupied habitat that are at risk of development within five years, as known by CDOW or the Service.
- Non-Federal lands that contain important habitat areas, are at risk of development within five years as known by CDOW or the Service, and are in vacant/unknown habitat, potentially suitable habitat, or in habitat linkage areas.
- Non-Federal lands that are enrolled under Farm Bill or other Federal, State, County or non-governmental conservation programs into the foreseeable future that eliminate or reduce threats to the Sage-grouse such that habitats on the land are maintained or improved for the Sage-grouse. Due to uncertainty over length of enrollment in a conservation program or existence of the program it is desirable to still enroll these lands

under a CI, but given a level of existing protection from habitat modification, these lands are lower priority than the other categories. Removal of lands from these programs may elevate the lands to one of the higher priority categories.

- Non-Federal lands that contain important occupied habitat, but are not at risk of development within five years as known by CDOW or the Service.
- Non-Federal lands that contain important habitat areas, are in vacant/unknown habitat, potential habitat, or habitat linkage areas and are not at risk of development within five years as known by CDOW or the Service.
- Non-Federal lands that do not contain areas identified by CDOW as important habitat, are not at risk of development within five years of the date of this CCAA or in the future to CDOW or Service knowledge, but are within occupied habitat..
- Non-Federal lands that do not contain areas identified by CDOW as important habitat, are not at risk of development within five years as known by CDOW or the Service, but are within vacant/unknown habitat, potentially suitable habitat, or habitat linkage areas

Table 2. Targets for Habitat Protection in populations without seasonal habitats mapped.

Population Name	Utilized habitat w/in Occupied Habitat (ac.) (All Ownerships)	Utilized habitat w/in Occupied Habitat (ac.) on Federal Lands	Utilized Habitat in Private Ownership (ac.)	Cons. Easements on pvt. Land in Utilized habitat (ac.) (considered protected)	Remaining pvt land needing protection (ac.)	Utilized Habitat w/in Occupied that is not included in target for protection (*1) (ac.)	Target for CCAA Protection: (Remaining Pvt land minus non-targeted acres) See footnote 2
Crawford	34,908	26,775	8,186	552	7,634	3,491	4,143
Dove Creek	86,483	3,725	23,588	997	22,591	8,648	13,943
Pinon Mesa	24,185	11,595	15,059	4,005	11,054	2,419	8,635
Poncha Pass	14,781	15,092	4,054	0	4,054	1,478	2,576
San Miguel	85,999	37,078	47,110	821	46,289	8,599	37,690

*1: 90% of utilized habitats within occupied habitat are targeted for protection, leaving 10% not-targeted.

Table 3. Target for habitat protection in population with seasonal habitats mapped.

Population Name	Seasonal Habitats (ac.)	Seasonal Habitat in Federal Ownership (ac.)	Seasonal Habitat in Private Ownership (ac.)	Cons. Easements on pvt. Land in Seasonal habitat (ac.)	Remaining pvt land needing protection (ac.)	Seasonal habitats not included in target for protection (*1)	Target for CCAA Protection: (Remaining Pvt land minus non-targeted acres) See footnote 2
Gunnison Basin	369,294	245,591	113,393	21,162	92,231	36,929	55,302

*1: 90% of seasonal habitats are targeted for protection, leaving 10% not-targeted.

Table 4. Target for habitat protection in population with unique protection objective

Population Name	Occupied Habitat (ac.)	Occupied Habitat in Federal Ownership (ac.)	Occupied Habitat in Private Ownership (ac.)	Cons. Easements on pvt. Land in Occupied Habitat (ac.)	Remaining pvt land needing protection (ac.)	Occupied Habitat not included in target for protection (*1)	Target for CCAA Protection: (Remaining Pvt land minus non-targeted acres) (ac.) See footnote 2
Cerro/Cimarron/Sims Mesa	37,145	4,896	28,219	2,805	25,414	9,286	16,128

*1: 75% of occupied habitat is targeted for protection, leaving 25% not-targeted.

*2: Achievement of targets does not guarantee a particular USFWS decision regarding listing the Gunnison Sage-grouse under the ESA.

7. Expected Benefits

As identified in the FWS’s Candidate Conservation Agreement with Assurances Final Policy (64 FR 32726), and regulations at 50 CFR 17.22, to enter into a CCAA and issue a permit and assurances, the Service must determine that the conservation measures and expected benefits, when combined with those benefits that would be achieved if it is assumed that similar conservation measures were also implemented on other necessary properties, would preclude or remove the need to list Gunnison Sage-grouse. Consistent with the CCAA policy, meeting the CCAA standard does not depend on the number of acres enrolled, and adoption of the CCAA and enrollment of landowners does not guarantee that listing will be unnecessary. Through a separate finding, the Service has determined that this CCAA meets the standard specified in the CCAA policy and regulations.

Conservation benefits for Gunnison Sage-grouse from implementation of the CCAA will accrue in a step-wise manner. First and foremost, habitats for the grouse will be protected on non-Federal lands enrolled through CIs. Secondly, 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. Thirdly, 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 optimum population goals cited in the RCP. The scope and scale of the benefits will depend on the amount and distribution of lands enrolled.

Further, Gunnison Sage-grouse conservation will be enhanced by providing ESA 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 grouse populations.

8. Level/Type of Take/Impacts

Specific authorization of incidental take is provided as part of the Permit issued by the Service in conjunction with this CCAA. Should the Gunnison Sage-grouse become listed under the Act, authorization for incidental take under the Permit is limited to agricultural, recreational, and other related activities (e.g. crop cultivation and harvesting, livestock grazing, farm equipment operation, off-road vehicle use) of the participating landowners. Incidental take by landowners enrolled under a CI and the resulting effects to Gunnison Sage-grouse are expected to be minimal. Since grouse habitat protection and enhancement measures will be in place on enrolled lands, impacts would be limited to minor disturbance from various agricultural or recreational activities or from activities related to sage-grouse habitat protection or improvement.

Incidental take will likely occur sporadically on enrolled lands, and is not expected to nullify the conservation benefits expected to accrue under the CCAA. The actual level of take of Gunnison Sage-grouse is largely unquantifiable but will be monitored indirectly through habitat monitoring strategies. These include monitoring the extent of occupied habitat and habitat conditions. Livestock grazing, other agricultural management practices, and housing development are not expected to degrade habitat on a large scale on enrolled lands, since best management practices will be utilized to meet the goals of agriculture while also meeting Sage-grouse habitat and population targets, and housing development will be very limited or non-existent on enrolled properties. Some direct impacts could occur from related activities such as farm equipment operation. However, there is no evidence that equipment operation has resulted in direct mortality of grouse in the past. Nonetheless, landowners will be required to report mortality from incidental take to the CDOW who will report annually to the Service.

The Service recognizes that this level and type of take is consistent with the overall goal of precluding the need to list the species, and that if conservation measures outlined in the RCP

were implemented on necessary non-federal and federal properties, there would be no need to list the species.

9. Assurances Provided

Through this CCAA, the Service provides the CDOW and participating landowners enrolled through CI's with assurances that no additional conservation measures or additional land, water, or resource use restrictions, beyond those voluntarily agreed to and described in the "Conservation Measures" section of this CCAA and associated CI's, will be required should the Gunnison Sage-grouse become listed as a threatened or endangered species in the future. These assurances will be authorized with the issuance of an Enhancement of Survival Permit under section 10(a)(1)(A) of the Endangered Species Act.

10. Assurances Provided to Property Owner in Case of Changed or Unforeseen Circumstances

The assurances listed below apply to participating landowners. The assurances apply only for the enrolled properties and are applicable only with respect to the species covered by this CCAA, the Gunnison Sage-grouse.

- (1) *Changed circumstances provided for in the CCAA.* The impact of various factors such as wildfire, drought, West Nile Virus, and energy development are addressed broadly by conservation measures in the RCP. However, the Parties agree that if significant changes in these factors occur, a review of the changes and their impact on habitats, or the ability of habitat to reduce the impact, will be made. If this review supports the conclusion that additional habitat conservation measures are necessary, the Parties will take an adaptive management approach and address the change by minor amendment to the conservation measures, or take other actions as permitted within the CCAA. The Parties agree to work together in good faith to address the changed circumstance to the best of their abilities. Methods to address these changed circumstances are described below:
 - (a) **Wildfire.** Wildfire impacts affecting single or limited numbers of individual CI's will be handled on a case by case basis with the individual landowners to determine the management practices to be applied. If one or more wildfires destroy or effectively eliminates a substantial amount of Sage-grouse habitat, within a population as identified in the RCP, to the extent that the ability to reach the protected habitat objective is not possible within the CCAA time frame, CDOW will notify the Service within 30 days of that determination. Within 90 days of notification, the parties will meet and evaluate the conservation measures and identify potential actions which could be employed to address the change in circumstances. The Parties will meet with the CI holder and develop habitat restoration plans (including activities such as seeding and invasive weed control) to be implemented on an agreed upon schedule. Adaptive management

approaches will be applied to make adjustments that will maximize likelihood of success.

- (b) Variation in precipitation amount is not an uncommon event, within Gunnison Sage-grouse range. Annual monitoring and conservation measures in the CCAA and CIs are expected to address minor year to year variations in precipitation amounts. However, prolonged or deep droughts in one or more of the population areas identified in the RCP may create conditions that reduce seasonally available habitat beyond normal annual variation and cause changed circumstances on the landscape. Prolonged periods are defined here as 3 years or more. In this event, the CDOW will notify the Service within 30 days of that determination. Within 90 days of notification, the parties will meet and evaluate the drought conditions and, if opportunities exist, employ changes to the conservation measures to address local conditions. The Parties will identify potential actions which could be employed to address the change in circumstances for a given parcel of land. The Parties will meet with CI holders that graze their lands to evaluate if current livestock grazing practices should be temporarily modified and if the CI holder would be willing to do so. Conservation measures that may be used to address drought conditions include grazing deferment, rotation, or other management changes designed to retain residual and live vegetation; development of grass banks for use during drought conditions; development of additional water sources for livestock and Sage-grouse and prescribed fire management, and/or vegetation management to minimize additive impacts.
- (c) West Nile Virus. Where WNV has been detected, mosquito control with EPA approved larvicides or adulticides will be investigated and implemented as appropriate.
- (d) Energy development. Some population areas identified in the RCP are in areas that have, or are believed to have the potential for energy development. The best management practices identified in the RCP would be applied to CI covered lands where the landowner owns and controls the mineral and surface rights. In cases where the landowner controls only surface rights and is required to open their lands to energy development after the CI is signed all efforts to apply the best management practices will be made. Determination on the impact of energy development on individual CIs will be made by the CDOW through the monitoring process. Modifications or additions to management practices may be adopted for the individual CI, in concert with the CI holder, based on the adaptive management approach and the circumstances on each CI. If, however, extensive development of energy resources begins to occur where the landowners do not hold the mineral rights, and the mineral owner (often the United States) and energy developer does not implement the Best Management Practices on sufficient habitat areas, and the CDOW estimates that the ability to achieve the habitat protection targets could be compromised, then a changed circumstance is deemed to be in effect. The CDOW will notify the Service within 30 days of that determination. Within 90 days of notification, the parties

will meet and evaluate the circumstances in the population area and determine if opportunities exist to change the conservation measures to address the habitat protection target. The Parties may determine that the cumulative energy development affects the potential to reach the habitat protection objectives. The Parties would seek to develop additional or modified conservation measures that could be applied outside the CCAA process or additional conservation measures to be considered by the CI holders or in future CIs.

Adaptive management principles will be included in all CIs, for which the above changed circumstances may be applicable.

(2) *Changed circumstances not provided for in the CCAA.* If additional conservation measures not provided for in the CCAA or CIs are necessary to respond to changed circumstances, the Service and CDOW will not require any conservation measures in addition to those provided for in the CCAA and CIs without the consent of landowners. Conservation strategies from the RCP will be drawn from to the utmost extent possible, to address changed circumstances not provided for in the CCAA or CIs. Funding for additional conservation measures warranted under this section will be sought by CDOW and/or other partners, including the USFWS and/or the landowner if he or she desires.

(3) *Unforeseen circumstances.*

- (a) If additional conservation measures are necessary to respond to unforeseen circumstances, the Director of the Service may require additional measures of the landowner, but only if such measures are limited to modifications within the CCAA's conservation strategy, which includes conservation strategies from the RCP, for the affected species, and only if those measures maintain the original terms of the CCAA to the maximum extent possible. Additional conservation measures will not involve the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources available for development or use under the original terms of the CCAA without the consent of the landowner. Funding for conservation measures warranted under this section will be sought by CDOW and/or other partners, including the USFWS and/or the landowner if he or she desires.
- (b) The Service will have the burden of demonstrating that unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of Gunnison Sage-grouse. The Service will consider, but not be limited to, the following factors:
 - (1) Size of the current range of the Gunnison Sage-grouse;
 - (2) Percentage of range adversely affected by the CCAA;
 - (3) Percentage of range conserved by the CCAA;
 - (4) Ecological significance of that portion of the range affected by the CCAA;

- (5) Level of knowledge about Gunnison Sage-grouse and the degree of specificity of the species' conservation program under the CCAA; and
- (6) Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the Gunnison Sage-grouse in the wild.

11. Monitoring Provisions

Three types of monitoring will be required for this CCAA: (1) Ascertaining general compliance for those CI's which secure habitat only; (2) Monitoring of treatment actions for each CI that includes treatment; and (3) Assessing the overall habitat status of each population of Gunnison Sage-grouse for the CCAA. By taking these steps, the assumption is that what is good for Sage-grouse habitat is good for Sage-grouse. Direct links to Sage-grouse population increases from habitat improvement projects is difficult to assess due to other non-habitat related factors that influence population numbers (for instance: predation, disease, permanent habitat loss/conversion elsewhere in the population, etc.). The following protocols are required for each type of monitoring. Note that activities may be performed by approved contractors, but the named parties are ultimately responsible for monitoring.

- (1) *General CI Compliance* - These monitoring activities are required for Type 1 or Type 2 CIs:
 - a. Annual CDOW contact with landowners and a site visit by a CDOW employee.
 - b. Annual review of the baseline documentation for maintenance of the habitat conditions that were documented at the time the CI was approved. A report will be completed by CDOW and provided to the landowner.
 - c. New photographs of photopoints from the baseline report will be taken at least every three years by CDOW. If noticeable changes are seen during a site visit, photos will be taken more frequently. In addition, the landowner will be queried as to what caused the change, if not apparent, and asked if he/she would be willing to conduct habitat treatments to enhance the habitat if caused by factors outside the landowner's control.
 - d. Non-compliance by landowners with any of the terms of the CI will be reported immediately to CDOW and the Service. Also any significant change in habitat conditions regardless of cause will also be reported. An investigation of the facts will determine if further review is necessary, if amending monitoring or management protocols is necessary, or CI revocation or suspension is needed.
 - e. If it is determined that further review is necessary, a review team will be assembled, that will include, at a minimum, CDOW and USFWS personnel as well as the landowner, and a full review will be completed. A report will be filed with the Service, with recommended action potentially including more rigorous monitoring, enforcement of the terms of the CI, habitat treatments, or revocation of the CI.
- (2) *Treatment Monitoring* - These monitoring activities are required for Type 2 CI's that include lands for which a habitat treatment is necessary to improve the habitat quality.-
 - a. Annual CDOW contact with landowners and a site visit by a CDOW employee.

- b. A baseline report must be developed by CDOW before treatment is applied. Fixed photo points will be established in this report that will be used for future evaluation of the effectiveness of treatment.
- c. A post-treatment evaluation based on appropriate monitoring protocols will be conducted by CDOW either annually or at a periodic basis of two, three or five years, depending on the treatment type.
- d. Post-treatment evaluation reports will include a general assessment of conditions and progress, and will be provided by CDOW to the landowner as well as to the Service through the annual report.

(3) *Habitat Status Monitoring by Local Population* - These monitoring activities are required to assess the progress towards CCAA compliance. The cumulative impacts of individual CI activities on the preservation and potential enhancement of Gunnison Sage-grouse habitats and populations may be addressed by these monitoring actions, but not individual compliance by each separate CI. Reports will be made annually by CDOW to the Service.

- a. An assessment technique will be designed by CDOW to assess overall habitat conditions in each population. The assessments will be conducted periodically (e.g., every three to five years).
- b. Protocols will be developed and utilized by CDOW for random sampling of treatment effectiveness across treated areas in each population. Sampling frequency will be appropriate to the treatment types.
- c. A baseline report will be generated by CDOW detailing acceptable habitat and unacceptable habitat needing treatment for each population.
- d. CDOW will prepare annual reports summarizing the number and range/location of current and anticipated CI's for the habitats listed in the baseline.

In addition to the above monitoring activities, the CDOW will provide the Service with a summary annual report related to the CCAA. Information in the annual summary report will include, but is not limited to: 1) a list of participating landowners enrolled under the CCAA over the past year, including copies of the completed CIs 2) monitoring reports relating to overall habitat and population status, as conducted that year; 3) a summary of any funds used under the ESA Private Landowner Incentive Program or other federal and state programs as related to the CCAA; and 4) other information that CDOW deems pertinent to the Gunnison Sage-grouse CCAA. Reports will be due January 1 of each year and a copy will be made available to the Administrators of this Agreement and any participating landowners.

Also, the CDOW will develop and maintain a GIS-based database of the CI's associated with the CCAA, including electronic images of data sheets, baseline reports and monitoring reports. This will help track extent of land covered by CIs, possibly the extent of occupied habitat, overall habitat conditions, habitat treatments implemented, and habitat treatment conditions.

12. Compliance Monitoring

All Parties are responsible for complying with and implementing the conservation measures, monitoring, reporting, and other requirements specified in this CCAA, including the level and type of take authorized by the Permit. The CDOW will be responsible for monitoring and reporting specified herein related to implementation of the CCAA and fulfillment of its provisions. The Service, after reasonable prior notice to the CDOW, may enter the enrolled properties with CDOW to ascertain compliance with the CCAA. If mutually agreed upon by the Parties and a willing landowner, the Service, after reasonable prior notice to the landowner may enter the enrolled properties without the CDOW to ascertain compliance with the CCAA.

13. Notification of Take Requirement

By signature of this CCAA and any associated CIs, participating landowners agree to provide the CDOW or the Service with an opportunity to rescue individuals of Gunnison Sage-grouse before any authorized take occurs. Notification that such take will occur must be provided to CDOW and the Service at least 60 days in advance of the action or immediately upon recognition that take will occur if it is not possible at least 60 days prior.

14. Duration of CCAA and Permit

The CCAA will be in effect for a duration of 20 years following its approval and signing by the Parties. The Permit authorizing take of the species will become effective on the date of the final rule listing the Gunnison Sage-grouse under the ESA, in the event listing occurs, and will expire when this CCAA expires or is otherwise suspended or terminated. The Permit and the CCAA may be extended beyond their initial term under regulations of the Service in force on the date of such extension. If the CDOW desires to extend the permit and CCAA, it will so notify the Service at least 180 days before the then-current term is scheduled to expire. Extension of the permit and CCAA are subject to any modifications that the Service may require at the time of extension.

15. Modification of the CCAA

Any party may propose modifications or amendments to this CCAA or the Permit by providing written notice to, and obtaining the written concurrence of, the other Parties. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. The Parties will use their best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon the other Parties' written concurrence.

16 Termination of the CI's and CCAA

As provided for in Part 8 of the Service's CCAA Policy (64 FR 32726), a landowner may terminate implementation of the CI's voluntary management actions prior to the CI's expiration date, even if the expected benefits have not been realized. However, the landowner will relinquish his or her take authority (if the species has become listed) and the assurances granted by the Permit. The landowner is required to give 60 days written notice to the other Parties of

their intent to terminate the CI, and must give the CDOW and Service an opportunity to relocate Gunnison Sage-grouse within 90 days of the notice.

If the CDOW determines, pursuant to the monitoring activity described in Sections 11 and 12 or otherwise that the landowner has failed to comply with or implement the conservation measures, monitoring, reporting or other requirements specified in this CCAA or in the landowner's CI, the CDOW may terminate the landowner's participation in the CCAA or otherwise revoke the landowner's CI. Such termination/revocation is effective upon receipt of written notice of termination/revocation from the CDOW and the landowner will no longer be covered under the provisions of the CI and the CCAA and relinquishes any take authority specified therein.

17 Permit Suspension or Revocation

The Service may suspend or revoke the Permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation (50 CFR 13.28(a)). The Service may also, as a last resort, revoke the Permit if continuation of permitted activities would likely result in jeopardy to the Gunnison Sage-grouse (50 CFR 17.22/32(d)(7)). Consistent with the CCAA regulations, the Service will revoke because of jeopardy concerns only after first implementing all practicable measures to remedy the situation. If the Service suspends or revokes the Permit, upon the effective date of that suspension or revocation, the CDOW and all participating landowners are released from any and all obligations under the CCAA and their individual CIs.

18. Remedies

All Parties will have all remedies otherwise available to enforce the terms of the CCAA and the Permit. No party shall be liable in damages for any breach of this CCAA, any performance or failure to perform an obligation under this CCAA, or any other cause of action arising from this CCAA. The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties.

19. Succession and Transfer

This CCAA shall be binding on and shall inure to the benefit of the Parties and their respective successors and transferees, (i.e., new owners) in accordance with applicable regulations (50 CFR 13.24 and 13.25). The rights and obligations under this CCAA and associated CIs will run with the ownership of the enrolled property and are transferable to subsequent non-Federal property owners pursuant to 50 CFR 13.25. The Permit that is incorporated into each CI is also transferable to the new owner(s) pursuant to 50 CFR 13.25. If the CCAA and permit are transferred, the new owner(s) will have the same rights and obligations with respect to the enrolled property as the original owner. The new owner(s) also will have the option of receiving CCAA assurances by signing a new CI. The landowner shall notify the CDOW and the Service in writing of any transfer of ownership, so that the CDOW and/or the Service can attempt to contact the new owner, explain the baseline responsibilities applicable to the property, and seek to interest the new owner in signing the existing CI or a new one to benefit the listed species on the property. Assignment or transfer of the CI under the permit shall be governed by Service regulations in force at the time.

20 Availability of Funds

Implementation of this CCAA is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this CCAA will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the Service will not be required under this CCAA to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

21. No Third-Party Beneficiaries

This CCAA does not create any new right or interest in any member of the public as a third-party beneficiary, nor does it authorize anyone not a party to this CCAA to maintain a suit for personal injuries or damages pursuant to the provisions of this CCAA. The duties, obligations, and responsibilities of the Parties to this CCAA with respect to third parties will remain as imposed under existing law.

22. Notices and Reports

Any notices and reports, including monitoring and annual reports, required by this CCAA will be delivered to the persons listed on page one of this CCAA.

IN WITNESS WHEREOF, THE PARTIES HERETO have, as of the last signature date below, executed this CCAA to be in effect as of the date that the Service issues the Permit.

Director
Colorado Division of Wildlife

Date

Deputy Regional Director
U.S. Fish and Wildlife Service

Date

References Cited

- American Ornithologists' Union. 2000. Forty-second supplement to the American Ornithologists' Union *Checklist of North American Birds*. *Auk* 117:847-858.
- Apa, A.D. 2004. Habitat Use, movements, and survival of Gunnison sage-grouse in southwestern Colorado. Unpublished report to the Colorado Division of Wildlife, Colorado.
- Colorado Division of Wildlife. 2004. 2003 candidate status review to U. S. Fish and Wildlife Service. Colorado Division of Wildlife, Grand Junction, Colorado.
- Gunnison Sage-grouse Rangewide Steering Committee. 2005. Gunnison sage-grouse rangewide conservation plan. Colorado Division of Wildlife, Denver, Colorado.
- Hupp, J. W. 1987. Sage grouse resource exploitation and endogenous reserves in Colorado. Dissertation, Colorado State University, Fort Collins, Colorado.
- 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.
- Monsen, S. B. 2005. Restoration manual for Colorado sagebrush and associated shrubland communities. Colorado Division of Wildlife, Denver, Colorado.
- Pellant, M., P. Shaver, D.A. Pyke, and J.E. Herric. 2000. T R1734-6 Interpreting Indicators of Rangeland Health, Version 3. United States Department of Interior, Bureau of Land Management. 118pp.
- 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. Hillard, 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.
- Oyler-McCance, S.J. 1999. Genetic and habitat factors underlying conservation strategies for Gunnison Sage Grouse. Dissertation, Colorado State University, Fort Collins, Colorado.
- Schroeder, M.R., 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.
- 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. Hillard, 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.

U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1999. Announcement of final policy for candidate conservation agreements with assurances. *Federal Register* 64(116):32726-32736.

Young, J. R. 1994. The influence of sexual selection on phenotypic and genetic divergence among sage grouse populations. Dissertation, Purdue University, West Lafayette, Indiana.

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.
