



COLORADO PARKS & WILDLIFE

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April 1, 2013

Public Comments Processing, Attn: FWS-R6-ES-2012-0108
Division of Policy and Directives Management
U.S. Fish and Wildlife Service
4401 N. Fairfax Drive, MS 2042-PDM
Arlington, VA 22203

Re: Docket No. FWS-R6-ES-2012-0108 - Proposed Rule for Gunnison Sage Grouse as an Endangered Species, and
Docket No. FWS-R6-ES-2011-0111 - Designation of Critical Habitat for Gunnison Sage-Grouse

Attention U.S. Fish and Wildlife Service:

Colorado Parks and Wildlife (CPW) appreciates this opportunity to comment on the proposed listing of Gunnison sage-grouse (GuSG) as endangered.

Colorado contains the majority of the present-day range of GuSG. CPW has led conservation efforts for GuSG for decades, partnering with local governments, Utah Division of Wildlife Resources, federal agencies, universities, and landowners to develop a robust and comprehensive program to safeguard the species. Our long history of GuSG conservation includes population protection, monitoring and management, habitat conservation efforts and extensive research.

We have significant concerns with the science used to support the listing proposal, and believe that existing data do not support the conclusion that the GuSG is threatened with extinction throughout all or a significant portion of its range. Rather, we believe the best available science demonstrates that the species is sufficiently secure in a significant portion of its range that listing under the Endangered Species Act is not warranted.

The vast majority (88%) of the range-wide population and nearly two-thirds (63%) of occupied habitat are found within the Gunnison Basin. State- and county-led conservation actions in the Gunnison Basin have produced regulatory certainty in managing major threats to the species. We are addressing concerns about extirpation of the 6 small insular Colorado GuSG populations by augmentation with transplanted birds from Gunnison Basin. It is worth noting that these populations continue to persist, albeit at low levels, since the late 1950s.

STATE OF COLORADO

John W. Hickenlooper, Governor • Mike King, Executive Director, Department of Natural Resources
Rick D. Cables, Director, Colorado Parks and Wildlife
Parks and Wildlife Commission: Robert W. Bray • Chris Castilian • Jeanne Home
Bill Kane, Vice-Chair • Gaspar Perricone • James Pribyl • John Singletary, Chair
Mark Smith, Secretary • James Vigil • Dean Wingfield • Michelle Zimmerman
Ex Officio Members: Mike King and John Salazar

This letter provides a concise overview of our perspective on the proposal; our detailed comments are enclosed.

Science

We respectfully submit that the science-based arguments in the rules have many weaknesses. Some information in the proposed rules is misinterpreted or misquoted and some important published work that is contrary to the proposed rules appears to have been omitted from the proposals. We note several instances where the proposals cite subjective or speculative statements from the literature that are not supported by data. The enclosure addresses our concerns in greater detail.

Population Sizes and Trends

Available data on the status of the Gunnison Basin population of GuSG demonstrate that this population is relatively stable. In fact, recent lek counts in the Gunnison basin are at historic highs. Furthermore, lek counts in about half of the small outlying populations in Colorado have increased in recent years; the increased numbers of males on leks is encouraging and may be tied to our efforts to augment these populations and movements of birds. We advocate for continued aggressive conservation measures directed at these populations. Three independent Population Viability Analyses (PVAs) consistently conclude that the Gunnison Basin population is at little risk of extinction. The PVA included in the Rangewide Conservation Plan (GSRCP 2005) suggests that the probability of extinction in the Basin is <1% in the next 50 years and that projection was made at a time (2005) when the Basin population was significantly (approximately one third) smaller than it is today.

Threats to the Gunnison Basin Population

Sixty-seven percent (67%) of GuSG habitat in the Basin is owned by the federal government (and therefore should be managed in a way that conserves GuSG), 31% is in private ownership and 2% is owned by the state. In our opinion, *at least 79% of the occupied range within the basin is adequately protected from threats such as development* (e.g., via federal management, conservation easements, CCAA certificates of inclusion, county land use regulations) (enclosure, Table 1).

Production areas, defined as habitat within 4 miles of a lek, are arguably the most important component of occupied habitat. In the Gunnison Basin, 81% of nests and 80% of seasonal habitat occurs within 4 miles of a lek; *82% of this production area habitat has some level of protection* (enclosure, Figure 4).

We believe that the federal listing proposal *overstates the threat of development* by basing projection on a short and anomalous period of time and inappropriately bases it on demand for amenities near the Crested Butte ski area, which is not applicable outside of the East Fork Valley. More appropriate data are available from Colorado Department of Local Affairs (DOLA) (enclosure, page 6). In addition, Gunnison County has undertaken

projections of development in the county and is an excellent source of accurate data on historic growth patterns.

We believe the Fish and Wildlife Service (FWS) significantly *overstates the threat represented by roads, powerlines, fences and grazing*. The proposed rule is based on a 2012 National Park Service study of impacts of roads that is not representative of the Gunnison Basin as a whole; we present compelling data from throughout the Basin that refutes the NPS study (beginning on page 6 of the enclosure and also see Figure 3). The listing proposal treats correlative studies on powerline impacts as conclusive, despite no demonstrated cause and effect relationship. CPW has telemetry data that contradict FWS statements made about fragmentation of habitat and the impact (or lack thereof) of fences on sage-grouse mortality rates. Although admitting that no studies have linked livestock grazing practices to grouse population levels, the FWS proposal concludes that grazing, in conjunction with climate change, is a threat to sage-grouse, and dismisses CPW monitoring data that indicate large portions of breeding habitat in the Gunnison Basin meet or exceed GuSG habitat guidelines under existing grazing management.

Significant Portion of the Range

We conclude that the GuSG is adequately protected throughout a significant portion of its range, and therefore does not warrant protection by listing under ESA. Our position is based on information indicating that 88% of the entire species' population is contained within the Gunnison Basin population and nearly 80% of the Basin population's habitat is protected in some fashion from the habitat threats identified in the proposal (enclosure, page 12).

The FWS has applied the concept of risk of extinction in a significant portion of range to determine if a species as a whole is warranted for listing. Because the species is *not* threatened with risk of extinction in such a significant portion of its range, we assert that listing under ESA is *not warranted* for GuSG.

Historic Range and Critical Habitat

We believe FWS has overestimated the historic distribution of GuSG in the listing proposal (enclosure, page 3). The historic distribution portrayed in the listing proposal includes extensive landscapes that are non-habitat. When compared to the present-day range, an inflated historic distribution results in an overstatement of the impact of habitat loss and fragmentation.

We also believe there are serious deficiencies in the proposed critical habitat designation (enclosure, page 18). One concern is the inclusion of vacant or unknown habitat and potentially suitable habitat into the definition of critical habitat; much area designated as potentially suitable habitat is lands that have soils unsuitable for supporting sage-brush, and other lands will require extensive restoration to be suitable for GuSG as they have become dominated by pinyon-juniper or converted to rangeland. Given the lack of

interchange between populations of GuSG, we have concerns about using critical habitat designations to promote genetic diversity. We are actively transplanting Gunnison Basin birds to outlying populations to address this issue. This is a reliable, efficient and effective technique to ensure genetic diversity in the insular populations. We will address these and additional concerns during the upcoming comment period for the economic report on Critical Habitat.

Summary

In our view, the Gunnison sage-grouse does not warrant listing as a threatened or endangered species. We urge the USFWS to reconsider the listing proposal in light of the information we provide. The Gunnison Basin population, containing the vast majority of the range-wide population of Gunnison sage-grouse, is protected by regulatory and other mechanisms that effectively address threats to the bird and its habitat. In our estimation, threats in the Gunnison Basin from development, roads, powerlines and fences are significantly less than suggested in the listing proposal and do not pose a threat to the long-term viability of the species.

Thank you for considering our comments on the proposed listing. Chad Bishop, Assistant Director for Wildlife and Natural Resources (chad.bishop@state.co.us; 303.594.8831) is available to address any questions about the information used in assembling these comments.

Sincerely,



Rick D. Cables
Director

Enclosures:

cc: Noreen Walsh, Director, Region 6 USFWS

Colorado Parks and Wildlife
Detailed Comments on Gunnison Sage-Grouse Proposed Rule – Endangered
Enclosure
1 April 2013

Colorado Parks and Wildlife (CPW) urges the U.S. Fish and Wildlife Service (FWS) not to list the Gunnison sage-grouse (GuSG) as endangered under the Endangered Species Act. We do not believe the species fits the definition of "Endangered" under the Act; indeed, we believe that the Gunnison Basin population, constituting a significant portion of the species range, has adequate protections and is sufficiently secure to be considered *not warranted* for listing. We acknowledge the threats to the small populations due to their small size and we advocate continued aggressive conservation measures for them. Our recommendation that the species is not warranted for listing is predicated on the assumption that federal land management agencies will implement conservation measures that benefit GuSG over the long-term. This document provides a thorough review of the listing proposal in light of the best available science, which we believe supports our position that the GuSG is not in danger of extinction in the foreseeable future. Below are our specific comments on the proposed listing.

Biology and Habitat Use

The description of biology and habitat use seem appropriate, although we found several instances where there is too much reliance on *greater* sage-grouse (GRSG) information or an over simplification of GuSG information. We suggest that when reviewing available information on biology and threats, the FWS carefully review and apply information according to the following hierarchy:

- a. Use of only GuSG data when it exists.
- b. If GuSG data do not exist, use GRSG data closest to range in Colorado or Utah.
- c. If GRSG data from adjacent populations do not exist, then proceed with the appropriate cautions and limited inference to available information within the range of GRSG.

This approach will provide the context needed for a more rigorous and defensible decision.

Population Trends

The FWS listing proposal states that "Population trends over the last 12 years indicate that six of the populations are in decline." (p. 13 and elsewhere). However, lek counts (high male counts) in 3 of the small populations (San Miguel, Crawford, and Cerro/Cimarron) have increased in recent years (Fig. 1). The drop in the 2010 lek count for Cerro/Cimarron is likely the result of reduced survey effort, as late snowpack that year hindered our access to lek sites.

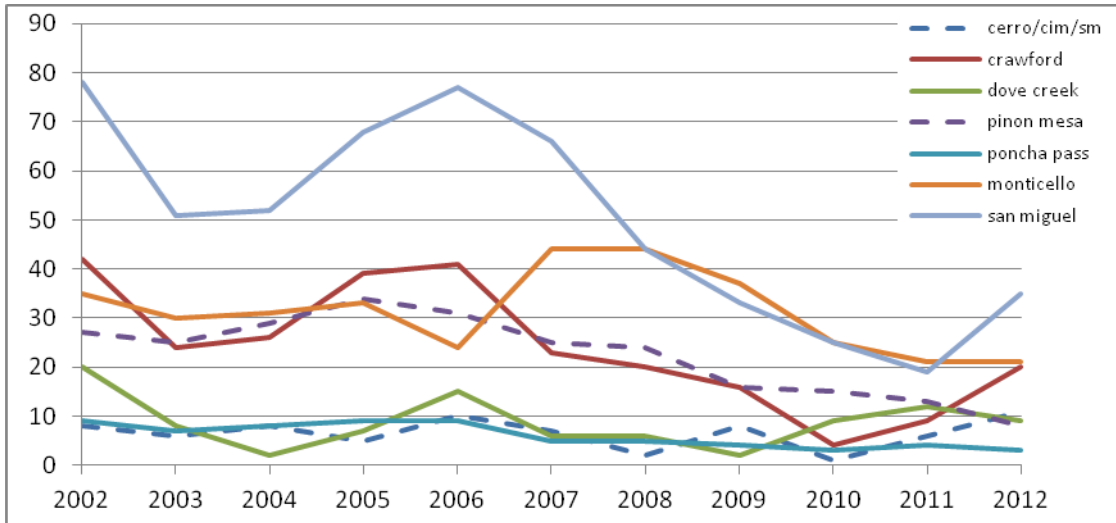


Fig. 1. Ten years of high male counts from lek surveys in the small populations of GuSG.

The listing proposal does not acknowledge that high male counts from recent lek surveys are at *historic* high levels in the Gunnison Basin (Fig. 2). Prior to 1996, lek surveys lacked a standard protocol and may have suffered from inconsistent counting effort; however, since 1996, standardized lek survey effort and protocols have demonstrated an increasing trend in high male counts in the Gunnison Basin population.

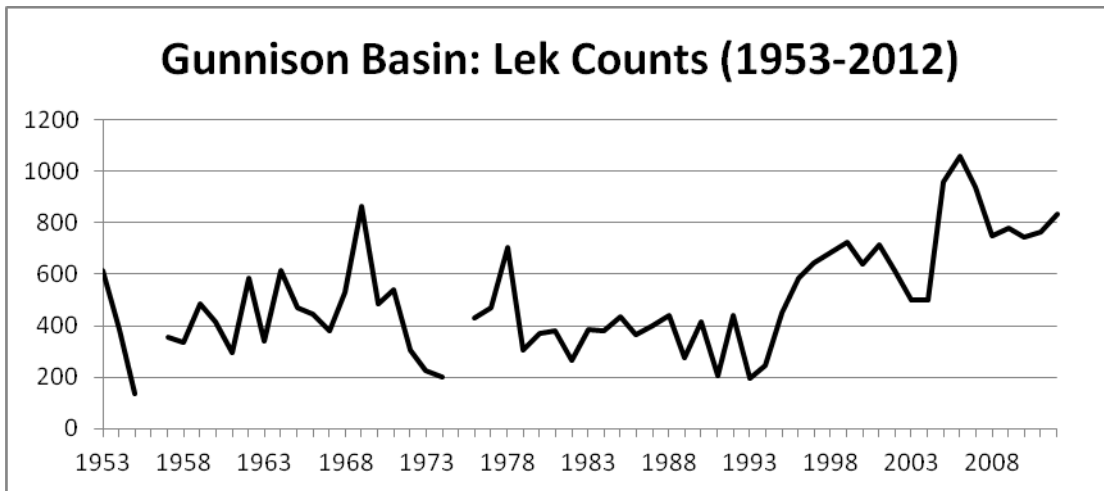


Fig. 2. High male counts from lek surveys in the Gunnison Basin.

Population Viability

The ESA defines an endangered species as any species that is "in danger of extinction through all or a significant portion of its range" and a threatened species as any species "that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future." According to the Federal Register Vol. 77, No. 238, pg. 73851..."The Act does not define the term 'foreseeable future'. However, in a January 16, 2009, memorandum addressed to the Acting Director of the Service, the Office of the Solicitor, Department of the Interior, concluded, "...as used in the [Act], Congress intended the term 'foreseeable future' to describe the extent to which the Secretary can reasonably rely

on predictions about the future in making determinations about the future conservation status of the species (M-37021, January 16, 2009)."

Given this time frame, CPW believes the GuSG does not meet the definition of 'endangered'. We believe a 50-year time frame is the foreseeable future given the available data for the GuSG. The Population Viability Analysis in the Gunnison Sage-Grouse Rangewide Steering Committee (GSRSC 2005) indicates there is a low risk of extinction for the species rangewide (i.e., the risk of extinction for a stable population of 500 birds is less than 5% over a 50-year period). The PVA developed for the GSRSC used an estimate of 500 males in the Gunnison Basin. The analysis estimated the probability of extinction in the next 50 years to be less than 1%. The current estimated male counts in the Basin are >50% higher than when the model was developed (i.e., if we re-ran the PVA with the increased starting population the probability of extinction would be miniscule). The FWS even states "These results [PVA in the GSRSC (2005)] suggest that the Gunnison Basin population is likely to persist long term in the absence of threats acting on it (p. 2531).

The FWS only references the PVA in the GSRSC (2005) in the current listing proposal. In its 2006 decision of not warranted for listing (USFWS 2006), the FWS analyzed another PVA (Garton 2005) as supporting its decision. The FWS does not reference Garton (2005) in the current listing proposal. Both the GSRSC (2005) and Garton (2005) PVAs indicate that GuSG are stable rangewide and in the Gunnison Basin (i.e., in a significant part of the species' range). These two independent PVAs should both be referenced and considered by the FWS in its listing proposal.

Recently, Davis (2012) used data collected by CPW to conduct several new population modeling analyses for the Gunnison Basin using recent demographic estimates, alone or in combination with lek count information. While Davis (2012) concludes under most population projections that the Gunnison Basin population is declining, it is fundamentally important to note that the data used were from a short time period when GuSG numbers were declining slightly after reaching record numbers in the Gunnison Basin. CPW will continue to support further refinements of population analyses for GuSG, but it is important to recognize recent declines in the Gunnison Basin reflect natural, short-term population fluctuations that are part of a longer-term increasing population trend. The present population remains near an all-time high.

The FWS also states that "The analysis [the PVA in the GSRSC (2005)] indicated that small populations (< 50 birds) are at a serious risk of extinction within the next 50 years (assuming some degree of consistency of environmental influences in sage grouse demography)." (p. 2531). This is an accurate statement of the PVA conclusion in the Rangewide Plan. However, it doesn't explain why several of the small populations have persisted at low numbers for decades (Rogers 1964).

The Gunnison Basin population represents 88% of total GuSG numbers and has experienced record high counts of males on leks in recent years. Two PVAs have been completed that the FWS has considered indicate the population is relatively stable, and as detailed in these comments, the threats identified by the FWS are either over-stated or have been addressed in the Gunnison Basin. Therefore, we conclude that the GuSG is adequately protected across a significant portion of its range for the foreseeable future and should not be listed.

Historic and Current Distribution

The historic GuSG distribution is overestimated as a whole, and also misses key areas. It was delineated at a scale that is not comparable to approaches used to delineate current occupied range. Schroeder et al. (2004) used methods appropriate for the time and scale of mapping, but GIS techniques have improved since the preparation of that publication (circa late-1990s – 2003). Schroeder et al. (2004:366) reported that the maps were "...transferred to 1:2,000,000 scale U.S. Geological Survey maps along with a hand-drawn approximation of potential (pre-settlement distribution) habitat." In contrast, occupied habitat was delineated at a much finer scale (often finer than 1:100,000 scale). We believe that an updated approach to refining the Schroeder et al. (2004) estimate of the historic range (46,521 km²) is critical to an accurate assessment of changes in distribution. The historic range map in the proposal includes extensive areas of non-habitat across the landscape, and overestimates impacts of the inferred habitat loss and fragmentation.

The overestimate of pre-settlement distribution influences other cited research. Specifically, Wisdom et al. (2011) attempt to compare "extirpated" and "occupied" range using abiotic and biotic factors that "caused" the extirpation of GuSG. Results and interpretations from Wisdom et al. (2011) are biased when the base map is inaccurate.

We note a discrepancy between current occupied range estimates of 4,720 km² in the 2006 decision (USFWS 2006:19954) and 3,795 km² in the 2013 proposed rule. This unexplained discrepancy results in a "loss" of 925 km² of current occupied range, with which we disagree.

Use of Rogers (1964) in Listing Proposal

We believe that Rogers (1964) provides a more accurate base layer of historic distribution (Page 22, Fig. 7 or Page 10 Fig. 1; both provided here as Appendix A) and recommend that the FWS rely primarily on this source. We have several concerns with the way Rogers (1964) was used in the current listing proposal:

- a. The listing proposal (p. 2493) states, "All sagebrush plant communities in Dolores and Montezuma Counties within Gunnison sage-grouse range in Colorado were historically used by Gunnison sage-grouse (Rogers 1964, p.9)." Rogers (1964:9) actually stated, "The highest sage-grouse densities may have occurred in the northwestern part of the state...Farther south, western Colorado counties ..., undoubtedly had some sage grouse within their borders".
- b. The listing proposal states (p. 2494), "Gunnison sage-grouse likely occurred historically in all suitable sagebrush habitat in the Piñon Mesa area, including Dominquez Canyon area of the Uncompahgre Plateau". The actual quote from Rogers (1964:114) is "A light population density, but the best concentration of birds in Mesa County, is on Pinon Mesa southwest of Grand Junction. These birds summer in the area around the Glade Park store and on the highest part of the Mesa from the head of the Little Dolores to the Utah line. They probably winter on the breaks of Unawweep Canon [sic] and on the south side of the Colorado River below Fruita. It is possible that there is some movement by these birds to the Dominquez area of the Uncompahgre. A light population density of sage grouse is present in the Dominques Creek-Smith Fork area of the Uncompahgre Plateau."
- c. The listing proposal states (p. 2494) regarding Poncha Pass, "...this population lies within potential presettlement habitat, but was extirpated prior to 1964 (Rogers 1964, p. 116)." The

exact quote from Rogers (1964: 116) is, “The Poncha Pass area in the northeastern part of the county near Poncha Pass and the La Garita Creek area in the southern part were not checked, but sage grouse have not been reported in these areas in recent times.” Rogers (1964) does not state the sage-grouse were extirpated; only that birds were not reported and that the area was not checked.

- d. Even though the proposal overestimates historic range, it also fails to address all possible historic range in southern Saguache, Rio Grande, Archuleta, La Plata, Montezuma and Ouray counties in Colorado (see Rogers 1964).

Habitat Loss and Fragmentation

There is little debate regarding the historic loss of sagebrush habitat in Colorado. There is also consensus that sagebrush habitats have been lost due to many different anthropogenic activities. What is debatable is how much habitat, and of what quality, is needed for population persistence.

The proposed rule states (based on Wisdom et al. (2011) that there are no “strongholds” for GuSG. The “stronghold” standard used by Wisdom et al. (2011) is 100,000 ha (247,105 acres) of contiguous sagebrush habitat. In a much finer scale and regional sagebrush analysis, Boyle and Reeder (2005:3-3) concluded that, “Over much of its broad range in the assessment area, sagebrush is patchy and fragmented by highly variable terrain, soils, and microclimates, resulting in a mix of sagebrush patches of various sizes within a matrix of other vegetation types as well as human-disturbed area.” One of Colorado’s most secure GRSG populations (North Park) is estimated to have 125,000 ha which does meet the Wisdom et al. (2011) “stronghold” standard, but not by much. Boyle and Reeder (2005: 3-3) also reported that of the three major concentrations of sagebrush in Colorado, the Gunnison Basin is third, only behind Northwest Colorado, and North/Middle Park. Ultimately, it is unlikely that the Wisdom et al. (2011) standard could have ever been met in the range of GuSG, even historically. This is due to the high elevation basins and naturally fragmented nature of the sagebrush communities in Colorado.

The listing proposal frequently discusses “fragmentation” of GuSG habitat; however, this is a misuse of the concept. Despite correctly defining fragmentation as “a result of a barrier that prevents an animal from traveling from one patch to another”, the listing proposal concludes that “fragmentation due to residential, exurban, and commercial development and associated infrastructure such as roads and power lines” is a major threat to GuSG. They also argue that fences and small patches of cheatgrass fragment the landscape, without supporting data.

The listing proposal also argues that loss of habitat fragments the landscape. This is true only if the degree of habitat loss is so significant that it prevents movement between patches of habitat. CPW tracked > 200 radio-marked adult GuSG for a demography and movement research project. The marked birds frequently moved between areas that are not contiguous habitat. Furthermore, CPW telemetry data show residential development, roads, and power lines were not barriers to movement of GuSG in Gunnison Basin or in the San Miguel population.

Residential Development

There are three factors that contribute to an inaccurate representation of land use impacts to GuSG in Gunnison County, Colorado as stated in 78 FR; January 11, 2013, pages 2495 – 2498.

First, the East Fork subdivision patterns and densities are not representative of Gunnison County. The Theobald et al. (1996) study cited by the FWS in the register notice uses the East Fork subdivisions as its basis for future subdivision across the Gunnison Basin including all occupied GuSG habitat. The Theobald et al. (1996) study was developed to look at subdivision patterns in an agricultural landscape. The results of the study are reflective of subdivision rates, density, and patterns that are influenced by the proximity to the ski resort amenities and attractions of the Crested Butte ski area. The demand for ski area development amenities is not applicable outside of the East Fork Valley. Thus, the reliance on Theobald et al. (1996) findings is not an appropriate use of the study.

Second, the FWS used development numbers from a peak period of development/subdivision activity between 1980 and 2008 and projected them out to the year 2050. Standard practice for long-range population projections requires that the projection method use the largest (longest time horizon) data set available so that significant short-term changes will be evened out and the results will reflect a more accurate rate of change over time; the temporal component to population projections is essential so the rate of change does not over- or under-estimate the projection. Further, the development numbers as described in 78 FR; January 11, 2013 do not indicate what percent of total development will occur within municipal boundaries or outside of municipal boundaries in rural Gunnison County. The inference that is made is that the human population will be located in all new subdivisions across the county. The inference and assumptions need to be reanalyzed and refined so that human population distribution and impacts are accurately assessed – e.g., human populations in municipal settings and proximate subdivisions will have little or no impacts to grouse habitats or populations.

Third, the Federal Register cites population and development numbers from several different sources or studies. Specifically, population growth numbers are cited from the Department of Local Affairs (DOLA) studies/projections, the Colorado Water Conservation Board (CWCB), and from Theobald et al. 1996 and Aldridge et al. 2012. Each of the population projection methods used was different and was applied to different geographic scales and for different purposes. The FWS aggregated, selected or used findings from each of the studies to quantify impacts to GuSG. A more appropriate method for identifying long-term population growth would have been to use the DOLA population projection numbers for Gunnison County. DOLA expertise is well-suited to help the FWS in this type of situation. A quick review of the web site suggests that Gunnison County's long-range population numbers are significantly below what is projected in the Federal Register. CPW recommends the FWS reexamine the human population and subdivision rates of growth and reassign a development threat to the grouse. The DOLA web site is: http://www.colorado.gov/cs/Satellite?c=Document_C&childpagename=DOLA-Main%2FDocument_C%2FCBONAddLinkView&cid=1251593369402&pagename=CBONWrapper

Roads

We support conservation measures to minimize the impact of roads on GuSG habitat, but the extent of the correlative studies used in the proposed rule to conclude that there is causative relationship between roads and population decline is problematic. We do not agree with the conclusion that roads are a “major threat” to the continued existence of GuSG.

Oyler-McCance et al. (2001:330) concluded that roads were more prevalent in small patches of sage-grouse habitat versus large patches, but the authors stated, “...Although this study documented amount of habitat loss and occurrence of habitat fragmentation, it did not measure habitat quality (with respect to sage grouse).” Despite this caution, the proposed rule suggests a linkage between roads and powerlines, using speculation from Oyler-McCance et al. (2001:330) that, “Powerlines often parallel

roads and provide perches for avian predators. Sage grouse may also be more vulnerable to flying into fences and powerlines, being hit by cars, and may be exposed to populations of nonnative predators.” Oyler-McCance et al. (2001) do not provide any data to support this speculation.

We recognize that Aldridge et al. (2012) is the only peer-reviewed paper that directly addresses habitat use by Gunnison sage-grouse, and we commend the authors’ efforts to examine habitat relations using the National Park Service nesting data. We agree with Aldridge et al. (2012) that the models they presented “should be seen as an initial tool to inform management and conservation” (p. 404), but share their caution that extrapolating their nest model based on the western end of the Gunnison Basin to the entire Basin “should be undertaken with caution” and “these extrapolations need to be challenged with independent data to ensure predictions are valid” (p. 402). We have serious questions about the validity of this nest site selection model, particularly outside the area where the nest data were collected, and the specific conservation recommendations made by the authors. Some of our chief concerns about using this study to make strong inferences about threats to Gunnison sage-grouse throughout the Gunnison Basin include:

- a. The topography of the study area makes access to areas around roads and housing unlikely for Gunnison sage-grouse. For example, in the case of Sapinero Mesa the main roads are at the base of the Mesa and sage-grouse spent most of their time in the sagebrush flats on top of the Mesa (i.e., they seldom traveled to the base of the Mesa). For Kezar Basin, there are 2 main roads: Highway 50, which is on the other side of Blue Mesa Reservoir, and therefore seldom used; and Highway 149, which is on the other side of a tall, steep ridge, and therefore seldom used. Linear distance from a nest to either a road or house was included in the model without taking into consideration the associated topography or other landscape features that may have an effect on selection independent of the presence of roads and houses.
- b. The town of Gunnison is included in the model to evaluate residential development (p. 394). To our knowledge, Gunnison sage-grouse in the study area on the western edge of the Basin (i.e., Kezar Basin and Sapinero Mesa) do not move as far as the town of Gunnison (CPW winter flights and NPS personal communication); therefore the model overestimates the effect of residential development since the town of Gunnison was not "available" to Gunnison sage-grouse.
- c. The results for model generalization (extrapolation to the entire Gunnison Basin) are inaccurate (e.g., predicting the northwest section of the Basin as poor nesting habitat is inaccurate). As noted in the paper, factors contributing to this error include using lek locations as a surrogate for nest locations and including habitat from the expanded region that was not in the areas where nest data was collected. We caution that use of this model across the Gunnison Basin is tenuous at best given these weaknesses and the known errors in the extrapolated model.
- d. Aldridge et al. (2012) recommend (p. 405) that “...future developments (urban or roads) should be prevented within 2.5 km of identified crucial nesting habitat, if habitats, and thus populations, are to be maintained.” This strong and specific conclusion is not well-supported by the results. Under the models used, Gunnison sage-grouse have a similar probability of nesting at distances both less than and greater than 2.5 km from roads (Figure 5e, Aldridge et al. 2012) and residential development (Figure 5f, Aldridge et al. 2012). There is no indication that 2.5 km is an iron-clad critical distance within which Gunnison sage-grouse cannot tolerate any development.

- e. Aldridge et al. (2012) use resource selection models to identify “crucial” nesting areas (based on their definition of crucial areas having at least a 0.12 relative probability of use) and conclude, but do not demonstrate, that impacts to crucial areas will have direct impacts on Gunnison sage-grouse abundance and/or population trend. The authors do not present any data to demonstrate or predict population-level impacts of developments in their study area or across the Gunnison Basin. For example, although these models deal with nest site selection, there is no information presented on nest success and its relation to habitat variables. Information demonstrating that nesting effort or nest success was lower in areas with higher densities of roads and houses would provide stronger inference about population impacts of these variables.
- f. These are models of nest site selection, based on current configurations of the habitat variables included in the models. While the models predicted locations of “test” nests within the study area (but see “g.” below), this only demonstrates that the models predict how Gunnison sage-grouse select nest sites under the current habitat configuration – it does not provide strong inference for how sage-grouse would select nest sites if the configuration of habitat variables was changed substantially.
- g. Nest sites from 2006-2009 (73 nests) were used to develop the models. Twenty-five percent of the nests (18/73) were repeat nests by 15 individual females (p. 397). Females are likely to use the same nest sites or nearby sites in successive nesting attempts, and thus repeat nests by the same female should not be considered as independent data points when building a habitat selection model. We believe an appropriate approach would have been to eliminate the repeat nests from the data set, thus reducing the sample to 55 nests. It is not clear whether the 29 nests from 2000-2005 used for model evaluation were all from different females, and that all these females were different than the females used in model development. If nest sites of some females (or their offspring) were used in both data sets, we would expect there to be a strong bias in the concordance between model predictions and the nest sites used for model validation.
- h. The list of principle variables used in the model is very large (96 variables). Even after reducing the list of variables used in the landscape and patch models, many models appear to be over-parameterized (i.e., some models are rejected, not because of lack of fit, but because there is not sufficient data to appropriately evaluate the model).

In summary, we urge the FWS to use caution in applying results from the analyses in Aldridge et al. (2012) to conservation assessments for the entire Gunnison Basin. In particular, a firm conclusion that habitat within 2.5 km of roads and residential developments is unsuitable for Gunnison sage-grouse is not well-supported.

To explore the role that roads may play on the population of GuSG in the Gunnison Basin, CPW conducted a GIS analysis of the frequency (at 100 m intervals) of the Euclidean distances for successful and unsuccessful nests to the nearest road. Roads include highways and county roads in Gunnison and Saguache counties. "Primitive" roads were not included as was done in Aldridge et al. (2012), thus making our analysis a more conservative approach. Figure 3 illustrates a declining trend in the number of nests further away from roads with no apparent impact on nest success (i.e., grouse are not "avoiding" roads as suggested in Aldridge et al. (2012)). Approximately 45% of the nests are within 300

m of a road and 70% of the nests are within 500 m. The frequency declines > 500 m from a road. Apparent nest success was similar across all intervals. This analysis does not account for age (yearling vs. adult), renesting (however, only 3.2% of females[6/185 nests] renested), or time (same female observed across years).

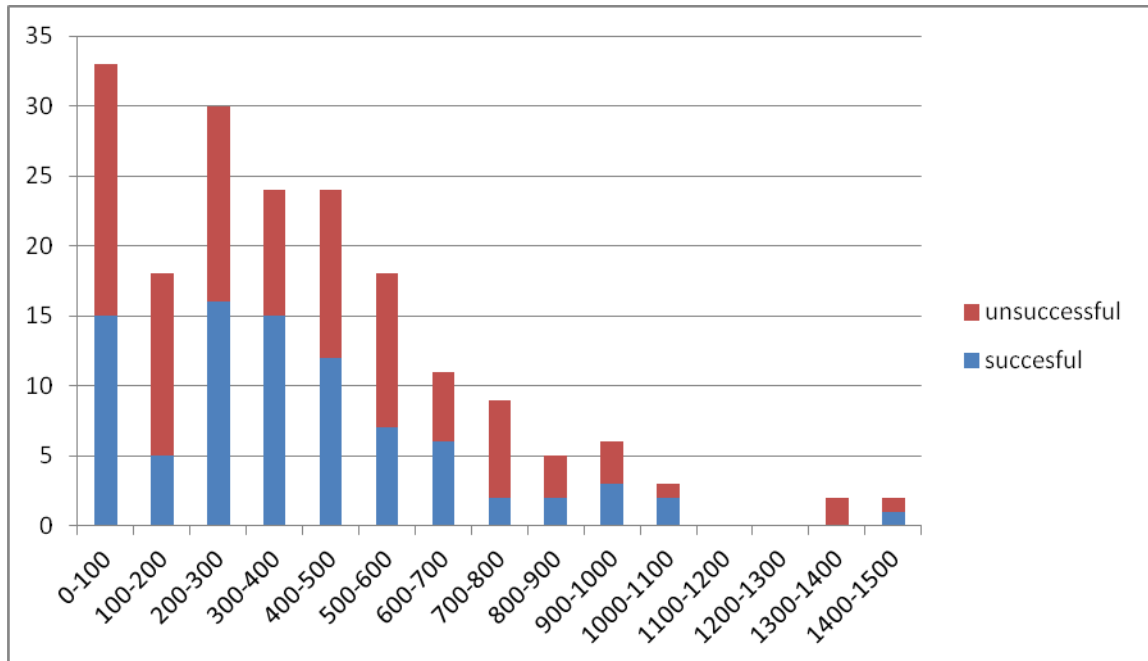


Fig. 3. Frequency of successful and unsuccessful nests (n=185) at 100 m interval distances from roads in the Gunnison Basin population (2005-2010). Roads include highways and county roads (primitive and 4-wheel drive roads are not included).

The proposed rule also cites Braun (1995:6), who speculates that, “Subsequent clearing of sagebrush...further fragmented the distribution of sage grouse as did highway construction, ranch development, powerline placement, reservoir construction, and other facets of human settlement.” Because Braun did not provide any data to support this speculation that highway construction fragmented the distribution of sage-grouse, we urge caution in accepting the statement as fact.

We recognize that our review of nesting success in relation to roads addresses only one aspect of potential threats to GuSG from roads. Additional threats from roads include chick and adult mortality, depredation risk, noise impacts, changes in lekking behavior and impacts on suitability of brood-rearing and seasonal habitat components. However, we note that regulatory measures have been implemented to reduce threats from roads to GuSG on federal- and state-controlled lands, including seasonal road closures and restrictions on shed antler collection.

The proposed rule cites Bui et al. (2010), but does not heed the authors’ cautions on making a causative interpretation from their observational study. Bui et al. (2010:75) cautioned of the limitations of their study by stating, “Our models suggest that potential for raven predation is high, but it does not prove a causal link between raven occurrence and sage-grouse reproductive failure.”

We do not believe that the Aldridge and Boyce (2007) study of GRSG in Canada is applicable to Colorado sagebrush communities or GuSG. The GRSG in Canada are a peripheral population in the northern extreme of the range and inhabit an entirely different sagebrush community; silver sagebrush (*Artemisia cana*). In addition, Aldridge and Boyce (2007) failed to address issues of pseudoreplication (111 nests from 61 females: nearly 2 nests/female and 669 brood locations from 35 broods resulting in > 19 locations/brood.). This use of autocorrelated (spatially and temporally) data, if not addressed, can bias results due to the site fidelity shown by sage-grouse and can lead to spurious and/or incorrect conclusions.

Powerlines

We do not agree with the inference that powerlines have an impact on GuSG persistence because it was based on correlative studies. There are many naturally occurring landscape features where raptors perch. There is also no direct experimental evidence that the increases in raptors endanger the persistence of grouse populations. The proposed rule also infers that powerlines fragment habitat and that they are a barrier to movement. There is no credible experimental evidence that illustrates or supports this inference.

Domestic Grazing and Wild Ungulate Herbivory

The proposed rule (p. 2500) states, “Few studies have directly addressed the effect of livestock grazing on sage-grouse...” We know of no studies that have directly addressed the effect of livestock grazing on sage-grouse. We agree with the statement in the proposed rule (p. 2500) that ...”little direct evidence links grazing practices to Gunnison sage-grouse population levels...””, as we can find no direct evidence in the literature. The proposed rule also infers from speculative discussions or summary reports the threats from grazing, but provides many qualifiers such as “could” and “may”. Given these qualifiers, and the lack of credible science to link grazing to the decline or persistence of GuSG, we do not agree with the conclusion that grazing in combination with climate change, etc. is a threat to the future persistence of GuSG.

The FWS used information from Gregg et al. (1994) to support their conclusions. Gregg et al. (1994) speculated that grazing was responsible for nest depredations. The data reported by Gregg et al. (1994) suggest that nests with < 18 cm of grass height had lower nest success when compared to nests with grass > 18 cm. Gregg et al. (1994) do not report nest success. Gregg et al. (1994) did not conduct grazing experiments and did not account for varying ecological site productivity. The FWS cites Gregg et al. (1994) and Connelly et al. (2000) in referencing the 18-cm grass height. This is counter to the FWS recommendation of 10 – 15 cm (< 18 cm) for critical breeding habitat. This discussion is confusing; we recommend that habitat characteristics be linked with critical habitat recommendations.

The proposed rule (p. 2501) suggests that livestock trample sagebrush seedlings and cite Connelly et al. (2004). This may occur, but is not a threat to the future existence of GuSG. The FWS also concludes that these types of disturbances by grazers constitute competition. We are not aware of any experimental research that has demonstrated competition between grazers and sage-grouse (either species). The proposed rule (p. 2501) provides no convincing data or research to support the conclusion that current or past livestock grazing may be negatively affecting the Gunnison Basin population or any GuSG population.

We encourage the FWS to review the Williams and Hild (2012) study that demonstrated that large areas used by GuSG in two ecological sites in the Gunnison Basin meet or exceed the habitat guidelines

(GSRSC 2005). Although the study did not specifically address grazing, it found that vegetation in large portions of production areas in the Gunnison Basin generally met or exceeded the breeding habitat guidelines for GuSG, under existing grazing practices.

We disagree with the conclusion and inference in the proposed rule (p. 2505) that equates the browsing by big game on three species of mountain shrubs with a causative negative effect on GuSG habitat. This conclusion agrees with Jupuntich et al. (2010) that the browsing by big game reduces drifting snow ultimately causing reduced grass and forb growth. However, these conclusions are not supported by ecological literature.

Fences

The proposed rule repeatedly relies on speculation by Braun (1998), Oyler-McCance et al. (2001) and Stevens (2011).

Stevens (2011) over-reaches his dataset by concluding that feathers found on fences result in mortalities. Stevens (2011) reports walking several kilometers of fence documenting feathers in fences that encompass several species. However, Stevens (2011) only reports finding one western meadowlark carcass.

In research conducted by CPW over 10 years, the CPW radio-marked (with 4-hour mortality sensors) over 250 yearling and adult female GRSG, 570 chicks and subsequent juvenile GRSG, and 130 adult and yearling GUSG. In tracking >1,000 radio-marked sage-grouse, CPW has documented 3 strike-related mortalities (1 powerline and 2 fenceline). We offer these data to help inform determination of the contribution of fences on GuSG mortality. Ultimately, the inference of “no impact” is not correct; mortalities can, and do, result from fences. However, the impact of fences is minimal and not worthy of consideration as a factor that contributes to the decline of GuSG.

Adequacy of existing regulatory mechanisms – BLM Laws and Regulations

The proposed rule (p. 2526) states “All the RMPs currently propose some conservation measures...” Later, the FWS clarifies that BLM RMPs provide limited regulatory protections that are implemented at the project-level. The FWS argues that they do not know what the RMP final measures are concerning travel management because of the negative effects of roads as modeled by Aldridge et al. (2012). The threat of roads is overstated (see comments on Aldridge et al. (2012) above). Therefore, arguing that unknown “final measures” in revised RMPs are not adequate for an alleged threat outlined by Aldridge et al. (2012) is inappropriate.

Contrasting statements in the proposed rules about BLM grazing guidelines are confusing. The listing proposal (p. 2527) states that “...all active BLM grazing permits in occupied habitat managed by the BLM Gunnison Field Office have vegetation structure guidelines specific to GuSG...” Then they state “...that they [the guidelines] should provide good habitat for the species...”

The FWS fails to acknowledge that GuSG habitat is highly variable across the landscape and that any one portion of a sagebrush community may or may not meet the Structural Habitat Guidelines. We can only assume, by the repeated reference to “contiguous” habitat, that the FWS believes that habitat is contiguous across the landscape. We recommend that FWS evaluate the variance associated with all

the vegetation variables reported (Williams and Hild 2012). It is due to the spatial and site variability that the GSRSC (2005) uses a range of values for each vegetation guideline.

We recommend the FWS evaluate the Structural Habitat Guidelines against the data reported in 97 transects conducted by the BLM and 392 transects conducted by Williams and Hild (2012). These data were collected independent of the Structural Habitat Guidelines. The vegetation sampling conducted by Williams and Hild (2012) were separated by Ecological Site Descriptions which takes into account some local site productivity. The FWS/BLM (BLM 2009:31-32) is not clear as to the productivity of the sites except stating that they are in "...major occupied areas..." (p. 2503). All of the data reported were relatively consistent with the GuSG Structural Habitat Guidelines. This strongly suggests that GuSG habitat in the Gunnison Basin is meeting the Structural Habitat Guidelines (thus Critical Habitat Guidelines), and threats to population persistence are over-stated.

Genetics and Small Populations

We present new information below that indicates inbreeding depression is not a significant threat to GuSG at present. Stiver et al. (2008) speculates that the low breeding success was possibly due to inbreeding depression. Because the authors speculated (suggesting future research), Stiver et al. (2008) did not provide a mechanism for inbreeding depression for the failed breeding success. Stiver (2007) reported that 13 of 47 eggs failed to hatch, resulting in 72% hatch success. More recently, the CPW has obtained data with larger sample sizes that provide insight to GRS and GuSG hatch success. Not all eggs produced hatch or are even fertile (even in large productive and secure populations). In data collected over 3 years in a GuSG captive-rearing study, CPW found 74% hatch success (n = 153/206) from wild and captive-produced GuSG eggs. The un-hatched eggs (n = 55) had embryos that died < 20 days into incubation (n = 9), > 20 days into incubation (n = 17), or showed no signs of development or fertilization (n = 29). Therefore 14% of eggs showed no sign of development. Thompson (2012) also reported in a Colorado GRS captive-rearing study that eggs collected from healthy genetically diverse populations showed signs of no development (8.3% - 9.2% of 304 eggs). Stiver et al. (2008) did not include or account for naturally occurring infertile eggs when they reported a 28% failure rate; the aforementioned data were not available. In conclusion, not all eggs produced are fertilized or, if fertilized, develop. These unhatched eggs have no relationship with inbreeding depression. Therefore, a conservative estimate of 10% of eggs produced do not hatch (even in healthy populations), which would calculate to an 18% rather than a 28% breeding failure rate (Stiver et al. 2008).

We submit that the relationship between small population size and effective population size asserted in the proposed rule is not supported by data. The statement (p. 2530) that "...up to 5,000 greater sage-grouse may be necessary to maintain an effective population size of 500 birds (Aldridge and Brigham 2003:30)" is based on speculation. The GSRSC (2005: 109) clearly outlines the strengths and weaknesses of effective population size conclusions about a population size of 500 breeding birds and attribute it to Braun (1995), Anonymous (1997), and Aldridge (2000). Braun (1995:6) speculates with no analyses or original data that "Populations can be considered as persistent (>500 breeding birds) in only 5 counties (Gunnison, Jackson, Moffat, Rio Blanco, Routt) and at risk of extirpation (< 500 breeding birds) in the remaining 10 counties." [We note that Gunnison County is one area where Braun (1995) considered the population to be "persistent."] The other references cited by Aldridge and Brigham (2003) are Anonymous and an M.S. Thesis (Aldridge 2000).

The proposed rule (2013a:2531) is not supported by the GSRSC (2005) PVA. The “serious” risk of extinction ($P(E_{50})$) depends on the mean stochastic population growth or decline rate (r_s (SD)). The lower or more negative growth rates change with the initial population size (males plus females).

Gunnison Basin is adequately protected for the conservation of GuSG

There are 594,802 acres of occupied range in the Gunnison Basin population of GuSG. Of that area, 67% (398,696 acres) is owned by the federal government, 2% (14,600 acres) is in state ownership, and 31% (181,424 acres) is privately-owned. Within the Gunnison Basin, at least 79% (468,808 ac) of occupied habitat has protections. Protected habitat includes government-owned lands and private lands with Conservation Easements (CEs), Candidate Conservation Agreements with Assurances (CCAA), and similar legal agreements that preclude development to the detriment of grouse. To assure an accurate accounting of protected acreage, we identified areas with overlapping CEs and CCAs and only counted the acreage for one of these categories. The spatial arrangement of these lands provides large tracts of habitat on a landscape scale that are protected from development and many parcels have conservation measures specifically intended for GuSG (Fig. 4). An additional 154,651 acres (54%) of occupied habitat are protected within the range of the remaining six small populations.

Production Areas (habitat within 4 miles of a lek) comprise an important subset of occupied range and are considered the best habitat with the highest level of use. In the Gunnison Basin, approximately 81% of nests and 80% of seasonal habitat use occurs within 4 miles of the lek of capture (Appendix J, GRSPC 2005). Approximately 82% (394,128 acres) of the Production Areas in the Gunnison Basin has some level of protection (Fig. 4).

The above calculations assume that federal landowners, especially BLM, will continue to work to place sufficient conservation assurances for GuSG on their lands (e.g., CCA in Gunnison Basin, Instruction Memorandum covering the range of GuSG).

Conservation easements and CCAs ameliorate the threats identified by the listing proposal, including habitat loss, fragmentation, and degradation from urban/human population growth, roads, energy development, invasive weeds, grazing, conversion to agriculture, fire, powerlines, and fences. Conservation easements through CPW include management plans that have detailed conservation measures specific to GuSG (when in GuSG range). These management plans include specific language including goals and objectives to protect in perpetuity the habitat for the benefit of GuSG. Conservation easements with entities other than CPW (e.g., Colorado Cattlemen's Association, land trusts, etc.) may or may not include specific language for the GuSG; however, they do ameliorate the threat of development.

The goal of CCAs is to reduce threats and help provide for secure, self-sustaining populations by protecting, maintaining, and enhancing or restoring non-federally owned GuSG habitats. As of February 27, 2013, CPW has undertaken 33 certificates of inclusion encompassing 58,682 acres across the seven GuSG populations (Table 2). CPW is currently working with FWS to assess the level of interest in six additional key properties within Gunnison Basin (covering more than 14,000 additional acres) that would provide further conservation measures and further block-up large tracts of land at the landscape level.

Table 1. Available and protected habitats within each population by habitat category.

	Habitat Categories											
	<u>Occupied</u>			<u>Vacant/ Unknown</u>			<u>Potentially Suitable</u>			<u>Total</u>		
	Available (ac)	Protected (ac)	%	Available (ac)	Protected (ac)	%	Available (ac)	Protected (ac)	%	Available (ac)	Protected (ac)	%
Gunnison Basin	594,802	468,808	79%	22,938	20,740	90%	153,446	110,360	72%	771,186	599,907	78%
Small Populations												
Cimarron/Cerro / Sims Mesa	37,161	12,389	33%	4,923	1,145	23%	20,624	5,139	25%	62,708	18,674	30%
Crawford	35,168	28,458	81%	18,053	3,936	22%	62,108	24,149	39%	115,329	56,543	49%
Dove Creek	41,885	8,729	21%	53,214	35,888	67%	227,261	34,617	15%	322,360	79,234	25%
Piñon Mesa	44,996	26,432	59%	63,841	59,801	94%	131,405	94,330	72%	240,242	180,564	75%
Poncha Pass	27,747	19,842	72%	0	-	0%	21,042	13,298	63%	48,788	33,140	68%
San Miguel	101,371	58,802	58%	41,526	13,631	33%	62,081	23,400	38%	204,979	95,832	47%
Total small populations	288,327	154,651	54%	181,558	114,401	63%	524,521	194,934	37%	994,406	463,986	47%

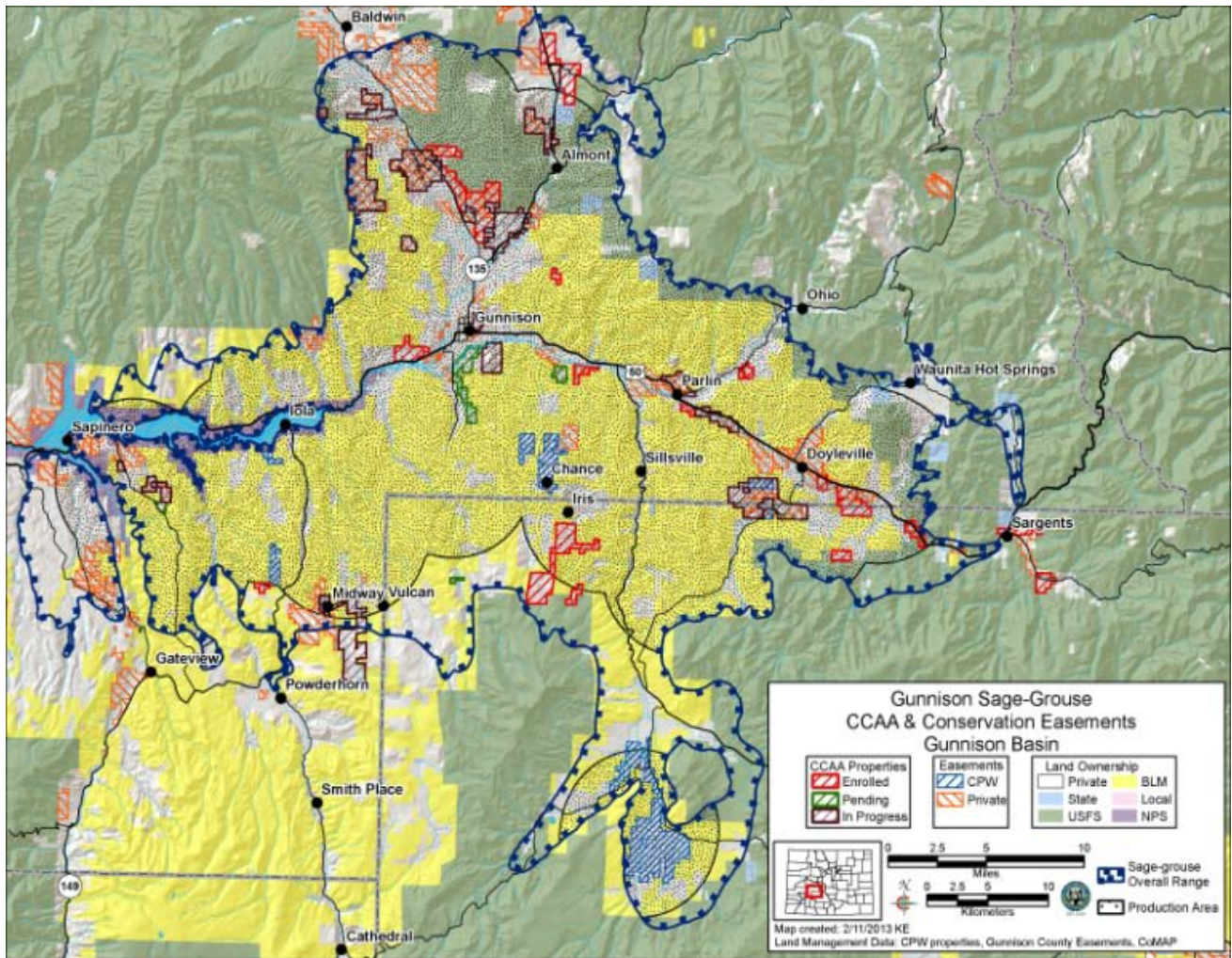


Fig. 4. Landownership, Conservation Easements, and CCAA in Gunnison Basin showing the spatial distribution of lands with protection in relation to occupied range and production areas.

Table 2. Summary of the Certificates of Inclusions (status, acreages, and numbers) for each GuSG population. (Values as of 2/27/2013).

Status	Population								
	Cerro-Cimarron Acres (#)	Crawford Acres (#)	Gunnison Basin Acres (#)	Dove Creek Acres (#)	Piñon Mesa Acres (#)	Poncha Pass Acres (#)	San Miguel Acres (#)	Total Acres (#)	
Completed		2,479 (1)	17,679 (16)		16,876 (2)		722 (1)	37,756 (20)	
In progress		1,391 (1)	14,778 (6)	1,440 (1)	1,885 (1)		1,057 (1)	20,551 (10)	
Baseline completed		161 (1)	214 (2)					375 (3)	
Total		4,031 (3)	32,671 (24)	1,440 (1)	18,761 (3)	0 0	1,779 (2)	58,682 (33)	
Under consideration			≥14,785 (6)					≥14,785 (6)	
No longer interested	2,468 (2)		9,420 (6)	694 (1)	4,540 (1)		392 (2)	17,514 (12)	

Significant Portion of the Range

We request clarification on interpretation and use of the Significant Portion of Range (SPR) as a legal construct - FWS documentation focuses on the scenario such that when a significant portion of the range is determined to be threatened, then the entire range is considered threatened; however, the inverse scenario should also be possible. When a significant portion of the range is NOT threatened, should the entire range be considered threatened?

Section 3(6) of the ESA defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range". The Federal Register further states ..." this species is currently at risk throughout all of its range due to ongoing threats of habitat destruction and modification (Factor A), predation (factor C), inadequacy of existing regulatory mechanisms (Factor D), and natural or manmade factors affecting its continued existence (Factor E)".

CPW does not believe GuSG meet this definition. We believe the Gunnison Basin is a significant portion of the range of the GuSG. The Gunnison Basin contains 88% of the entire species [High male count of 832 (estimated population size = 4,084) out of a high male count of 942 rangewide]. The Gunnison Basin population is also largely independent from the small populations in terms of connectivity, threats acting upon it, and the level of conservation measures in place. Of about 250 radio marked birds within the Gunnison Basin (Aldridge et al. (2012) and M. Phillips pers. comm.) none moved out of the Basin. The only recorded movements between Gunnison Basin and the other adjacent populations come from 2 translocated birds which are not necessarily indicative of natural bird movements.

From the listing proposal: "We also examined the Gunnison sage-grouse to analyze if any significant portion of its range may warrant a different status. However, because of its limited and curtailed range, and uniformity of the threats throughout its entire range, we find there are no significant portions of any of the species' range that may warrant a different determination of status." (p. 2535). No documentation is presented that shows what criteria were used or analyses conducted to examine GuSG populations in relation to significant portions of the range.

Critical Habitat

We ask that the FWS clarify why the administrative boundary of Dolores County, Colorado was used as the southern border of critical habitat.

We do not agree with the use of the extreme movements by GuSG presented as seasonal movement data in the GSRSC (2005) to support an 18 km distance application to critical habitat designation. This approach does not consider the unique landscapes inhabited by each population. GuSG move large distances, and not all of the area within each outlined Population Unit is critical to the long-term persistence of the species. There are vast areas of non-habitat between these extreme movements and a rigorous analysis of these movement data is needed. Additionally, the use of Connelly et al. (2000) to justify the 18-km distance is inappropriate. Connelly et al. (2000:978) speculated (without supporting data) that an 18-km distance is appropriately applied to migratory populations and is in the context of breeding habitat. The GSRSC (2005: J-2) only reports 3 nests (n = 81) in excess of 10 km from the lek. No breeding season movements were detected beyond 9 km for Pinon Mesa, 8 km for Dove Creek, and only 1 movement at 11 km for Crawford. A majority of movements were < 6 km (GSRSC 2005: J-6 – J-8). Each population should be evaluated individually and assessed as to whether the population is migratory or non-migratory when considering critical habitat designation. We offer CPW expertise to assist the FWS in an analysis of this dataset.

The approach used to evaluate connectivity as described in the proposed rule (p. 2549) is unclear and appears subjective: "Therefore we evaluated connectivity potential by visual identification of areas that support a high proportion of sagebrush or shrub cover located along the shortest path between occupied population areas and areas located between occupied subpopulations."

The proposed critical habitat rule (p. 2549) misuses the habitat model in the GSRSC (2005:186) and infers beyond its original purpose. The model write-up outlines its limitations and purpose. We encourage the FWS to account for the 95% confidence intervals (95% CI) reported by the model. For example, the 95% CI for 100,000 acres can include between 0 and approximately 300 males.

We are concerned that the statement (p. 2554) that sagebrush communities are "...currently subject to encroachment by...mountain shrub plant communities" is not supported with a citation of data. We do not know of any ecological data or sound ecological theory that supports the underlying assumption that mountain shrub communities are encroaching (or have encroached) upon sagebrush-grass communities.

In summary, we believe the inclusion of some areas as critical habitat is inappropriate. The FWS did not use the most recent occupied GIS layer (instead, used 2009 data). CPW updates the habitat layers every 4 years. Also, the inclusion of GSRSC (2005) vacant or unknown habitat and potentially suitable habitat into the definition of critical habitat is inappropriate. A GIS analysis of each of these types of landscapes should be conducted. The intent of the 'potentially suitable' habitat (GSRSC 2005) was to identify areas that would require extensive habitat restoration in order to become suitable habitat in the future: "Unoccupied habitats that could be suitable for occupation of 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 piñon-juniper or converted to rangeland." These habitat layers were originally mapped with a very broad brush and most areas did not have any mapped soil data. Therefore, slope was used as a surrogate layer when soil data was unavailable. There has been no ground truthing to examine the accuracy of this assumption. Further, using the periphery of potential presettlement habitat as outlined by Schroeder et al. (2004) is inappropriate due to the scale of mapping and the vast heterogeneity of landscapes and vegetation communities that exist and have existed in Colorado and the Colorado Plateau.

Data Sources and Interpretation

We found that speculation in the literature was sometimes portrayed as science in the listing proposal. One example of this is the repeated reference to Braun (1998). This manuscript was published in the Proceedings of the Western Association of Fish and Wildlife Agencies. Although Braun (1998) is cited and treated as scientific peer-reviewed literature, it is essentially a speculative paper and did not receive a rigorous peer-review typical of traditional peer-reviewed journals. Speculation by scientists is an important part of the scientific process and should be encouraged. We urge the FWS to clearly differentiate valid or appropriate speculation from data-based conclusions that warrant management or scientific certainty. We are particularly concerned that scientific speculation should not be treated as a conclusion or finding within proposed rules.

We are unable to verify the accuracy of information cited from phone conversations and emails.

Proposed Listing

We recommend that the FWS compare and contrast the science used in the 2006 decision (Not Warranted) with the 2013 proposed listing (Endangered). Management application of information derived from valid scientific conjecture and speculation is best approached with caution. When considering the Gunnison Basin anthropogenic development and GuSG population trends, little has changed since 2005 except that conservation measures have been strengthened.

We contend that the proposed rule overestimates the threats (in part by overestimating historic habitat) in all populations, but this overestimation is more pronounced in the Gunnison Basin. The proposed rule does not address GuSG historic distribution outside the current occupied and adjacent range. The population trend of GuSG does not match with the reported threats. We suggest that the Gunnison Basin population is, at a minimum, stable to slightly increasing. In contrast, although the small populations have persisted for decades at low numbers, threats to the small populations are not to be ignored due to their small size and we advocate continued aggressive conservation measures.

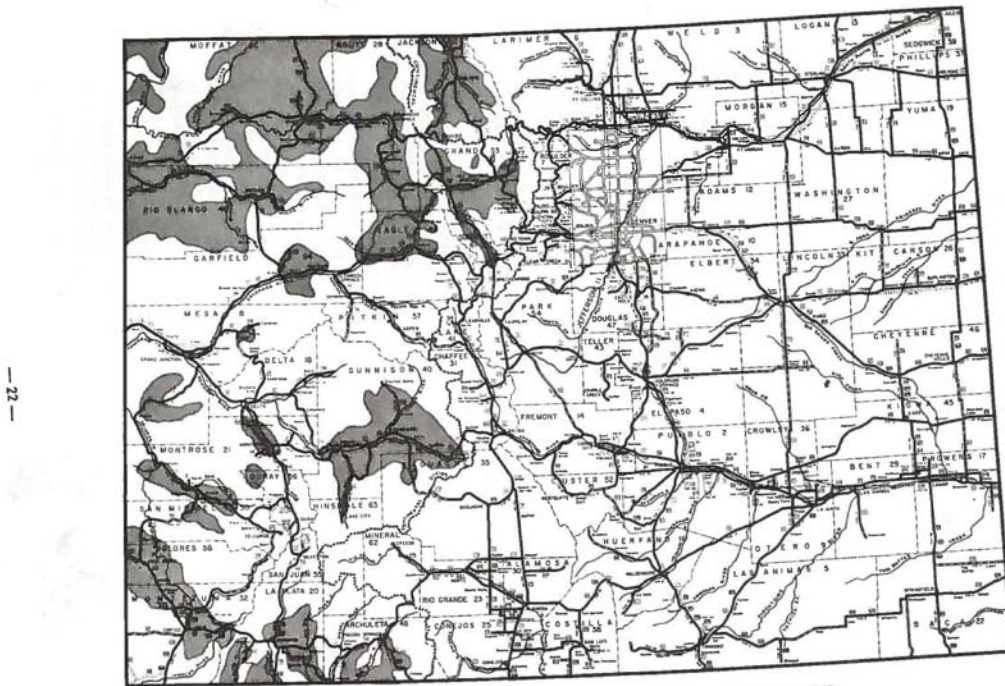
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Appendix A.



Distribution in Colorado from Grover and Jones, 1942.

Figure 7 from Rogers (1964).

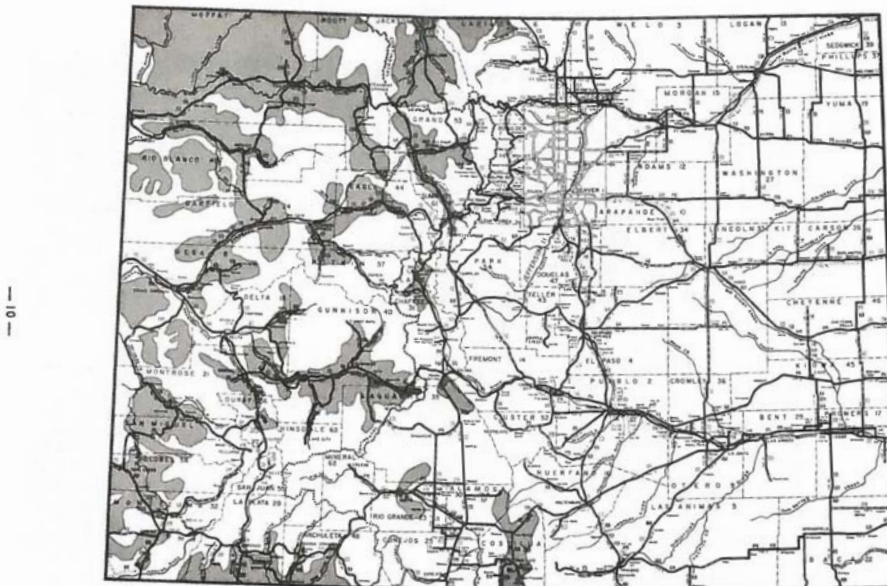


Figure 1. Historical sage grouse range in Colorado.

Figure 1 from Rogers (1964).