DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; 90-Day Finding on Petitions to List the Mono Basin Area Population of the Greater Sage-Grouse as Threatened or Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 90-day petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 90-day finding on two petitions to list the Mono Basin area population of greater sage-grouse (*Centrocercus urophasianus*) in the Bi-State area of California and Nevada as threatened or endangered under the Endangered Species Act of 1973, as amended. We find that the petitions do not present substantial scientific or commercial information indicating that listing this population may be warranted. Therefore, we are not initiating a status review in response to these petitions. We ask the public to submit to us any new information that becomes available concerning the status of this population or threats to it or its habitat at any time.

DATES: This finding was made on December 19, 2006.

ADDRESSES: The complete file for this finding is available for public inspection, by appointment, during normal business hours at the Nevada Fish and Wildlife Office, U.S. Fish and Wildlife Service, 1340 Financial Blvd., Suite #234, Reno, NV 89502. Submit new information, materials, comments, or questions concerning this species to us at the address above.

FOR FURTHER INFORMATION CONTACT: Robert D. Williams, Field Supervisor, Nevada Fish and Wildlife Office (see **ADDRESSES**) or 775–861–6300 (voice), or 775–861–6301 (fax).

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(A) of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), requires that the Service make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information indicating that the petitioned action may be warranted. Such findings are based on information contained in the petition and information otherwise available in our files at the time we make the determination. To the maximum extent practicable, we are to make this finding within 90 days of our receipt of the petition, and publish our notice of the finding promptly in the **Federal Register**.

In making this finding, we based our decision on information provided by the petitioners in petitions dated December 28, 2001, and November 10, 2005, and otherwise available in our files at the time of the petition review. As part of an active and ongoing partnership with the States of California and Nevada in collaborative sage-grouse conservation efforts, we contacted the Nevada Department of Wildlife (NDOW) and the California Department of Fish and Game (CDFG) subsequent to receiving the 2005 petition, to obtain information about sage-grouse for the Mono Basin area, as sage-grouse are a game species managed by the States. We received information from these agencies on population levels, lek distribution, harvest and harvest seasons, and implementation of projects of benefit to sage-grouse. We also contacted the U.S. Geological Survey—Biological Resources Division (USGS–BRD), Dixon Field Station of the Western Ecological Research Center, to obtain reports from a 3-year study of sage-grouse in the Bi-State area that was mostly funded by the CDFG and the Service. New information (*i.e.* information not already in our files) obtained from NDOW, CDFG, and USGS–BRD as a result of these contacts, was not used as a basis for this 90-day finding. Specifically we did not utilize the new information we obtained in our evaluation of threats (see Threats Analysis, below), which is the basis of this finding. This approach is consistent with recent court decisions that invalidated the Service's 90-day findings for the Yellowstone cutthroat trout (*Center for Biological Diversity, et al* v. *Morgenweck*, 351 F. Supp. 2d 1137, 1143–44 (D. Colo. 2004)) and the Colorado River cutthroat trout (*Colorado River Cutthroat Trout, et al.* v. *Kempthorne et al.,* No. 00–2497, slip op. at 12 (D. D.C. September 7, 2006)). In these cases, the courts ruled that the Service over-reached the limited review involved in a 90-finding by soliciting information from State and Federal agencies after the receipt of the petition and relied on that information to supplement petition findings. Therefore, the Service did not rely on any new information received from the States or from USGS–BRD in the threats analysis. We have however, included some of the new information in the Species Information section (see below) to help the public understand the status of the population.

We evaluated the information in the petitions in accordance with our regulations at title 50 of the Code of Federal Regulations (CFR), § 424.14(b). The process of making a 90-day finding under section 4(b)(3)(A) of the Act and § 424.14(b) of our regulations is based on a determination of whether the information in the petition meets the ''substantial scientific information'' threshold.

Our standard for substantial scientific or commercial information with regard to a 90-day petition finding is ''that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted'' (50 CFR 424.14(b)). If we find that the petition presents substantial scientific or commercial information, we are required to promptly commence a status review of the species.

On January 2, 2002, we received a petition, dated December 28, 2001, from the Institute for Wildlife Protection requesting that the greater sage grouse (*Centrocercus urophasianus phaios*) occurring in the Mono Basin area of Mono County, California, and Lyon County, Nevada, be emergency listed as an endangered distinct population segment (DPS) under the Act. Although the petitioner referred to greater sage-grouse in the Mono Basin area by the subspecific epithet ''*phaios*'' we have concluded that the subspecies designations for greater sage-grouse are inappropriate give current taxonomic standards (September 12, 2006, **Federal Register**, p. 53781). In response to recent judicial direction, the Service is in the process of revisiting our current interpretation of the taxonomic status of the greater sage-grouse subspecies. We have not included subspecies designations any further in this finding.

The petition clearly identified itself as such and included the requisite identification information for the petitioners, as required in 50 CFR 424.14(a). In a March 20, 2002, letter to the petitioners, we responded that we reviewed the petition and determined that an emergency listing was not necessary. On December 26, 2002, we published a 90-day finding that this petition did not present substantial scientific or commercial information indicating that the petitioned action may be warranted (67 FR 78811). Our finding was based the lack of substantial information in the petition indicating that the Mono basin area sage-grouse is a distinct population segment (DPS) under our DPS policy (61 FR 47222), and thus we concluded it was not a listable entity (**Federal Register**, December 26, 2002, pp. 78813–78814).

Our 2002 finding also included a determination that the petition did not present substantial information that the Mono Basin area sage grouse was threatened with extinction (**Federal Register**, December 26, 2002, p. 78814).

On November 15, 2005, we received a formal petition dated November 10, 2005, submitted by the Stanford Law School Environmental Law Clinic on behalf of the Sagebrush Sea Campaign, Western Watersheds Project, the Center for Biological Diversity, and Christians Caring for Conservation to list the Mono Basin area greater sage-grouse (*Centrocercus urophasianus*) as threatened or endangered. The petition clearly identified itself as a petition and included the requisite identification information for the petitioners, as required in 50 CFR 424.14(a). In a March 28, 2006, letter to the petitioners, we responded that we reviewed the petition and determined that emergency listing was not warranted. We also stated that due to court orders and settlement agreements for other listing and critical habitat actions that required nearly all of our listing and critical habitat funding for fiscal year 2006, we would not be able to further address the petition at that time. On April 17, 2006, we received a 60-day notice of intent letter from the Stanford Environment Law Clinic, dated April 14, 2006, notifying us that the petitioners intend to sue the Service for violating the Act's requirement to make a petition finding within 12 months after receiving a petition.

On November 18, 2005, the Institute for Wildlife Protection and Dr. Steven G. Herman filed a Complaint for Declaratory and Injunctive Relief in United States District Court for the Western District of Washington (*Institute for Wildlife Protection et al.* v. *Norton et al.*, No. C05–1939 RSM) challenging the Service's finding in 2002 that their petition did not present substantial information indicating that the petitioned action may be warranted. On April 11, 2006, we reached a stipulated settlement agreement with the plaintiffs. Under this settlement agreement we agreed to evaluate both the November 2005 petition submitted by the Sagebrush Sea Campaign, Western Watersheds Project, the Center for Biological Diversity, and Christians Caring for Conservation (hereafter referred to as the November, 2005 petition), and to reconsider the December 2001 petition submitted by the Institute for Wildlife protection (hereafter referred to as the December, 2001 petition). The settlement agreement calls for the Service to submit to the **Federal Register** a completed 90-day finding by December 8, 2006, and if substantial, to complete the 12-month finding by December 10, 2007. This notice constitutes the 90-day finding on the November 2005 petition and reevaluation of the December 2001 petition. In completing this finding, we reviewed the December 2001 petition in the context of whether it provided additional information not discussed in the November 2005 petition.

Species Information

The sage-grouse is the largest North American grouse species. Adult males range in size from 65 to 75 centimeters (cm) (26 to 30 inches (in)) and weigh between 1.7 and 2.9 kilograms (kg) (3.8 and 6.4 pounds (lb)); adult females range in size from 50 to 60 cm (19.7 to 23.6 in) and weigh between 1 and 1.8 kg (2.2 and 3.9 lb) (Schroeder *et al.* 1999, p. 19–20). Males and females have dark grayish-brown body plumage with many small gray and white speckles, fleshy yellow combs over the eyes, long pointed tails, and dark-green toes (Schroeder *et al.* 1999, p. 2). Males also have blackish chin and throat feathers, conspicuous phylloplumes (specialized erectile feathers) at the back of the head and neck, and white feathers forming a ruff around the neck and upper belly. During breeding displays, males also exhibit olive-green apteria (fleshy bare patches of skin) on their breasts (Schroeder *et al.* 1999, p. 2).

Sage-grouse depend on a variety of shrub steppe habitats throughout their life cycle, and are particularly associated with several species of sagebrush (*Artemisia* spp.). Throughout much of the year, adult sage-grouse rely on sagebrush to provide roosting cover and food (Schroeder *et al.* 1999, p. 4). During the winter, they depend almost exclusively on sagebrush for food (Schroeder *et al.* 1999, p. 5). The type and condition of shrub steppe plant communities strongly affect habitat use by sage grouse populations. However, these populations also exhibit strong site fidelity. Sage-grouse populations may disperse up to 160 kilometers (km) (100 miles (mi)) between seasonal use areas; however, average population movements are generally less than 34 km (21 mi) (Schroeder *et al.* 1999, p. 3). Movements between season use areas may involve dispersal over areas of unsuitable habitat.

During the spring breeding season, primarily during the morning hours just after dawn, male sage-grouse gather together and perform courtship or strutting displays on areas called leks (an area where animals assemble and perform courtship displays) (Connelly *et al.* 2004, p. 3–8). Areas of bare soil, short grass steppe, windswept ridges, exposed knolls, or other relatively open sites may serve as leks (Connelly *et al.* 2004, p. 3–7). Leks range in size from 1 hectare (ha) (2.5 acre (ac)) to at least 16 ha (39.5 ac) (Connelly *et al.* 2004, p. 3–7) and can host several to hundreds of males. Some leks are used for many years. These ''historic'' leks are typically surrounded by smaller ''satellite'' leks, which may be less stable in both size and location within the course of 1 year and between 2 or more years. A group of leks where males and females may interact within a breeding season (approximately late February to early June each year) or between years is called a lek complex. Males defend individual territories within leks and perform elaborate displays with their specialized plumage and vocalizations to attract females for mating (Connelly *et al.* 2004, pp. 3–7 to 3–8).

Females may travel over 20 km (12.5 mi) after mating, and typically select nest sites under sagebrush cover, although other shrub or bunchgrass species are sometimes used (Connelly *et al.* 2000, p. 970). Nests are relatively simple and consist of scrapes on the ground. Clutch sizes range from about 6–9 eggs (Connelly *et al.* 2004, p. 3–10). Nest success ranges from 12 to 86 percent (Connelly *et al.* 2000, p. 969). Sage grouse generally have low reproductive rates and high annual survival compared to other grouse species (Connelly *et al.* 2000, p. 970). Shrub canopy and grass cover provide concealment for sage grouse nests and young, and may be critical for reproductive success (Connelly *et al.* 2000, p. 971).

Sage-grouse typically live between 1 and 4 years. However, sage-grouse up to 10 years of age have been recorded in the wild (Connelly *et al.* 2004, p. 3–12). Annual survival ranges from about 36 to 78 percent for females and about 30 to 60 percent for males (Connelly *et al.* 2004, p. 3–12). The generally higher survival rate of females accounts for a female-biased sex ratio in adult birds (Schroeder *et al.* 1999, p. 14).

Prior to settlement of the western United States by European immigrants greater sage-grouse were found in 13 States and 3 Canadian provinces—Washington, Oregon, California, Nevada, Idaho, Montana, Wyoming, Colorado, Utah, South Dakota, North Dakota, Nebraska, Arizona, British Columbia, Alberta, and Saskatchewan (Schroeder *et al.* 2004, p. 368). Greater sage-grouse still occur in most of these states and provinces except for Nebraska, British Columbia, and possibly Arizona where they have been extirpated (Schroeder *et al.* 2004, pp.

368–369). Sagebrush habitats that potentially supported greater sage-grouse covered approximately 1,200,483 square kilometers (sq km) (463,509 square miles (sq mi)) before the year 1800 (Schroeder *et al.* 2004, p. 366). Current distribution is estimated at 668,412 sq km (258,075 sq mi) or 56 percent of the potential pre-settlement distribution (Schroeder *et al.* 2004, p. 369).

The number of greater sage-grouse that existed in North America prior to European expansion across the continent is unknown. The Western States Sage- and Columbian Sharp-Tailed Grouse Technical Committee (WSSCSTGTC) estimated there were 1.1 million sage-grouse in 1800 (WSSCSTGTC 1999), although this estimate was for both greater sage-grouse and Gunnison sage-grouse (*Centrocercus minimus*). Braun (1998, unpaginated) estimated that there were about 142,000 sage-grouse (both greater and Gunnison sage-grouse) rangewide in 1998. Connelly *et al.* (2004, p. 13–5) did not estimate a rangewide population for greater sage-grouse, but did state that the number is probably much greater than the estimate by Braun (1998).

Although Connelly *et al.* (2004) were unable to estimate rangewide population numbers for greater sage-grouse, they did use lek count data as an indication of population changes since 1965 (Connelly *et al.* 2004, Chapter 6). They reported substantial declines from 1965 through 2003 with an average decline of 2 percent of the population per year during this time period (Connelly *et al.* 2004, p. 6–71). The decline was more pronounced from 1965 through 1985, with an average annual change of 3.5 percent (Connelly *et al.* 2004, p. 6–71). However, the rate of decline rangewide slowed from 1986 to 2003 to 0.37 percent annually (Connelly *et al.* 2004, p. 6–71).

The best available scientific and commercial information regarding the past, present, and future threats faced by the greater sage-grouse were reviewed by the Service, including information on population declines. Based on that review, on January 12, 2005, the Service published a finding that listing the greater sage-grouse was not warranted (70 FR 2243). The Service noted that although sagebrush habitat and sage-grouse populations had declined and were continuing to decline in some areas, the most recent data indicated overall population declines had slowed, stabilized, or populations had increased, and that the threats, when considered in relation to the status, trend, and distribution of the current population, were not sufficient to result in the greater sage-grouse becoming an endangered species in the foreseeable future (**Federal Register**, January 12, 2005, pp. 2280–2281).

Mono Basin Area Sage Grouse

The States of California and Nevada jointly supported development of a conservation plan, entitled *Greater Sage Grouse Conservation Plan for Nevada and Eastern California* (Sage-Grouse Conservation Team 2004). A draft version of the *Greater Sage Grouse Conservation Plan for Nevada and Eastern California* was submitted to a seven-person team for external science peer review (Sage-Grouse Conservation Team 2004, p. 6). The conservation plan written specifically for sage-grouse in the Mono Basin area is the *Greater Sage-Grouse Conservation Plan for the Bi-State Plan Area of Nevada and Eastern California* (Bi-State Plan) (Bi-State Local Planning Group 2004), and is an appendix of the *Greater Sage-Grouse Conservation Plan for Nevada and Eastern California.* The 2005 petition frequently refers to the Bi-State Plan. The Bi-State Plan was not peer reviewed. The group that developed the Bi-State Plan consisted of local biologists, land managers, land users, and others with concerns about sage-grouse in western Nevada and eastern California (Bi-State Plan 2004, p. vi).

The Bi-State Plan covers the same geographic area described in the 2001 and 2005 petitions as the Mono Basin area, but refers to it as the Bi-State area (Bi-State Local Planning Group 2004, pp. 4–5). The Mono Basin area includes portions of Alpine and Inyo Counties, and most of Mono County in California and portions of Lyon, Douglas, Carson City, Esmeralda, and Mineral Counties in Nevada.

Sage-grouse in the Mono Basin area historically occurred approximately throughout Mono, eastern Alpine, and northern Inyo Counties, California (Hall 1995, Figure 1); and parts of Carson City, Esmeralda, Mineral, Lyon, and Douglas Counties, Nevada. The current range of the population in California is reduced from the historic range (Leach and Hensley, 1954, p. 386; Hall 1995, p. 54). Gullion and Christensen (1957, pp. 131–132) documented that sage-grouse occurred throughout most of their historic range in Nevada, including occurrences in Esmeralda, Mineral, Lyon, and Douglas Counties, but not in Carson City County, although Espinosa (2006) hypothesized that birds may still persist in this County. Sage-grouse habitat has been lost in the Nevada portion of the Bi-State area but the extent of the loss has not been estimated (Stiver 2002).

Prior to development of the *Greater Sage Grouse Conservation Plan for Nevada and Eastern California,* the State of Nevada sponsored development of the Nevada Sage-Grouse Conservation Strategy (Sage-Grouse Conservation Planning Team 2001). This Strategy established Population Management Units (PMUs) for Nevada and California as management tools for defining and monitoring sage-grouse distribution (Sage-Grouse Conservation Planning Team 2001, p. 31). The PMU boundaries are based on aggregations of leks, sage-grouse seasonal habitats, and existing sage-grouse telemetry data (Sage-Grouse Conservation Planning Team 2001, p. 31). PMUs that comprise the Mono Basin area include the Pine Nut, Desert Creek-Fales, Mount Grant, Bodie, South Mono, and White Mountains PMUs. The Bi-State Plan (2004) is the only existing assessment of greater sage-grouse populations and habitats specific to the PMUs that comprise the Mono Basin area.

Currently in the Mono Basin area, sage-grouse leks occur in the Pine Nut, Desert Creek-Fales, Bodie, Mount Grant, South Mono, and White Mountains PMUs (Bi-State Plan 2004). Most of the leks occur in the Bodie and South Mono PMUs (Bi-State Plan 2004). Of the 122 known lek locations in the Mono Basin area: 56 are on Bureau of Land Management (BLM) land, 30 are on U.S. Forest Service (USFS) land, 4 are on Department of Defense land, 2 are on State of California land, 9 are on Los Angeles Department of Water and Power land, and 21 occur on private land (Espinosa 2006; Taylor 2006). Overall, 83 percent of the leks are on public land and 17 percent occur on private land. Based upon the extent of previous survey work, it is unlikely that more leks will be found in the Nevada portions of the Pine Nut and Desert Creek-Fales PMUs (Espinosa 2006). Due to long-term and extensive survey efforts, it also is unlikely that new leks will be found in the California portion of the Pine Nut and Desert Creek-Fales PMUs or the Bodie and South Mono PMUs (Gardner 2006). However, it is possible that more leks will be discovered in the Mount Grant PMU and the Nevada portion of the White Mountains PMU because these are less accessible and there has been less survey effort in them (Espinosa 2006). More leks also may be discovered in the California portion of the White Mountains PMU, which is difficult to access and has not been well surveyed (Gardner 2006).

Sage-grouse population trends analyzed for California and Nevada for 1965–2003 (Connelly *et al.* 2004, pp. 6–

24 to 6–26 and 6–36 to 6–39) led to a conclusion that populations in California had slightly increased over this timeframe while those in Nevada had declined (Connelly *et al.* 2004, pp. 6–67 to 6–68). However, this analysis was performed at the State level and did not specifically analyze population trends for the Mono Basin area.

The Bi-State Plan (2004) provides some information on population trends for some of the PMUs in the Mono Basin area, and indicates that in some areas population declines occurred historically. However, the number of leks surveyed, survey methodology, and techniques for estimating population size are inconsistent and have varied considerably over time, making it very difficult to interpret or rely on the information. In 2003, the NDOW began estimating population numbers based on a peer reviewed and accepted formula (NDOW, 2006, p. 1), and consequently we believe the most accurate population estimates for the Nevada portion of the Mono Basin area start in 2003. Prior to that, Nevada survey efforts varied from year to year, with no data for some years, and inconsistent survey methodology. Although CDFG methods for estimating populations of sage-grouse have been more consistent prior to 2003, using population estimates for sage-grouse derived before 2003 would lead to invalid and unjustified conclusions given the variation in the number of leks surveyed, survey methodology, and population estimation techniques between NDOW and CDFG. Due to past differences in consistency in population estimation techniques for the two States, in this description of populations we are only presenting population numbers from 2003–2006. During this period of time, both states used the same population estimation methods. We provide this information to help inform the public, and for the reasons described above, we did not consider this information in our Threats Analysis (below) and it was not part of the basis for making this finding.

CDFG and NDOW annually coordinate sage-grouse lek counts in the California and Nevada portions, respectively, of the Mono Basin area. Results from these lek counts are used by CDFG and NDOW to estimate sage-grouse populations for PMUs in the Mono Basin area. CDFG and NDOW calculate low and high sage-grouse population estimates for the PMUs, based on low and high lek detection rates, respectively, to account for the range in lek detection rates.

The following spring population estimates are based on lek counts for the South Mono, Bodie, Mount Grant, and Desert Creek-Fales PMUs (CDFG 2006; NDOW 2006). They also include population estimates from the Nevada portion of the Pine Nut PMU (NDOW 2006). However, they do not include population estimates for the White Mountains PMU or the California portion of the Pine Nut PMU (CDFG 2006; NDOW 2006). The White Mountain PMU and the California portion of the Pine Nut PMU together comprise about 41 percent of the Mono Basin area. Due to the lack of information on sage-grouse habitat for the Mono Basin, we cannot state what percent of the current habitat occurs in these two areas for which population estimates are unavailable. The recent spring population estimates for the areas described above are as follows: 2003—a low estimate of 2820 birds and a high estimate of 3181 birds, 2004—a low estimate of 3682 birds and a high estimate of 4141 birds, 2005—a low estimate of 3496 birds and a high estimate of 3926 birds, and 2006—a low estimate of 4218 birds and a high estimate of 4740 birds (CDFG 2006; NDOW 2006). Spring populations largely reflect the number of breeding sage-grouse in this area. The number of breeding sage-grouse is representative of effective population size and probably one of the best ways to assess the health of the overall population.

At a minimum, the spring population estimates for sage-grouse in the Mono Basin area indicate that the surveyed populations have not declined in recent years. Indeed, 2004 to 2006 spring lek counts for the Long Valley lek complex, which comprises most of the leks in the South Mono PMU, are the highest numbers counted in the last 30 years and sage-grouse in this area are more productive than anywhere else in California (Gardner 2006).

Casazza *et al.* (2006) conducted a 3-year study on sage-grouse in the Mono Basin area to determine movements. The researchers radio-marked birds in Mono County within the Desert Creek-Fales, Bodie, White Mountains, and South Mono PMUs (Casazza *et al.* 2006, unpaginated). The greatest distances moved by radio-tagged birds between two points is as follows: About 29 percent moved 0–8 km (0–5 mi); about 41 percent moved 8–16 km (5–10 mi); about 25 percent moved 16–24 km (10–15 mi); about 4 percent moved 24–32 km (15–20 mi); and about 1 percent moved a distance greater than 32 km (20 mi) (Overton 2006). Female sage-grouse home range size ranged from 2.3 to 137.1 sq km (0.9 to 52.9 sq mi), with a mean home range size of 38.6 sq km (14.9 sq mi) (Overton 2006). Male sage-grouse home ranges ranged in size from 6.1 to 245.7 sq km (2.3 to 94.9 sq mi), with a mean home range size of 62.9 sq km (24.1 sq mi) (Overton 2006).

Distinct Population Segment

We consider a species for listing under the Act if available information indicates such an action might be warranted. ''Species'' is defined by the Act as including any species or subspecies of fish and wildlife or plants, and any distinct vertebrate population segment of fish or wildlife that interbreeds when mature (16 U.S.C. 1532 (16)). We, along with the National Marine Fisheries Service (now the National Oceanic and Atmospheric Administration—Fisheries), developed the Policy Regarding the Recognition of Distinct Vertebrate Population Segments (DPS Policy) (February 7, 1996, 61 FR 4722) to help us in determining what constitutes a DPS. The policy identifies three elements that are to be considered in a decision regarding the status of a possible DPS. These elements include (1) the discreteness of a population in relation to the remainder of the species to which it belongs; (2) the significance of the population segment to the species to which it belongs; and (3) the population segment's conservation status in relation to the Act's standards for listing. Our policy further recognizes it may be appropriate to assign different classifications (*i.e.*, threatened or endangered) to different DPSs of the same vertebrate taxon (February 7, 1996, 61 FR 4722).

Discreteness

The November 2005 and December 2001 petitions assert that Mono Basin area sage-grouse qualify as a Distinct Population Segment (DPS) based on discreteness. Both petitions cite the Services' DPS policy under the Act (February 7, 1996, 61 FR 4722) and both assert that Mono Basin area sage-grouse are discrete based on genetic distinctiveness. The DPS policy states that a population segment may be considered discrete if it satisfies either one of the following conditions: (1) It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation. (2) It is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act. In a previous 90-

day finding, we reviewed the December 2001 petitioners' claim that Mono Basin area sage-grouse are a DPS, and found that there was not substantial scientific or commercial information indicating that Mono Basin area sage-grouse may be discrete from other greater sage-grouse (December 26, 2002, **Federal Register**, p. 78811). Our 2002 determination was based on a lack of information to demonstrate that Mono Basin sage-grouse are physically isolated from other nearby populations, the limited extent of sage-grouse genetic sampling within the Mono Basin area at that time, information from a comparative study which indicated that Mono Basin sage-grouse are not behaviorally different from other populations of great sage-grouse, and the lack of any morphological information on Mono Basin sage-grouse.

We still believe that there are no significant behavioral differences between sage-grouse populations. Young *et al.* (1994) compared greater sage-grouse behavioral attributes for populations in the Mono Basin area and outside it for males displaying on leks. This study concluded that sage-grouse in the Mono Basin area do not exhibit any appreciable behavioral differences in male mating displays from other greater sage-grouse populations (Young *et al.*, 1994).

In contrast to results from comparative behavioral studies, comparative genetics studies have documented genetic differences between greater sage-grouse populations in the Mono Basin area and those outside of it. The November 2005 petition correctly cites Benedict *et al.* (2003), Oyler-McCance *et al.* (2005), and the Bi-State Plan (2004) with regard to how sage-grouse in the Mono Basin area are genetically unique from other populations of greater sage-grouse. Since we published our previous 90-day finding, comparisons of genetic material from many sage-grouse populations across the range of the species have been completed and demonstrate that Mono Basin area sage-grouse contain unique haplotypes not found elsewhere within the range of the greater sage-grouse (Benedict *et al.* 2003; Oyler-McCance *et al.* 2005). Genetic sampling continues in the Mono Basin area, as the full geographic extent of this genetic uniqueness has not yet been determined. However since our previous 90-day finding on Mono Basin area sage-grouse (December 26, 2002, 67 FR 78811), most leks in the Mono Basin area have now been genetically sampled. Although the full extent of this genetic uniqueness is undetermined, there now exists sufficient evidence to suggest that Mono Basin area sage-grouse are genetically distinct from other greater sage-grouse populations (Benedict *et al.* 2003; Oyler-McCance *et al.* 2005). The November 2005 petitioners assert that genetic work by Benedict *et al.* (2003) or Oyler-McCance *et al.* (2005) support their contention that Mono Basin area sage-grouse area are presently isolated from other sage-grouse populations by present day habitat conditions, but this claim is inaccurate. These genetic studies provided evidence that the present genetic uniqueness exhibited by Mono Basin area sage-grouse occurred over thousands and perhaps tens of thousands of years (Benedict *et al.* 2003, p. 308; Oyler-McCance *et al.* 2005, p. 1307). Hence, the genetic uniqueness of this sage-grouse population developed prior to the Euro-American settlement in the Mono Basin area that resulted in changes in habitat conditions for this population.

The Services' DPS policy requires that only one of the discreteness criteria be satisfied in order for a population segment of a vertebrate species to be discrete. There is substantial information indicating that Mono Basin area sage-grouse are genetically distinct from other greater sage-grouse populations. Therefore, we conclude that there is substantial information indicating that the Mono Basin area sage-grouse may satisfy the discreteness criterion of the DPS policy.

Significance

Both the December 2001 petition and the November 2005 petition also assert that Mono Basin area sage-grouse further qualify as a DPS based on significance. The DPS policy (February 7, 1996, **Federal Register**, p. 4725) states that if a population segment is considered discrete under one or more of the discreteness criteria then its biological and ecological significance will be considered in light of Congressional guidance that the authority to list DPSs be used ''* * * sparingly'' while encouraging the conservation of genetic diversity. In such an examination, the Service considers available scientific evidence of the discrete population segment's importance to the taxon to which it belongs. As specified in the DPS policy February 7, 1996, **Federal Register**, p. 4725), this consideration of the significance may include, but is not limited to, the following: (1) Persistence of the discrete population segment in an ecological setting unusual or unique to the taxon; (2) Evidence that loss of the discrete population segment would result in a significant gap in the range of a taxon; (3) Evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range; or (4) Evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics.

The November 2005 petition claims that the Mono Basin area is a unique ecological setting and cites a map in Rowland *et al.* (2003) to support this claim. This petition also asserts that the loss of the Mono Basin area population would result in a significant gap in the range of the greater sage-grouse and that the population differs markedly from other sage-grouse populations in genetic characteristics.

The Mono Basin area sage-grouse populations do occur in an ecological province labeled the Mono province in Rowland *et al.* (2003, p. 63). However, this ecological province is part of the Great Basin, and on a gross scale all the ecological provinces that comprise this area are characterized by basin and range topography. Basin and range topography covers a large portion of the western United States and northern Mexico. It is typified by a series of north-south oriented mountain ranges running parallel to each other, with arid valleys between the mountains. Most of Nevada and eastern California are covered by basin and range topography. Hence, we do not concur that Mono Basin area sage-grouse occur in an ecological setting that is unique for the taxon. Based on the extant range of greater sage-grouse provided by Schroeder *et al.* (2004, p. 369), we do not agree that the loss of the Mono Basin area sage-grouse population would result in a significant gap in the range of greater sage-grouse. Schroeder *et al.* (2004, p. 363) estimated total extant range of greater sage-grouse to be 668,412 sq km (258,075 sq mi) and the total area of the PMUs that comprise the Mono Basin area is 18,310 sq km (7,069 mi) (Bi-State Plan 2004). Hence, the total area comprised by the Mono Basin represents at most about 3 percent of the total extant range of greater sage-grouse and loss of the population in this area would not result in a significant gap in the range of the species. Mono Basin area sage-grouse are not the only surviving occurrence of the taxon, and as previously discussed represent a small proportion of the total extant range of the species. However, existing genetic evidence (Benedict *et al.* 2003; Oyler-McCance *et al.* 2005) does indicate that Mono Basin area sage-grouse differ from other populations of greater sage-grouse in their genetic

characteristics, as discussed previously with regard to the discreteness criterion. Therefore, based on information regarding genetics, we conclude that there is substantial information indicating that the Mono Basin area sage-grouse may satisfy the significance criterion of the DPS policy.

DPS Conclusion

We have reviewed the information presented in the petitions, and have evaluated the information in accordance with 50 CFR 424.14(b). In a 90-day finding, the question is whether a petition presents substantial information that the petitioned action may be warranted. We do not make final determinations regarding DPSs at this stage; rather, we determine whether a petition presents substantial information that a population may be a DPS. On the basis of our review, we find that the November 2005 petition, and our files, do present substantial scientific or commercial information to indicate that Mono Basin area sage-grouse may be a DPS based, on genetic evidence, which may meet both the discreteness and significance criteria of the DPS policy. Based on this preliminary assessment, we proceeded with an evaluation of information presented in both petitions, as well as information in our files, to determine whether there is substantial scientific or commercial information indicating that listing this population may be warranted. Our threats analysis and conclusion follow.

Threats Analysis

Section 4 of the Act and its implementing regulations (50 CFR part 424) set forth the procedures for adding species to the Federal List of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act: (A) Present or threatened destruction, modification, or curtailment of habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. In making this 90-day finding, we evaluated whether information on threats to the Mono Basin area sage-grouse in our files and presented in the November 2005 and the December 2001 petitions constitutes substantial scientific or commercial information such that listing under the Act may be warranted. Our evaluation of this information is presented below.

A. Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range

Geographic Range

The November 2005 petition asserts that the range of sage-grouse in the Mono Basin area is greatly reduced and that the populations are scattered among several counties in western Nevada and eastern California. Petitioners cite the work of Schroeder *et al.* (2004) and claim that in pre-settlement time the habitat for the species was continuous along the California-Nevada border and extended from Inyo County, California, into Oregon. The petition further states that by 2000 the Mono Basin area population had become physically isolated from other sage-grouse populations and now only occurs in small isolated groups. The petitioners cite a Western States Sage Grouse Technical Committee report (WSSGTC 1999) and state that for the Nevada portion of the Mono Basin area sage-grouse are extirpated from Storey and Carson City Counties, at extreme risk in Douglas and Esmeralda Counties, and at risk in Lyon and Mineral Counties. Regarding sage-grouse range in California, the petition cites Hall (1995) and states that there has been a 55 percent reduction statewide in the range of the species from its historic range. More specific to the Mono Basin area, the petitioners cite our December 26, 2002, 90-day finding (67 FR 78811), which states that suitable habitat for the California portion of the Mono Basin area has declined approximately 71 percent from historic levels based on information in Hall (1995). The petitioners also cited Oyler-McCance *et al.* (2001) to state that extirpations of local populations of Gunnison sage-grouse have occurred because of the loss and fragmentation of habitat caused by human activities; cited Barbour (1988, unpaginated) regarding impacts to sagebrush habitat in California; and cited Braun's (1998, unpaginated) assessment of factors that have caused sage-grouse declines across the western United States, which included habitat loss.

We agree with the petitioners that there has been a reduction in the distribution of greater sage-grouse along the California-Nevada border (Schroeder *et al.* 2004, pp. 368–369). Distribution in the Mono Basin area is much more disjunct now compared to pre-settlement conditions; however, the southern limit of sage-grouse distribution along the California-Nevada border has not changed (Schroeder *et al.* 2004, pp. 368–369). A considerable amount (approximately 71 percent) of the original sage-grouse habitat has been lost in the California portion of the Mono Basin area (Hall, 1995, p. 54; December 26, 2002, **Federal Register**, p. 78813). The extent of habitat has also declined within the Nevada portion of the Mono Basin area, but no estimates are provided in the petitions or available in our files regarding the Nevada portion. The Bi-State Plan (2004) provides limited anecdotal information about the historic range of the population in the Mono Basin area, and the distribution and range discussion is focused primarily on current conditions. Additionally the work cited from Oyler-McCance *et al.* (2001) and Braun (1998) is not specific to the Mono Basin area. Connelly *et al.* (2004) did assess changes for the sagebrush ecosystem, but this analysis was also performed at the rangewide level for sage-grouse and not specific to the Mono Basin area. Although sage-grouse habitat and range has been reduced from pre-settlement conditions, and some additional habitat losses may be occurring at present, neither the petitioners, nor our files, provide information on the rate or extent of habitat losses for the Mono Basin area. The Bi-State Plan (2004) documents some loss of specific localized habitat areas due to wildfire. The Service recognizes that historically there has been destruction and modification of the habitat and range of sage-grouse in the Mono Basin area. However, historic impacts are not the focus of the evaluation called for under Factor A; rather, Factor A specifically addresses the present or threatened destruction, modification, or curtailment of habitat or range. Although the petitioners and our files contain information on historic reductions in range, neither the petitioners, nor our files, provide substantial information that documents the present or threatened loss of sage-grouse range for sage-grouse in the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing may be warranted due to the present or threatened destruction or modification of habitat or range for the sage-grouse population in the Mono Basin area.

Private Land Development

The November 2005 petition cites private land development as a significant threat to Mono Basin area sage-grouse. The petitioners state that over 329,000 acres (close to 12 percent) of land in the Mono Basin area is

privately owned and susceptible to development. They cite the Bi-State Plan (2004) regarding private land development in several of the PMUs and reference discussions of: community expansion in the Pine Nut PMU; conversion of private rangeland to residential and vacation homes, conversion of grouse winter habitat to irrigated pasture and hay fields, and increased pressure of subdivision and development in the Desert Creek-Fales PMU; increasing development of private lands for residential, commercial and recreational purposes in the Bodie PMU; and development of private lands in the South Mono PMU. The petitioners claim that Mono County intends to significantly expand the Benton Crossing Landfill, which could impact sage-grouse through direct habitat loss, increased predation, and a potential increase in disease (Mono County 2004). They also cite a process to revise the Mammoth Lakes general plan (Mammoth Lakes 2005) and claim the revised plan will allow for more development on non-Federal lands. The petitioners assert that expansion of the Mammoth Lakes airport to accommodate commercial jets and construction of an adjacent business park would pose a significant impact to sage-grouse in the South Mono PMU. Petitioners cite a California Department of Fish and Game memo (California Department of Fish and Game 2001) and state that the California Department of Fish and Game expressed serious concerns about the impacts of the proposed airport expansion on sage-grouse. The petitioners claim that California Department of Fish and Game expressed several concerns, including that aircraft may disturb birds on leks and while they are wintering and that the airport expansion project would have growth-inducing impacts to the region. Finally, they claim that a number of other proposed developments could affect the South Mono sage-grouse population.

The December 2001 petition also cited development and habitat conversion to suburbs and ranchettes as a threat to sage-grouse. However, this petition did not provide additional information beyond what was provided in the November 2005 petition.

The November 2005 petition is incorrect in asserting that close to 12 percent of the Mono Basin area is privately owned. Their figures do not include the White Mountains PMU, which comprises about 38 percent of the total area; including this PMU, approximately 8 percent of lands within the Mono Basin area are privately owned (Bi-State Plan 2004). Connelly *et al.* (2004, pp. 7–25, 7–26) included some analysis of the effects of development (including associated infrastructure) on sage-grouse, but the analysis was conducted at the rangewide scale (Connelly *et al.* 2004, pp. 12–1 to 12–23) and not specific to the Mono Basin area. The Bi-State Plan (2004) recognizes urban expansion as a risk to sage-grouse in the Pine Nut PMU (Bi-State Plan 2004, p. 24), the Desert Creek-Fales PMU (Bi-State Plan 2004, p. 47), the Bodie PMU (Bi-State Plan 2004, p. 88), and the South Mono PMU (Bi-State Plan 2004, p. 169).

Although development of private lands may impact sage-grouse habitat (Connelly *et al.* 2004) and there are concerns about private lands being developed for housing in the Mono Basin area (Bi-State Plan 2004, p. 4), about 89 percent of the land area within the Mono Basin area is federally managed land, primarily USFS and BLM lands (Bi-State Plan 2004). These public lands are not the areas where traditional development into housing communities is occurring and are not subject to such development. Furthermore, although some housing development has occurred on private lands within the Mono Basin area, the five housing subdivisions cited by the petitioners are considered speculative, as they have not moved beyond the planning stage. The petitioners are correct that the Town of Mammoth Lakes General Plan is being updated and does allow for more housing development on private land; however, the petitioners fail to note that this growth is planned to occur within the Mammoth Lakes Urban Growth Boundary (Town of Mammoth Lakes 2005, pp. 3–9 to 3–14), well away from known lek sites, and therefore it will not directly impact sage-grouse. Additionally, the Benton Crossing Landfill will not be expanded as the petition asserts (Town of Mammoth Lakes 2005, p. 2–38).

The Federal Aviation Administration (FAA) has dropped its proposal to expand the Mammoth Yosemite Airport (FAA 2006). However, the FAA is currently proposing to resume regional commercial air service using the existing Mammoth Yosemite Airport facilities, with two winter flights per day initially and potentially increasing to a maximum of eight winter flights per day by 2012–2013 (FAA 2006). The Mammoth Yosemite Airport had regional commercial air service from 1970 to the mid-1990s (FAA 2006) and it currently supports about 400 flights per month, primarily single-engine aircraft (Town of Mammoth Lakes 2005, p. 4–204). Therefore, sage-grouse in the South Mono PMU that occur in lek areas in the near proximity of the Mammoth Yosemite Airport have been exposed to commercial air traffic in the past, and they are presently exposed to private air traffic. Effects of the FAA proposal to reinstate commercial air traffic at the Mammoth Yosemite Airport on sage-grouse are unknown at this time, as the level of commercial flight traffic these birds may be exposed to is undetermined and subject to commercial success by the airlines. Also, since the proposal by FAA has yet to be implemented, any assessment of effects is speculative. The FAA will develop an environmental analysis for the proposed project pursuant to the National Environmental Policy Act (NEPA) (FAA 2006), which will include an assessment of impacts to wildlife. The Town of Mammoth Lakes is proposing commercial development on a tract of land immediately adjacent to the existing airport (Town of Mammoth Lakes 2005, p. 2–9). We do not have information in our files to determine whether the area of proposed development involves sage-grouse habitat.

In summary, development of private lands for housing and the associated construction of roads and power lines within the Mono Basin area would occur mostly in areas where sage-grouse are not present. Furthermore, petitioners' claims about expansion of the Mammoth Yosemite Airport are no longer valid, and they did not provide information which documents how the proposed resumption of commercial air service at the Airport, combined with the construction of an adjacent business park, would impact sage-grouse in the South Mono PMU. Most significantly, about 89 percent of the Mono Basin area is federally managed land (Bi-State Plan 2004), where development into housing communities is not occurring. Neither the petitioners, nor our files, provide information on the extent or magnitude of private development to indicate that listing of the Mono Basin area sage-grouse may be warranted due to the present or threatened destruction, modification, or curtailment of sage-grouse habitat or range due to private land development.

Public Land Development

The November 2005 petition states that the majority of the Mono Basin area sage-grouse habitat is managed by BLM and the USFS under multiple-use policies that have harmed sage-grouse and degraded their habitat. Petitioners assert that public land is subject to some forms of development and that private land development often affects the

integrity and health of adjacent public lands. The petitioners cite the Bi-State Plan (2004) with regard to the Bodie PMU and state that habitat loss and fragmentation associated with land use change and development is not restricted to private lands in this PMU. Petitioners further assert that development of private lands can also have indirect effects on sage-grouse populations and habitat on public lands. They cite the Bi-State Plan (2004) for the Desert Creek-Fales PMU and note that residential development may reduce habitat, resulting in risks to habitat quality and fragmentation. The petitioners indicate that the Bi-State Plan provides no new regulatory measures or funding for mitigation of threats from private land use and development.

The petitioners cite the Bi-State Plan (2004) to support their claim that 13 sites have been authorized for monitoring for wind energy development in the Pine Nut PMU and wind turbines may be constructed on these sites. The petitioners also state that numerous geothermal energy developments have been proposed or approved on public and private land in the South Mono PMU (Bi-State Plan 2004) and specifically reference a proposal for the Inyo National Forest claiming that sage-grouse have been found within 0.4 km (0.25 mi) of the proposed project and that the project may displace individual sage-grouse by eliminating suitable habitat for the species (USFS 2005).

The petition claims that a myriad of other smaller projects or activities are authorized and developed on Federal lands. In support of this assertion, the petitioners indicate that records they obtained from the BLM-Carson City Field Office for these smaller projects and lesser activities authorized between 2001 and 2005 included 55 records of categorical exclusions and 13 findings of no significant impact under the National Environmental Policy Act (NEPA). The petitioners further stated that these decisions were for a variety of projects, including rights-of-way, road construction, communication towers, power lines, gas/water/sewer pipelines, water tanks, fiber optic/telephone cables, seismometer stations, irrigation facilities, monitoring wells, and a railroad. The petition asserts that, although the size and scope of these are considered minor by Federal management agencies, and hence their potential environmental impacts are not assessed under NEPA, their cumulative impact fragments and degrades sagebrush habitat in the Mono Basin area.

As noted previously, the majority of the land area in the Mono Basin area, and therefore most of the sage-grouse habitat, is managed by BLM and the USFS; approximately 89 percent of the land in the Mono Basin area is administered by these agencies (Bi-State Plan 2004). Both of these Federal agencies manage public lands on a multiple-use basis under Federal laws (January 12, 2005, **Federal Register**, pp. 2272, 2274). The multiple-use management approach allows for a wide array of actions on Federal lands, including some forms of development that may be detrimental, as well as conservation measures that are beneficial, for habitat of wildlife species such as sage-grouse. When private lands adjacent to public lands are developed, there can be impacts to sage-grouse on the public lands (Braun 1998, unpaginated) and Connelly *et al.* (2004, pp. 7–24 to 7–26), both document impacts to sage-grouse as a result of urbanization, such as loss of habitat.

Several urban and suburban areas in this PMU are continuing to expand in the Pine Nut PMU (Bi-State Plan 2004, p. 24). For the Bodie PMU, the Bi-State Plan does indicate that habitat loss and fragmentation associated with land use change and development is not restricted to private lands (Bi-State Plan 2004, p. 88). Rights-of-ways across public lands for roads, utility lines, sewage treatment plants and other public purposes are frequently requested, and granted, to support development activities on adjacent private lands (Bi-State Plan 2004, p. 88). But the Bi-State Plan concludes that land use and development on most lands in the Bodie PMU are guided by existing land use plans and that the development is a manageable risk for sage-grouse (Bi-State Plan 2004, p. 88). Residential development was reported to be very low in the White Mountains PMU (Bi-State Plan 2004, p. 124). Effects of public land development were not cited among the risk factors described for the Mount Grant PMU (Bi-State Plan 2004).

We have also evaluated the threat of energy development as presented by the petitioners. According to the Bi-State Plan (2004, p. 31) three sites in the Pine Nut PMU have been authorized for monitoring wind energy potential, not 13 sites as presented by the petitioners. The Bi-State Plan expresses concern about possible threats arising from infrastructure, such as roads and power lines, associated with wind energy development in this area (Bi-State Plan 2004, p. 31). Connelly *et al.* (2004, p. 7–43) discuss wind energy development as a factor that could impact sagebrush ecosystems. There is also potential for wind energy and geothermal energy development in the South Mono PMU (Bi-State Plan 2004, p. 178). The South Mono PMU has an existing geothermal plant and the Bi-State Plan discusses four other proposed geothermal energy projects in the PMU, only one of which has been approved (Bi-State Plan 2004, pp. 178–181). The Bi-State Plan indicates that geothermal development in the South Mono PMU is a manageable risk, and that the USFS and BLM both have management plans in place that consider effects of this activity on sage-grouse (Bi-State Plan 2004, p. 181). One of the geothermal projects discussed in the Bi-State Plan is being evaluated by the USFS (Inyo National Forest 2005). The project would occur in suitable habitat for sage-grouse, and birds have been documented within 0.4 km (0.25 mi) of the site (Inyo National Forest, 2005, p. 7). However, the USFS evaluation concluded that while the proposed geothermal project may affect individuals it would not likely result in a loss of sage-grouse viability because: the area was surveyed for leks and none were found; only about 3 acres of habitat would be lost; prior to construction, an area adjacent to the construction corridor would be surveyed for nests and if nests are located, construction would not be allowed within 30 meters (100 feet) until after the young had fledged (Inyo National Forest 2005, p. 22).

We acknowledge that development of public lands for a variety of purposes (including rights-of-ways for roads, power lines, utility lines, and wind and geothermal energy development) may impact some sage-grouse habitat. However, neither the petitioners, nor our files, provide information on the present or future extent or magnitude of public development as a threat for the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing of the Mono Basin area sage-grouse may be warranted as a result of the present or threatened destruction, modification, or curtailment of sage-grouse habitat or range due to public land development.

Fences, Power Lines, Roads

The November 2005 petition cites Braun (1998) in stating that fences and power lines fragment sage-grouse habitat, cause direct mortality, and provide perches for avian predators. The petition cites a Sierra Pacific Power Company report (Sierra Pacific Power Company 2003) and states that construction of transmission lines can

increase weed invasion in sagebrush. The petitioners also cite a personal communication with F. Hall from the Bi-State Plan (2004) which indicates that, in northern California, power lines had a negative effect on lek attendance and strutting activity, and fewer radio-marked birds were lost as distance from power lines increased. For the Pine Nut PMU the petitioners cite the Bi-State Plan (2004) in stating that: The North Pine Nut lek is bordered on two sides by power lines; strutting grounds and nest sites are within the hunting territory of ravens (*Corvus corax*) that nest on power lines; and more new power lines have been requested in the area. The petitioners also cite a BLM Environmental Assessment (BLM-Carson City Field Office 2004) in stating that BLM recently authorized construction of a power line in the Pine Nut PMU and this area includes suitable sage-grouse habitat and is within 5 miles of a lek. For the Desert Creek-Fales PMU, petitioners cite the Bi-State Plan (2004) in stating that recent declines in this PMU may be linked to power line construction in the last 10 years. Petitioners cite the Bi-State Plan (2004) and state that in the Bodie area, a number of power lines may be affecting sage-grouse, and in the South Mono PMU, sage-grouse are currently impacted by power lines and more may be constructed due to energy development.

The November 2005 petition cites a BLM-Bishop Field Office document (BLM-Bishop Field Office undated), which indicates that mortalities increase and lek use decreases when fences or power lines are built nearby. Petitioners cite the Bi-State Plan (2004) in stating that fences in the Bodie area have been identified as a potentially significant threat and they also cite Fatooh *et al.* (undated), which reports that sage-grouse in the Bodie Hills area were displaced from one lek area by a fence.

Regarding roads as a threat to sage-grouse, the November 2005 petition cites Oyler-McCance *et al.* (2001) in stating that roads are an important cause of fragmentation and degradation of Gunnison sage-grouse habitat. Petitioners also cite the assessment by Wisdom *et al.* (2003) in asserting that human disturbances from roads and other activities can also exacerbate the spread of cheatgrass into sagebrush ecosystems, and that disturbances such as road construction and use, inappropriate grazing, energy development, mining, and recreational activities can cause cheatgrass expansion.

The December 2001 petition also cited fences, power lines, and roads as a threat to sage-grouse. However, this petition did not provide additional information beyond what was provided in the November 2005 petition.

The effects of fencing on sage-grouse include direct mortality through collisions, creation of predator (raptor) perch sites, the potential creation of a predator corridor along fences (particularly if a road is maintained next to the fence), incursion of exotic species along the fencing corridor, and habitat fragmentation (January 12, 2005, 70 FR 2257). Power lines can directly affect sage-grouse by posing a collision and electrocution hazard, and can have indirect effects by increasing predation, fragmenting habitat, and facilitating the invasion of exotic annual plants (January 12, 2005, 70 FR 2256). Impacts from roads to sage-grouse may include direct habitat loss, direct mortality, the creation of barriers to migration corridors or seasonal habitats, providing predator travel corridors, facilitation of the spread of invasive plant species, and other indirect influences such as noise (January 12, 2005, 70 FR 2257).

The Bi-State Plan (2004, p. 28) does state that in the Pine Nut PMU there are power lines bordering the North Pine Nut lek. However, it also indicates that these power lines are 3.2–4.8 km (2–3 mi) away from active strutting grounds (Bi-State Plan 2004, p. 28) so they do not occur in close proximity to the leks. The petitioners other assertions about the Pine Nut PMU are accurate. The BLM-Carson City Field Office did recently authorize construction of a power line in the Pine Nut PMU as stated by petitioners (BLM-Carson City Field Office 2004). However, sage-grouse habitat is not present along the power line route or in its vicinity (BLM-Carson City Field Office 2004, p. 3–15) and the closest known leks to the line are more than 8 km (5 mi) away (BLM-Carson City Field Office 2004, p. 3–20). For the Desert Creek-Fales PMU the Bi-State plan concludes that power lines are one of several types of infrastructure that are a risk to sage-grouse which can impact habitat for the species (Bi-State Plan 2004, p. 54). It also states that recent declines in the Fales population in the Desert Creek-Fales PMU may be related to construction of power lines and other associated land use activities (Bi-State Plan 2004, p. 54). In the Bodie PMU, the Bi-State Plan (2004, p. 81) characterizes utility lines as a past, current, and future risk that affects multiple sites and multiple birds. Also, the Bodie PMU utility line discussion in the Bi-State Plan cites a personal communication with F. Hall indicating that in northern California these lines have a negative effect on lek attendance and strutting activity and that radio-tagged sage-grouse lost to avian predation increased as the distance to utility lines decreased (Bi-State Plan 2004, p. 81). The Bi-State Plan (2004, pp. 81–82) identifies several utility lines in the Bodie PMU that may be negatively affecting sage-grouse. Land use plans in Bodie PMU do not predict or plan for any additional major, multi-line, or high-voltage utility lines in this PMU (Bi-State Plan 2004, p. 82). For the Mount Grant PMU, the Bi-State Plan (2004, p. 137) indicates that a power line fragments this PMU and that the line provides perches for raptors. In the South Mono PMU, transmission lines were considered to be a risk to sage-grouse on a yearlong basis (Bi-State Plan 2004, p. 169). The Bi-State Plan also mentions three transmission lines that either are impacting sage-grouse or may potentially impact them, and that future geothermal development may result in expansion of transmission lines in the South Mono PMU (Bi-State Plan 2004, p. 169). The Bi-State Plan (2004, p. 120) indicates that construction of new transmission lines may fragment occupied or potential sage-grouse habitat in the White Mountains PMU.

BLM-Bishop Field Office (undated) documented increased sage-grouse mortality and decreased use of leks when fences or power lines are built nearby although the source of this statement was a summary sheet of information put together for a presentation, not a published report or study. Fatooh *et al.* (undated) reported that sage-grouse were displaced from one lek area by fence construction. Fences were considered a risk to sage-grouse in the Desert Creek-Fales PMU (Bi-State Plan 2004, p. 54) and the Bodie PMU (Bi-State Plan 2004, p. 80). Within the Bodie PMU, there have been instances where sage-grouse avoided habitat areas following fence construction and several documented cases where mortalities resulted from collisions with fences (Bi-State Plan 2004, p. 80). However, the Bi-State Plan discussion of fences in the Bodie PMU also indicated that properly designed and sited fences are an important management tool that may improve sage-grouse habitat quality, and that fencing is clearly a manageable risk (Bi-State Plan 2004, p. 80). For the White Mountains PMU, fences can potentially affect sage-grouse populations or habitat negatively, and construction of new fences may fragment occupied or potential habitat for the species (Bi-State Plan 2004, pp. 120, 124). In the South Mono PMU, fences and other types of infrastructure are considered to be a risk

to sage-grouse and sage-grouse mortality caused by collision with a fence has been documented (Bi-State Plan 2004, p. 169). However, the South Mono PMU discussion also indicated that fences are a valuable rangeland management tool and that mitigation of potential impacts to sage-grouse from fences includes design and placement (Bi-State Plan 2004, p. 169). Fences were not considered to be a risk factor for either the Pine Nut or Mount Grant PMUs (Bi-State Plan 2004).

Roads were one of several factors causing habitat degradation for the Gunnison sage-grouse in Colorado (Oyler-McCance *et al.* 2001, p. 324). Wisdom *et al.* (2003, p. 10–3) indicates that disturbance factors, including roads, can facilitate cheatgrass spread. For the Desert Creek-Fales PMU, roads were considered to be a type of risk to sage-grouse for the (Bi-State Plan 2004, p. 54). Roads were considered as a type of disturbance in the White Mountains that can potentially negatively impact sage-grouse populations or habitat (Bi-State Plan 2004, p. 124), and construction of new roads in this PMU may fragment occupied or potential habitat for the species (Bi-State Plan 2004, p. 120). For the South Mono PMU, roads are listed as a risk factor that affect sage-grouse habitat and populations (Bi-State Plan 2004, p. 169). Roads were not presented as a specific risk factor for the Pine Nut, Bodie, or Mount Grant PMUs (Bi-State Plan 2004).

Fences, power lines, and roads are present in all the PMUs that comprise the Mono Basin area. The presence of this type of human infrastructure in areas where sage-grouse occur may have direct or indirect impacts to the species (January 12, 2005, **Federal Register**, pp. 2256–2258). In the Bi-State area, power lines and fences are considered to be a risk factor for most of the PMUs, but roads were not (Bi-State Plan 2004). Although the Bi-State Plan (2004) provides some direct examples of impacts to sage-grouse from fences, power lines, and roads, most of what it presents is the potential for impacts to sage-grouse without providing documentation that this infrastructure threatens sage-grouse or specifically how it is a threat and whether this infrastructure has actually affected populations. In general, we acknowledge that where fences, power lines, and roads occur in close proximity to occupied sage-grouse habitat, they may impact the species. However, neither the petitioners, nor our files, provide information on the extent or magnitude of fences, power lines, and roads as a threat for sage-grouse habitat in the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing of the Mono Basin area sage-grouse may be warranted due to the present or threatened destruction, modification, or curtailment of sage-grouse habitat or range due to the impacts of fences, power lines, or roads.

Mining

The November 2005 petition states that mining directly eliminates habitat wherever it occurs in sagebrush steppe, may poison surface water, and may expose wildlife to toxic chemicals. Petitioners also assert that mining often requires the construction of roads, power lines, ditches, pipelines, and slagheaps that fragment habitat. The petition claims that hard-rock mining for silver and gold is a prominent threat in the Bodie PMU, citing the Bi-State Plan, stating that within this PMU: Mineral exploration is likely to continue for the foreseeable future; recent proposals to mine for gold, silver, sand and gravel would affect a sage-grouse summer concentration near the Panamount Mine and a lek area on Dry Lakes Plateau; and disturbances associated with these activities include noise, stream sedimentation, water and soil contamination, and habitat removal (Bi-State Plan, pp. 89–90). Additionally, the petitioners cite Braun (1998) in asserting that there is no evidence that sage-grouse populations are able to reach their pre-mining numbers on reclaimed areas. The petition states that sage-grouse may use areas reclaimed from mining, but only if migration corridors from source populations are available (Braun 1998). Petitioners also cite problems in mineland reclamation, including that it is difficult to establish sagebrush and forbs on reclaimed areas, reclamation is expensive, invasive weeds can spread on reclaimed sites, and shrub densities on reclaimed sites may not be adequate to support sage-grouse.

The December 2001 petition also cited mining as habitat conversion that is a threat to sage-grouse. However, this petition did not provide additional information beyond what was provided in the November 2005 petition in relation to mining and its relationship to the present or threatened destruction, modification, or curtailment of the habitat or range of sage-grouse in the Mono Basin area.

We previously have concluded that surface mining for any mineral resource will result in direct habitat loss for sage-grouse if the mining occurs in occupied habitat (January 12, 2005, **Federal Register**, p. 2260). The actual effect of this loss, however, depends on the quality, amount, and type of habitat disturbed; in some cases, if the type of habitat disturbed is not a limiting factor for a local population, then loss of that habitat will not result in a population decline. However, the effects of mining on sage-grouse populations are not well known (Connelly *et al.* 2000, p. 974).

The petition correctly cites the Bi-State Plan (2004, pp. 89–90) in describing potential mineral exploration in the Bodie PMU and the associated impacts. However, most of the discussion of mining impacts for the Bodie PMU relate to either effects of past mining operations, or the potential for future mining impacts should mineral deposits be discovered and developed (Bi-State Plan 2004, pp. 89–90). The discussion for the Bodie PMU concludes that the current risk is restricted to small-scale gold and silver exploration and sand and gravel extraction activities that are considered to have minimal impacts on sage-grouse (Bi-State Plan 2004, p. 90). Furthermore, although Braun (1998) indicated that mining and the associated infrastructure negatively impact sage-grouse numbers and habitat in the short term, there is some recovery of populations following initial development and subsequent reclamation of the affected sites (although sage-grouse may not attain population levels present prior to development) (Braun 1998).

Within the Mono Basin area, sage-grouse were impacted by past mining in the Bodie PMU. While mining could potentially impact some sage-grouse habitat in the Bodie PMU in the future, petitioners' claims regarding this are speculative, since the potential for mining will depend largely on where mineral deposits are discovered and developed (Bi-State Plan 2004, pp. 89–90). Also, the potential impacts of future mineral development would be influenced by factors such as new technology and economic considerations. Furthermore, the amount of suitable habitat that might be involved, the number of sage-grouse that might be impacted, and the actual nature of the impacts resulting from mining are inherently speculative at this time and would depend on local conditions, including whether the habitat impacted was a limiting factor for the local sage-grouse population in that area.

Neither the petitioners, nor our files, provide information on the present or future extent, magnitude, or immediacy of mining as a threat for the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that

listing of the Mono Basin area sage-grouse may be warranted due to the present or threatened destruction, modification, or curtailment of sage-grouse habitat or range due to mining activities.

Livestock Grazing

The November 2005 petition asserts that livestock grazing is associated with the widespread decline of sage-grouse across their range through habitat degradation, loss, and fragmentation and cites Connelly and Braun (1997) and Webb and Salvo (2002) to support this assertion. According to the petitioners, Beck and Mitchell (2000) found that there were more negative impacts than positive impacts of livestock grazing; negative impacts often affect large areas, whereas positive grazing affects are localized; and livestock grazing appears to affect sage-grouse productivity.

The petitioners cite Gregg and Crawford (1991) and Holloran *et al.* (2005) in asserting that livestock eat and trample sagebrush, and the grasses and forbs around sagebrush, which degrades or eliminates nesting habitat; and the petitioners cite Gregg *et al.* (1994), Delong *et al.* (1995), and Sveum *et al.* (1998) to state that this affects both nesting success and chick survival. The petitioners cite information from multiple authors and studies in asserting the following: the availability of forbs during the pre-laying period may affect the nutritional status of hens and their reproductive success (Barnett and Crawford 1994); herbaceous cover is important in nest site selection (Connelly *et al.* 1991; Wakkinen 1990); nest success is positively correlated with presence of big sagebrush (*Artemisia tridentata*) and thick grass and forb cover (Beck and Mitchell 2000; Connelly *et al.* 1991; Gregg *et al.* 1994); herbaceous cover is important for nesting sage-grouse for concealment, security, and shelter from weather and predators (Schroeder and Baydack 2001; Sveum *et al.* 1998); unsuitable nesting habitat may contribute to lower nesting success (Connelly and Braun 1997); the presence of livestock can cause sage-grouse to abandon their nests (Rasmussen and Griner 1938; Call 1979); consumption of forbs by livestock in late spring and early summer may limit their availability for sage-grouse chicks (Call 1979); insects are an important food source for sage-grouse chicks (Pyle and Crawford 1991; Johnson and Boyce 1990) and insects are less abundant in degraded habitats; the availability of primary foods directly affects the diets of sage-grouse chicks (forbs and insects comprise over 75 percent of chick diets in areas where forbs and arthropods were more available, whereas in less productive habitats sage-grouse chicks consumed 65 percent sagebrush) (Drut *et al.* 1994).

The petitioners cite an Inyo National Forest sage-grouse management plan (Inyo National Forest 1966) in claiming that livestock grazing was a factor in historic declines in Mono Basin area sage-grouse populations. Petitioners also claim that livestock grazing affects other seasonal habitats for sage-grouse. In support of this claim, they cite Belsky *et al.* (1999) in stating that livestock damage riparian areas and associated meadows; they cite Owens and Norton (1992) in stating that livestock eat and trample sagebrush; and they cite Bedunah (1992) in asserting that livestock grazing introduces and spreads unpalatable weeds in sagebrush habitat, which reduces sage-grouse food sources. Further, the petition asserts that the range developments that support livestock grazing also harm sage-grouse. The petitioners state that fence posts provide raptor perches, and livestock water developments may artificially increase sage-grouse predators or competitors. They cite Autenrieth (1981) in asserting that conversion of sagebrush to crested wheatgrass and other livestock forage species eliminates sage-grouse habitat. The petitioners cite Wilkenson (2001) in stating that sage-grouse are low fliers and frequently collide with fences used to manage livestock.

The November 2005 petition claims that commercial livestock grazing on public lands affects broad swaths of sage-grouse habitat in the Mono Basin area. The petitioners cite the Bi-State Plan (2004) in listing the number of livestock allotments in the Desert Creek-Fales, Bodie, and Mount Grant PMUs and in stating that about 75 percent of the Bodie PMU is subject to grazing. They also assert that all PMUs in the Bi-State area are subject to livestock grazing. The petitioners further cite the Bi-State Plan (2004) in stating that: enforcement of permit conditions, seasons of use, numbers of livestock, and trespass grazing is a concern for part of the Pine Nut PMU; riparian habitats are being adversely impacted by grazing in the White Mountains PMU; and trespass livestock are impacting habitat in the Mount Grant PMU. Finally, the petitioners cite two Great Basin assessments (Wisdom *et al.* 2003; Rowland *et al.* 2003) in stating that vast areas of sagebrush habitat in Nevada are at risk of cheatgrass invasion and may be sensitive to inappropriate livestock grazing.

The December 2001 petition also cited grazing as a threat to sage-grouse. However, this petition did not provide additional information beyond what was provided in the November 2005 petition.

In reviewing several of the documents cited by the petitioners (Beck and Mitchell 2000; Connelly and Braun 1997; Holloran *et al.* 2005; Gregg and Crawford 1991; Schroeder and Baydack 2001; and Call 1979), we found that the cited materials offered a more comprehensive discussion of the threats from grazing. For example, although Beck and Mitchell (2000) found more negative than positive impacts of grazing, they concluded that indirect impacts of livestock grazing have affected sage-grouse habitat more than direct impacts (Beck and Mitchell 2000, p. 997) and that presently little information is available regarding the direct impacts of grazing on sage-grouse habitat (Beck and Mitchell 2000, p. 993). Connelly and Braun (1997, p. 231–232) stated that although excessive grazing during the breeding season may have negative impacts on sage-grouse populations, there is little direct evidence linking grazing practices to sage-grouse population levels and that more information is needed on the relationship of livestock grazing to sage-grouse production. Additionally, although several authors (Holloran *et al.* 2005; Gregg and Crawford 1991; Gregg *et al.* 1994; Delong *et al.* 1995; Sveum *et al.* 1998; 1994; Connelly *et al.* 1991; and Wakkinen 1990) discuss the relationship between sagebrush grass and herbaceous cover and nesting success as presented by the petitioners, none of these studies are direct comparisons of grazed versus non-grazed sites, but rather they all compare successful to unsuccessful nest sites and hypothesize that grazing may negatively impact nesting success. Furthermore, neither Holloran *et al.* (2005) nor Gregg and Crawford discuss livestock eating sagebrush and trampling sagebrush or the grasses and forbs around them as asserted by the petitioners. Beck and Mitchell (2000) did not demonstrate that sagebrush cover and grass or herbaceous cover was important to nest success but rather summarized the work of other researchers. Sveum *et al.* (1998, p. 268) did find that sagebrush cover and tall grass cover was greater for successful nests than for those lost to predation, but Schroeder and Baydack (2001) only discuss predation for prairie grouse species in general without providing specific conclusions for sage-grouse. Call (1979, p. 25) cites work by Patterson (1950) in which livestock

presence at a site resulted in nest desertion and destruction, but Call (1979; p. 30) also states that while sheep can cause nest abandonment, cattle are generally not considered to cause nest desertion. Call (1979, p. 25) indicates that consumption of forbs by livestock in spring and summer may have an adverse impact on young sage-grouse, but this was not based on a comparative study of grazed versus ungrazed sites. Barnett and Crawford (1994, p. 114) documented the importance of forb availability to nesting females, but as with other studies, they did not compare grazed sites to ungrazed sites to directly address grazing effects on forb availability.

Both Pyle and Crawford (1991) and Johnson and Boyce (1990, pp. 90–91) demonstrated that insects were important in the diet of young sage-grouse. However, Pyle and Crawford did not compare grazed to ungrazed sites, and the results in Johnson and Boyce (1990, pp. 89–91) are based on captive birds, not a field study. Furthermore, Johnson and Boyce (1990, p. 91) state that results from their work cannot be related directly to effects of insect reductions on wild populations, because insect types and abundance needed for young sage-grouse to meet their requirements are unknown. Drut *et al.* (1994, pp. 91–92) did document that sage-grouse chicks ate more forbs and insects at a site where these were more abundant, and they consumed more sagebrush at another study site where forbs and insects were less available. However, they did not directly compare grazed to ungrazed sites and only make inferences about land use practices based on major outcomes of their work (Drut *et al.* 1994, p. 93).

The sage-grouse management plan developed for the Inyo National Forest (Inyo National Forest 1966, p. 2) does suggest that livestock grazing was a factor in historic declines of sage-grouse populations in Inyo and Mono Counties. However, this plan is 40 years old and it refers to livestock as a factor in historic declines in sage-grouse that occurred in the 20th century, and does not relate directly to present conditions or present grazing management practices in the Mono Basin area.

The petitioners correctly cite other works (Belsky *et al.* 1999; Owens and Norton 1992; and Bedunah 1992) that document effects of grazing on sagebrush habitat. However these authors only present effects of livestock grazing on habitat and do not document how grazing directly impacts sage-grouse. Petitioners do correctly cite Autenrieth (1980, p. 772) regarding conversion of sagebrush to grasslands and Wilkinson (2001), who documents sage-grouse mortalities caused by fences used to manage livestock.

For the Mono Basin area, all the sage-grouse PMUs are subject to livestock grazing (Bi-State Plan 2004), as stated by petitioners. Petitioners also accurately characterize the number of grazing allotments for the Desert Creek-Fales, Bodie, and Mount Grant PMUs (Bi-State Plan 2004, pp. 56–57, 82, and 138). The petition accurately characterizes concerns related to grazing for the southern part of the Pine Nut PMU (Bi-State Plan 2004, p. 29); however, the Bi-State Plan indicates that public land grazing in this PMU is being managed in such a way that it is not known to be impacting sage-grouse habitat at this time (Bi-State Plan 2004, p. 29). Petitioners asserted that riparian habitats in general are being impacted in the White Mountains PMU; whereas, according to the Bi-State Plan (2004, p. 122), impacts are discussed for only three specific riparian areas and there is no indication that livestock grazing is considered to be a major risk for sage-grouse in this PMU. For the Mount Grant PMU, the petitioners assert that trespass livestock are impacting habitat in this PMU, whereas the Bi-State Plan (2004, p. 138) only states that there are some trespass cattle present in one specific area. There is no indication in the Bi-State Plan (2004, pp. 138–139) that livestock grazing is considered to be a major risk for the Mount Grant PMU. Nor is livestock grazing considered to be a major risk for sage-grouse in the Desert Creek-Fales PMU (Bi-State Plan 2004, pp. 56–57). The Bi-State Plan does characterize livestock grazing as a risk to sage-grouse for the Bodie PMU (Bi-State Plan 2004, p. 82); however, it also states that permitted grazing is a manageable risk with current management practices representing a significant improvement over historic use (Bi-State Plan 2004, p. 85). Finally, for the South Mono PMU, the Bi-State Plan (2004, pp. 175–176) states the livestock grazing occurs on public lands in this PMU but it does not characterize grazing as a major risk to sage-grouse.

The petition accurately characterizes both the Wisdom *et al.* (2003, p. xiv) and Rowland *et al.* (2003, p. 16) assessments of the Great Basin and Nevada regarding the large area at risk to cheatgrass displacement and sensitivity to inappropriate grazing. However, both of these assessments were completed at a large geographic area scale. Neither of these assessments is specific to the Mono Basin area. With regard to inappropriate livestock grazing, the Rowland *et al.* (2003, p. 16) assessment only states that very little of the sagebrush habitat in Nevada is on lands protected outright from disturbances like energy development or inappropriate grazing, and this information is not specific to the Mono Basin area.

Petitioners accurately cite a BLM Environmental Assessment authorizing livestock grazing (BLM-Bishop Field Office 2003, pp. 22–23). However, the 2005 petitioners' assessment of grazing actions for BLM-Bishop Field Office lands is not consistent with the characterization of grazing provided in the Bi-State Plan. Most of the land administered by the BLM-Bishop Field Office occurs in the Bodie and South Mono PMUs. For these two PMUs, the discussions of livestock grazing in the Bi-State Plan do not indicate that livestock grazing is a major risk, or that it is having major impacts on sage-grouse populations in these areas (Bi-State Plan 2004, pp. 82–85 and 175–176).

Beck and Mitchell (2000), Connelly *et al.* (2000), Connelly *et al.* (2004), and Crawford *et al.* (2004) present information about the effects of livestock grazing on sage-grouse, including what is documented and what has not been documented. Livestock grazing has some effects on sagebrush habitat and therefore some effects on sage-grouse. Most of the impacts on sage grouse appear to be indirect (Beck and Mitchell 2000, p. 993). There is little direct experimental evidence linking grazing practices to sage-grouse population levels (Connelly *et al.* 2004, p. 974). Excessive livestock grazing has negatively impacted sage-grouse habitat by creating conditions that favor annual grasses and reducing perennial grasses used as nesting and escape cover by sage-grouse (Crawford *et al.* 2004, p. 12). However, the specific relationship between grazing pressure and sage-grouse nest success has not been evaluated, and more research is needed to address the direct effects of livestock grazing on the species (Crawford *et al.* 2004, p. 12).

Specific to the Mono Basin area, most of the land area that is grazed by livestock in the Mono Basin area is public land managed by BLM and USFS under rangeland management practices guided by agency land use plans. Livestock grazing is a long-term and historic use in the Mono Basin area, and sage-grouse have persisted here over time. Neither the petitioners, nor our files, provide information on the present or threatened extent, magnitude, or immediacy of livestock grazing as a threat for the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial

information to indicate that listing of the Mono Basin area sage-grouse may be warranted due to the present or threatened destruction, modification, or curtailment of sage-grouse habitat or range due to livestock grazing.

Non-Native Species

The November 2005 petition states that non-native plants are common in sagebrush-steppe habitat and degrade habitat quality for sage-grouse. The petitioners cite the description of the impacts of cheatgrass (*Bromus tectorum*) invasion and other invasive plants on sagebrush habitat and sage-grouse provided by Connelly *et al.* (2004). They also cite the Bi-State Plan in stating that in the Pine Nut PMU noxious weeds and cheatgrass are invading sagebrush and wet meadow sites throughout the PMU. Petitioners cite Wisdom *et al.* (2003) as reporting that 26 percent of sage-grouse habitat in Nevada is at moderate risk and another 14 percent of this habitat is at high risk of cheatgrass invasion, and that 44 percent of all sagebrush habitat in Nevada currently faces a moderate or high risk of being replaced by non-native cheatgrass. The petitioners cite a related assessment completed by Rowland *et al.* (2003) in stating that sage-grouse habitat for the BLM-Carson City District lands, where Mono Basin area sage-grouse occur, are at moderate risk of displacement by cheatgrass, and 13 percent of these lands are at high risk of displacement by cheatgrass.

The December 2001 petition also cited invasive species as a threat to sage-grouse. However, this petition did not provide additional information beyond what was provided in the November 2005 petition.

We recognize that a wide variety of plant species are considered invasive across the range of the sagebrush ecosystem that sage-grouse occupy (January 12, 2005, **Federal Register**, p. 2265). Cheatgrass is a non-native annual grass species that was introduced to western North America and was well established by the late 1920s (Connelly *et al.* 2004, p. 7–14). Cheatgrass readily outcompetes native plant species for water and nutrients, and standing dead cheatgrass is more flammable than native species, leading to increased fire intensity and frequency, which greatly shortens the fire return interval in areas where it dominates compared to native sagebrush ecosystems (Connelly *et al.* 2004, p. 7–14). The more frequent fires encouraged by the presence of cheatgrass directly eliminate native shrubs, forbs, and perennial grasses, resulting in self-perpetuating stands of cheatgrass (Connelly *et al.* 2004, p. 7–14).

Wisdom *et al.* (2003, pp. 4–3 to 4–13) assessed the risk of cheatgrass displacement of native vegetation and presented their results for the Great Basin eco-region and then separately for the State of Nevada. We agree with petitioners that for their Nevada assessment, Wisdom *et al.* (2003, p. xi) reported that 44 percent of existing sagebrush habitat was at either a moderate or high risk of displacement by cheatgrass, but we also note that 56 percent of sagebrush habitat is at low risk of displacement (Wisdom *et al.* 2003, p. xi). Wisdom *et al.* (2003, p. xii) also stated that for Nevada sage-grouse habitat, 14 percent was at high risk and another 26 percent was at moderate risk of cheatgrass replacement within Nevada, but that 60 percent of sage-grouse habitat in Nevada is at low risk of being displaced by cheatgrass (Wisdom *et al.* 2003, p. xii). Furthermore, the assessment stated that the amount of habitat present and its associated threats do not directly correlate with population effects for a given species, and that new research is needed to evaluate the performance of their cheatgrass risk model, including extensive field evaluation (Wisdom *et al.* 2004, p. 9–2 and 4–12). The Rowland *et al.* (2003) habitat assessment was a component of the Wisdom *et al.* (2003) assessment.

We note also that the assessments conducted by Wisdom *et al.* (2003) and Rowland *et al.* (2003) were conducted at large landscape scales and do not provide information specific to the Mono Basin area. The Rowland *et al.* (2003) assessment provided a summary for lands within BLM's Carson City Field Office boundary, but a large portion of the lands administered by this Field Office do not occur within the Mono Basin area, and consequently it is not appropriate to apply these results directly to the Mono Basin area.

The Bi-State Plan (2004, p. 30) states that noxious weeds and cheatgrass are invading sagebrush and meadow sites throughout the Pine Nut PMU, and that exotic plant species negatively affect sage-grouse habitat quality and quantity. The Bi-State Plan also identifies cheatgrass in some sagebrush communities in the Bodie PMU and states that there is some risk of habitat type conversion, but it is for limited sagebrush habitats in this PMU and there have not been any conversions of sagebrush habitat to non-native annual grasslands in the Bodie PMU to date (Bi-State Plan 2004, p. 93). Although non-native plants are present in the White Mountains, Mount Grant, and South Mono PMUs, this was not found to be a risk factor in any of these areas (Bi-State Plan 2004, pp. 118, 140, 177). Non-native plants were not considered to be a risk factor in the Desert Creek-Fales PMU (Bi-State Plan 2004).

Neither the petitioners, nor our files, provide substantial information to document the extent or magnitude of the present or future threat of non-native plant species for sage-grouse habitat in the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing of the Mono Basin area sage-grouse may be warranted due to the present or threatened destruction, modification, or curtailment of sage-grouse habitat or range due to non-native plant species.

Pinyon-Juniper Encroachment

The November 2005 petition cites the impacts of pinyon-juniper (*Pinus edulis-Juniperus* spp.) encroachment described by Connelly *et al.* (2004) on sagebrush steppe habitat and sage-grouse. The petition asserts that pinyon-juniper encroachment into sagebrush habitat is occurring throughout the Mono Basin area and has widespread impacts on sage grouse habitat. The petition also cites USFS information that the Inyo National Forest noticed encroachment of pinyon pine into sagebrush habitat in the Crowley Lake area in 1966 (Inyo National Forest 1966). For the Pine Nut PMU, the petitioners cite the Bi-State Plan (2004) in stating that many of the ecological sites that support big sagebrush have been converted to pinyon-juniper woodlands over the past 100 years. The petition further cites the Bi-State Plan (2004) for the Pine Nut PMU in stating that: Encroachment is impacting potential nesting and brood habitat at multiple sites; it may also be affecting connectivity between breeding populations; and the effects of encroachment may become permanent and irreversible without active management. For the Desert Creek-Fales PMU petitioners cite the Bi-State Plan (2004) in stating that pinyon-juniper encroachment is occurring throughout the entire PMU and is adversely affecting both the habitat quality and quantity for sage-grouse. For the Bodie PMU they assert that Fatooh *et al.* (undated) questioned whether ''pinyon and juniper may be limiting potential winter habitat or constraining potential migration routes.'' The petitioners also cite the Bi-State Plan (2004) in stating that all or portions of the other PMUs are also affected by pinyon-juniper encroachment, and they cite the work of Wisdom *et al.* (2003) in stating that 41 percent of Great Basin ecosystems were

at moderate or high risk of pinyon-juniper invasion.

We agree that the work by Connelly *et al.* (2004) describes the expansion of pinyon-juniper woodlands as a threat to the sagebrush ecosystem, and specifically within the Great Basin region, these woodlands have expanded greatly in comparison to their distribution over 150 years ago (Connelly *et al.* 2004, p. 7–7). Potential causes for this increase include a decrease in fire frequencies; climate change; past patterns of livestock grazing; and increases in carbon dioxide in the atmosphere (Connelly *et al.* 2004, p. 7–7). This expansion has resulted in the loss of many bunchgrass and sagebrush-bunchgrass communities that formerly dominated the Intermountain West (January 12, 2005, **Federal Register**, p. 2266). Wisdom *et al.* (2003, p. 4–1 to 4–7) modeled the risk that pinyon-juniper woodlands would displace sagebrush habitats in the Great Basin and found that nearly 60 percent of the area occupied by sagebrush was at low risk of replacement, 6 percent of all sagebrush cover was at moderate risk, and 35 percent of sagebrush cover was at high risk of replacement. However, they also reported that new research is needed to evaluate the performance of their pinyon-juniper risk model, including extensive field evaluation, and that the amount of habitat and associated threats does not directly correlate with populations effects for a given species (Wisdom *et al.* 2003, p. 4–6 and 9–2). We note also that the assessments by Connelly *et al.* (2004) and Wisdom *et al.* (2003) were for large geographic areas covering multiple states in the range of the species, and hence they do not provide a specific assessment of conditions in the Mono Basin area.

The quote of Fatooh *et al.* (undated) in the petition was incomplete. Fatooh *et al.* (undated) actually stated that ''in a heavy snow winter we may want to note whether pinyon and juniper may be limiting potential winter habitat or constraining potential migration routes'' (Fatooh *et al.*, undated). Thus the information in Fatooh *et al.* is inconclusive, as it relates to period of heavy winter snow and poses questions, rather than providing evidence, in relation to possible effects on potential habitat and potential migration routes.

The Inyo National Forest reported that some pinyon pine encroachment into sagebrush has occurred (Inyo National Forest 1966, p. 22). However, that statement related to past conditions and was limited to the east side of the Crowley Lake area. Also, there is no information presented by the Inyo National Forest document on the extent or magnitude of pine encroachment in this limited area by Crowley Lake.

The Bi-State Plan reports that within the Pine Nut PMU, pinyon-juniper encroachment is occurring and many big sagebrush sites have been converted to pinyon-juniper woodland (Bi-State Plan 2004, p. 20). The petition correctly cites other concerns expressed for the Pine Nut PMU in the Bi-State Plan (2004, p. 20) as well as concerns about pinyon-juniper encroachment in the Desert Creek-Fales PMU (Bi-State Plan 2004, p. 39), and Bodie, White Mountains, Mount Grant, and South Mono PMUs (Bi-State Plan 2004, pp. 96, 119, 133, 167). The Bi-State Plan indicates that pinyon-juniper encroachment is occurring to some degree in all of the PMUs in the Mono Basin area with the greatest risk occurring in the Pine Nut, Desert Creek-Fales, and Bodie PMUs (Bi-State Plan 2004, pp. 20, 39, 96). However, the Bi-State Plan does not provide documentation of the amount of sagebrush habitat lost to encroachment in the Mono Basin area, nor does it not demonstrate that pinyon-juniper encroachment has caused sage-grouse populations to decline in any of the PMUs. Information about the time period over which encroachment has been ongoing is lacking, but it has been occurring since at least the 1960's (Inyo National Forest 1966, p. 22).

Our evaluation shows that neither the petitions, nor our files, provide documentation of the extent or magnitude of the present or future threat of pinyon-juniper encroachment to sage-grouse habitat within the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing of the Mono Basin area sage-grouse may be warranted as a result of the present or threatened destruction, modification, or curtailment of sage-grouse habitat or range due to pinyon-juniper encroachment.

Military Lands

The November 2005 petition states that 19,804 hectares (ha) (48,936 acres (ac)) of sage-grouse habitat in the Mono Basin area are managed by the Department of Defense as an army depot (a facility used for storage, renovation, and disposal of conventional army weapons). The petitioners cite Connelly *et al.* (2004) regarding impacts of military training and related activities on sagebrush habitat and sage-grouse and conclude that these lands cannot be considered suitable or protected habitat since they are open to development and activities that negatively impact the species. The December 2001 petition also cited military operations as a threat to sage-grouse. However, this petition did not provide additional information beyond what was provided in the November 2005 petition.

We agree that the U.S. Army manages 19,804 ha (48,936 ac) of land within the Mount Grant PMU as part of its Hawthorne Army Depot (Bi-State Plan 2004, p. 127). However, the petitioner's claim that these lands cannot be considered suitable or protected habitat because they are open to development and activities that negatively impact sage-grouse is not valid. The Bi-State Plan (2004) describes Hawthorne Army Depot lands in the Mount Grant PMU as some of the best sage-grouse habitat within this PMU because of the exclusion of livestock and the public (Bi-State Plan 2004, p. 149). Livestock grazing has not occurred on the Hawthorne Army Depot lands in the Mount Grant PMU since the 1930s and military activities such as testing and training have been fairly minor on these lands (Nachlinger 2003, p. 38).

Connelly *et al.* (2004, p. 7–43) summarizes impacts of military training due to military exercises involving tracked and wheeled vehicles, and fires from ordnance impacts from across the range of sagebrush ecosystems. However, this assessment was generalized for all military lands within the range of the sage-grouse and did not include information specific to military lands in the Mono Basin area.

Hawthorne Army Depot lands within the Mount Grant PMU have been documented to provide relatively high quality habitat for sage-grouse (Nachlinger 2003, p. 38; Bi-State Plan 2004, p. 149), and we are not aware of any other U.S. military lands elsewhere in the Mono Basin area. Neither the petitioners, nor our files, provide documentation to substantiate claims that military training or development on military lands is a present or future threat to the habitat or range of the sage-grouse population in the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing of the Mono Basin area sage-grouse may be warranted due to the present or threatened destruction, modification, or curtailment of sage-grouse habitat or range due to military training or development of military lands.

Water Development

The November 2005 petition states that the conversion of natural basins to managed watersheds for the purpose of providing water for agriculture and

urban centers negatively affects semiarid ecosystems. The petitioners also state that the City of Los Angeles Department of Water and Power (LADWP) manages land in the Mono Basin area and diverts, collects, and exports water from this area to Los Angeles. They cite the work of Elmore *et al.* (2003) and indicate that the diversion, exportation, and inter-basin transfer of water from arid environments results in adverse ecological impacts to aquatic, riparian, wetland, mesic, and other systems dependent on that water. They also cite Elmore *et al.* (2003) in stating that: groundwater pumping adversely affects semi-arid habitats that are dependent on groundwater when droughts occur; that native vegetation decreases during drought when groundwater pumping lowers water tables; in some areas the decline in native vegetation is followed by an increase in non-native weed species after the drought ended; and that these effects are amplified when vegetation communities are disturbed by other factors such as burning, grazing, and agriculture. According to the petitioners, a variety of plant communities are present in the Owens River Valley, including sagebrush habitat and Mono Basin sage-grouse were historically present in this area. The petitioners cite Elmore *et al.* (2003) and assert that this study demonstrated that where LADWP has drilled wells and pumped water, the lowered water tables have caused a loss of native vegetative cover within 19 percent of the valley landscape. Finally, the petitioners assert that the loss of mesic and semi-arid habitats adversely affects sage-grouse in the Owens Valley by eliminating habitat and degrading and fragmenting the sagebrush habitats that remain.

We concur that Elmore *et al.* (2003) demonstrated that groundwater pumping from the Owens River Valley by LADWP impacted some native plant communities in this area. However, the petitioners failed to note that only a small portion of the Owens Valley study area (Elmore *et al.* 2003, p. 449) actually overlaps with the Mono Basin area (in the White Mountains PMU). They also fail to note that only a small portion of the Owens Valley study area (Elmore *et al.* 2003, p. 449) overlaps with the historic range of sage-grouse in Inyo County (Hall 1995, Figure 1) or that sage-grouse are no longer present in the area where the Elmore *et al.* (2003) study occurred (Hall 1995, Figure 1). Even if groundwater pumping by LADWP was a factor in the reduction of sage-grouse range in Inyo County, the extent and magnitude of this impact would have been limited, given the small overlap in the historic range of sage-grouse and the Elmore *et al.* (2003) study area. Also, Elmore *et al.* (2003, p. 454) did not find any negative response of sagebrush plant communities (which sage-grouse require) to groundwater pumping. Furthermore, the sagebrush type in the Elmore *et al.* (2003, p. 447) study only comprised a minor portion of their study area (about 4 percent of the area), and the nearest sage-grouse leks to the Owens Valley are at high-elevation sites in the White Mountains, and groundwater pumping would not directly impact these birds. None of the PMU discussions in the Bi-State Plan identified groundwater pumping by LADWP as a risk to sage-grouse.

Neither the petition, nor our files, provide documentation that groundwater pumping in the Owens Valley of California is the cause of the present or threatened destruction, modification, or curtailment of the habitat or range of the greater sage-grouse in the Mono Basin. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing the Mono Basin area sage-grouse may be warranted due to water development.

Feral Horses

The November 2005 petition claims that feral horses affect sage-grouse populations at several locations in the Mono Basin area and cites the Bi-State Plan (2004) in claiming they are a potentially significant risk for the 7-Troughs lek in the Bodie PMU. They also cite the discussion of impacts from wild horse and burros in Connelly *et al.* (2004).

Connelly *et al.* (2004, pp. 7–36—7–37) stated that habitat occupied by horses exhibits lower grass cover, fewer shrubs, and less total vegetative cover, and that horse alteration of spring or other mesic areas may be a concern with regard to sage-grouse brood rearing (Connelly *et al.* 2004, p. 7–37). However, these observations were general and not specific to the Mono Basin area. The Bi-State Plan (2004, pp. 28, 86, 122, 139, 177) included discussions on wild horses for the Pine Nut, Bodie, White Mountains, Mount Grant, and South Mono PMUs. For all PMUs except Bodie, the discussions in the Bi-State Plan are brief and focused on one or a few locations within each PMU where wild horses may be impacting sage-grouse habitat. The most extensive discussion is for the Bodie PMU (Bi-State Plan 2004, pp. 86–87), where there is risk of disturbance to the 7-Troughs lek. However, for the Bodie PMU, the current extent of breeding and summer sage-grouse habitat degradation attributable to wild horses is insignificant due to low horse numbers, and the extent of winter habitat degradation due to this factor also is insignificant because sagebrush cover is minimally affected by horse use (Bi-State Plan 2004, p. 86). The BLM captured and removed some wild horses from part of the Bodie PMU in 2003 (Bi-State Plan 2004, pp. 86–87).

Neither the petitioners, nor our files, provide substantial information to document the extent, magnitude, or immediacy of present or future threats posed by feral horses to sage-grouse throughout the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing of the Mono Basin area sage-grouse may be warranted as a result of the present or threatened destruction, modification, or curtailment of sage-grouse habitat or range due to feral horses.

Wildfire

The November 2005 petition states that wildfire is often mentioned as a significant threat to sage-grouse. It cites the Connelly *et al.* (2004) review of wildfire impacts on sagebrush steppe habitats and sage-grouse. The petitioners also cite Wisdom *et al.* (2003) and state that: Wildfire often leads to cheatgrass invasion of sagebrush habitats; that the number and size of wildfires across the Great Basin and Nevada have increased in the past 20 years and this trend continues; and that reducing the spread of cheatgrass in native shrublands through mitigation of human disturbances that facilitate its spread is probably the most important consideration in reducing the frequency, intensity, and area of undesirable wildfires.

The December 2001 petition also cited fire as a threat to sage-grouse. However, this petition did not provide additional information beyond what was provided in the November 2005 petition.

We note the Connelly *et al.* (2004) assessment of fire data across the range of the sagebrush ecosystem and their conclusions that the number of fires and total area burned had increased for the period from 1980–2003, and that fires are an increasingly significant disturbance throughout much of the sagebrush ecosystem (Connelly *et al.* 2004, p. 7–6). Repeated fires in more arid sagebrush stands have allowed cheatgrass to replace native shrubs and herbs with fires occurring at more frequent intervals (Connelly *et al.* 2004, p. 7–5). Cheatgrass recovers more quickly after fire, effectively preventing

the return of native sagebrush (January 12, 2005, **Federal Register**, p. 2265). From a rangewide perspective, altered fire regimes due to cheatgrass invasion is a factor in the loss of sage-grouse habitat (Connelly *et al.* 2004, p. 7–5). Wisdom *et al.* (2003, p. 10–1) conducted a bioregional assessment of the Great Basin eco-region and similarly concluded that the number and size of wildfire across this region have increased dramatically in the last 20 years, and that this trend continues. They further concluded that reducing the spread of cheatgrass in native shrublands, and mitigating human disturbances that facilitate its spread are probably the most important considerations in reducing the frequency, intensity, and area of wildfires (Wisdom *et al.* 2003, p. 10–1). However, both the analysis performed by Connelly *et al.* (2004) and the assessment by Wisdom *et al.* (2003) were conducted at large landscape scales, and neither provides an evaluation of the present or potential future effects of wildfire on greater sage-grouse habitat in the Mono Basin area.

For the Mono Basin area, the Bi-State Plan (2004) states that: wildfire is a factor that can affect the quality of sagebrush habitat for the Desert Creek-Fales and South Mono PMUs; wildfire is a low risk for sage-grouse in the White Mountains PMU; and only three recent fires have occurred in the Mount Grant PMU (Bi-State Plan 2004, pp. 53, 124, 140, 178). The Bi-State Plan indicates that some wildfires occur in the Pine Nut PMU nearly every year with the potential to remove sagebrush habitats (Bi-State Plan 2004, p. 26). Wildfire is a risk to sage-grouse habitat in the Pine Nut PMU; however, the Bi-State Plan (2004, p. 26) does not provide information on the extent or magnitude of fire, or how it has impacted sage-grouse in this PMU. For the Bodie PMU, the Bi-State Plan (2004, p. 92) indicates that all sagebrush habitats in the PMU are subject to some fire-related risk. However, it also states that: Recent wildfire activity in the PMU is limited; no landscape-scale fires have occurred over the last 40 years and even the largest recent burns have been small; no significant impacts to key sage-grouse habitats have been documented; and fire is a manageable risk (Bi-State Plan 2004, p. 93).

Rangewide, wildfires have led to the loss of some sage-grouse habitat. Within the Mono Basin area, wildfire is a potential threat to sage-grouse habitat, but neither the petitioners, nor our files, provide any documentation that large landscape fires have occurred in this area or that significant amounts of habitat have been lost here due to fire. Hence, information on the extent and magnitude of wildfire is lacking for the Mono Basin area. Wildfires are a natural part of the environment in which the sage-grouse has evolved and persisted. Due to the changes in fire regimes described, wildfire remains a potential threat to sage-grouse in the Mono Basin area. However, neither the petitioners, nor our files, provide substantial scientific or commercial information that indicates wildfire poses a substantial risk of present or threatened destruction, modification, or curtailment of the habitat or range of the greater sage-grouse in the Mono Basin area to such an extent as to indicate listing may be warranted.

Summary for Factor A

Habitat loss and modification for sage-grouse has occurred in the Mono Basin area in the past as a result of many of the situations and actions described above. However, the question being addressed in Factor A is the present or future, not the past. Our evaluation (above) shows that the 2001 and 2005 petitions, and information in our files, do not present substantial information that indicates listing is warranted under Factor A in relation to any of the individual activities described in the petitions. Further, neither the petitions nor information in our files present substantial information that collectively these actions indicate that listing is warranted under Factor A.

In summary, we evaluated the threats cited in both petitions. We find that the petitions and other information in our files do not present substantial scientific or commercial information indicating that the petitioned action may be warranted due to the present or threatened destruction, modification, or curtailment of sage-grouse habitat or range.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The November 2005 petition asserts that given the declines in sage-grouse populations across the West, there are many concerns about the possible impacts of continued sport hunting on this species. The petition further states that the impacts of hunting may disproportionately affect small and isolated populations of sage-grouse. The petitioners also claim that hunting in the South Mono and Bodie PMUs could suppress local populations and jeopardize the Mono Basin area sage-grouse rangewide. The petitioners cite the following information to support their contention that hunting is a threat to Mono Basin area sage-grouse. Connelly *et al.* (2004) reviewed the impacts of hunting on sage-grouse populations. Autenrieth (1981) assessed hunting of sage-grouse and stated that harvest rates should be more conservative in xeric (dry) areas close to urban centers than in more mesic (moist) areas. Connelly *et al.* (2003) studied sage-grouse response to hunting and reported that: Areas open to hunting had lower rates of increase than did areas with no hunting; both moderate and restricted hunting seasons slowed population recovery; and populations in low elevation habitats close to urban centers, and isolated due to habitat fragmentation, may be less able to withstand a harvest rate that would not affect populations in more extensive, contiguous, remote, or mesic areas. The petitioners also cited Gibson (1998), who analyzed the effect of hunting sage-grouse on two populations in the Mono Basin area and found that for the Long Valley area, which was characterized as an isolated population, hunting mortality could depress and hold population levels well below the carrying capacity. In contrast, for another local population that was contiguous with other sage-grouse local populations in Nevada, Gibson (1998) found that population level was not related to hunting mortality. The petition states that Gibson (2001) later concluded that: The Long Valley population of sage-grouse is heavily impacted by hunting; changes in population size in this area have been driven by CDFG hunting regulations over the past 40 years; and despite reduced permit numbers over the past 10 years, this population has not rebounded like it did when the season was closed for several years each in the 1960s and 1980s. The petition cites the Bi-State Plan (2004) to state that for the Bodie PMU, direct mortality of sage-grouse from hunting is a potentially significant risk, and that during a closure of the hunting season in Mono County the population increased but then declined after the season was reopened.

The December 2001 petition also identified hunting as a threat to Mono Basin area sage-grouse. The December 2001 petition states that roads and the use of off-road vehicles greatly increase the level of poaching, and that hunting seasons for other upland game birds expose sage-grouse to mortality when the areas open to hunting overlap with sage-grouse range, as they may be misidentified and shot. The petition also asserts that falconry, bird watching, and scientific study disturb or stress

sage-grouse. However, that petition did not provide any additional information beyond that presented in the November 2005 petition that was substantial.

The effect of harvest on greater sage-grouse has been assessed across the range of the species (Connelly *et al.* 2004, pp. 9–1 to 9–6). Some negative effects have been documented to particular populations of sage grouse, but Connelly *et al.* (2004, p. 9–6) conclude that no studies have demonstrated that hunting is a primary cause of reduced numbers of greater sage-grouse. The only known assessment of hunting effects specific to the Mono Basin area is the analysis by Gibson (2001) for the Bodie Hills and Long Valley lek complexes. The assessment by Gibson (2001) indicated that populations in the Long Valley area were depressed by hunting for the period of years examined, but the Bodie Hills populations were not. However, Gibson's analysis covered a 45-year period (Gibson 1998), and CDFG has significantly changed hunting seasons for sage-grouse in the Mono Basin area over this time period, as described below.

Prior to 1983, there was no limit on hunting permits in the Mono Basin area, then the season was closed from 1983 to 1986 (Bi-State Plan 2004, pp. 73–74). CDFG instituted a permit system in 1987 when the season was re-opened, and issued hundreds of permits each year until 1998 when permit numbers were reduced significantly over what they had been during the period of 1987–1997 (Bi-State Plan 2004, pp. 74–75). From 1998 to the present, the number of hunting permits issued by CDFG has ranged from 10 to 35 per year for the two hunt units (the North Mono Hunt Area in the Bodie Hills portion of the Bodie PMU, and the South Mono Hunt Area in the Long Valley part of the South Mono PMU) open to hunting in the California portion of the Mono Basin area (Bi-State Plan 2004, p. 173). CDFG has concluded that the removal of individual animals from resident game bird populations statewide (including sage-grouse) will not significantly reduce those populations and will therefore not have a significant environmental impact on resident game birds (CDFG 2002, p. 7).

Hunting (gun) has been closed in the Nevada portion of the Mono Basin area since 1999 (Greater Sage-Grouse Conservation Plan for Nevada and Eastern California 2004, p. 108).

Regarding possible effects of bird watching at leks or from scientific studies of sage-grouse, neither CDFG nor NDOW had any specific information about how these activities may affect birds in the Mono Basin area. Casazza *et al.* (2005, p. 10) indicate that in two years of study of radio-marked sage-grouse, the deaths of only 3 birds was attributed to handling of the birds by researchers. Thus, mortality related to scientific studies of sage-grouse in the Mono Basin area is negligible.

The petitions provided information regarding the impacts of hunting for a limited part of the Mono Basin area. However, as described above the extent of hunting of sage-grouse in the Mono Basin area is quite limited. The petitions did not provide substantial information, nor did our files contain information, indicating that the extent or magnitude of hunting and other potential overutilization factors are significant threats to this sage-grouse population such that the requested listing action may be warranted.

C. Disease or Predation

The November 2005 petition asserts that West Nile virus is a threat to Mono Basin area sage-grouse. The petitioners cite Naugle *et al.* (2004) as stating ''If survival in our marked sample is representative of broader impacts of West Nile virus, the virus may be an important new stressor on sage-grouse populations.'' They further quote Naugle *et al.* (2004) as stating, ''Survival of females has been shown to be limiting in sage-grouse populations and declines due to West Nile virus occurred in late summer when survival typically is high.'' Additionally they cite Naugle *et al.* (2004) as stating, ''Of immediate concern are the potential consequences of West Nile virus for small populations * * * of greater sage-grouse in California,'' and ''Stochastic events such as disease exacerbate risk of extinction due to the combined effect of demographic stochasticity, deterministic stressors, and inbreeding depression in small, fragmented populations. Moreover, because small or isolated populations generally show reduced genetic variation, they are less likely to include individuals resistant to emerging infectious disease.'' The petition further cites Oyler-McCance *et al.* (2005) as stating, ''Populations with relatively low levels of genetic diversity can suffer from inbreeding effects and can be more susceptible to parasitic agents and disease.'' The petitioners cite Casazza *et al.* (2005) in stating that two birds in the Bodie PMU and one in the Desert Creek-Fales PMU have been killed by West Nile virus. The petition also asserts that West Nile virus could eliminate entire populations in the near future because they are small and isolated, which makes them more susceptible to disease.

The December 2001 petition also indicates that disease and parasites could cause local declines in sage-grouse populations. The petition discusses losses in sage-grouse populations due to coccidiosis. It also states that numerous parasites are associated with sage-grouse, including tapeworms, protozoans, and ticks. The petitioner states that other diseases such as salmonellosis, botulism, aspergillosis, avian tuberculosis, and pasturellosis affect sage grouse. The petitioner claims that disease outbreaks need not kill or even cause physiologic effects in individual birds to reduce population viability. The petition cites Boyce (1990) in stating that even mild malaria outbreaks can affect reproduction because male sage-grouse infected with malaria attend leks significantly less frequently during the mating season. Finally, the petition claims that the introduction of exotic game birds in an area to provide hunting opportunities carries a substantial risk of disease and parasite spread to sage-grouse.

The November 2005 petition states that there are many studies that correlate predation of sage-grouse to reduced and degraded habitat. The petitioners cite a BLM-Bishop Field Office source in stating, ''56% of monitored sage grouse leks were lost from predation in the Long Valley in 2003, despite a high nest initiation rate.'' The petition also indicates that poor habitat quality may have been the causative factor with regard to these losses. Petitioners also cite work by Casazza *et al.* (2005, p. 10) in stating, ''recent research documented that predators killed 55 of 136 radio-collared sage-grouse in the Mono Basin area in 2003 and 2004.'' Also, petitioners quoted the Bi-State Plan as stating that ''steep declines in the sage-grouse population for any reason. * * * could render the population vulnerable to predation impacts'' (Bi-State Plan 2004, p. 77).

The December 2001 petition also cited predation as a threat to sage-grouse. However, this petition did not provide additional information beyond what was provided in the November 2005 petition.

West Nile virus was first diagnosed in greater sage-grouse in 2003 (January 12, 2005, **Federal Register**, p. 2269). Data from four studies in the eastern half of the greater sage-grouse range (Alberta, Montana, and Wyoming) showed survival in these populations declined 25 percent in July and August as a result of the West Nile virus infection (Naugle *et al.* 2004, p. 709). Populations of greater sage-grouse not affected by West Nile virus showed no similar decline.

However, the Naugle *et al.* (2004) study did not include any sage-grouse from the Mono Basin area, and even in the region where the Naugle *et al.* (2004) study was conducted, lek counts in 2004 indicated that regional sage-grouse populations did not decline. This suggests that the initial effects of West Nile virus were localized (January 12, 2005, **Federal Register**, p. 2270) and did not have a substantial effect on local populations. As cited by the petitioners, Casazza *et al.* (2005, p. 10) documented the loss of three sage-grouse to West Nile virus in the Mono Basin area. However, this is very minor and localized mortality and there is no information presented by the petitions, nor is there information in our files, that West Nile virus is a major factor contributing to mortality of sage-grouse in the Mono Basin area.

Greater sage-grouse host a variety of potentially pathogenic organisms. However, there have been few systematic surveys for parasites and infectious diseases completed for greater sage-grouse (Connelly *et al.*, 2004, p. 10–3). The disease coccidiosis, which is caused by the protozoan *Eimeria* spp., has been documented to cause sage-grouse mortalities (Connelly *et al.*, 2004, p. 10–4). However, no cases of sage-grouse mortality resulting from coccidiosis have been documented since the early 1960s (Connelly *et al.*, 2004, p. 10–4). Although tapeworms are known to parasitize sage-grouse, the grouse remain in good physical condition (Connelly *et al.*, 2004; p. 10–5).

Greater sage-grouse host many external parasites, including lice, ticks, and dipterans (midges, flies, mosquitoes, and keds) (Connelly *et al.*, 2004, pp. 10–6 to 10–7). Some studies have suggested that lice infestations can affect sage-grouse mate selection (Boyce 1990, p. 266), but they have not been shown to significantly affect the status of sage-grouse populations (Connelly *et al.* 2004, p. 10–6). Connelly *et al.* (2004, p. 10–7) stated that the presence of ticks is not a threat to sage-grouse populations.

A variety of bacterial, fungal, and viral diseases are known to infect greater sage-grouse (Connelly *et al.* 2004, p. 10–7). However, in relation to the diseases cited by the 2001 petition, salmonellosis is not an important disease of wild birds, botulism is not considered a significant threat because the potential for exposure is low, there is no evidence to suggest that aspergillosis plays a significant role in sage-grouse ecology, and avian tuberculosis has not been documented in sage-grouse and thus is not considered a significant threat (Connelly *et al.* 2004, pp. 10–7 to 10–11). Avian malaria has been documented to affect male reproductive performance on sage-grouse leks (Boyce 1990, p. 265); however, the petitions and the information available in our files do not provide evidence that this disease affects sage-grouse populations in the Mono Basin area.

Regarding the introduction of exotic game birds for state hunting programs, we acknowledge that it may be possible for diseases carried by exotic birds to infect native sage-grouse populations. However, neither the December 2001 petition, nor information available to us in our files, provides evidence that exotic game bird introductions threaten sage-grouse populations in the Mono Basin area.

Predation is the most commonly identified cause of direct mortality for sage-grouse (Schroeder *et al.* 1999, p. 14; Connelly *et al.* 2000b, p. 228). The November 2005 petition states that many studies have linked predation of sage-grouse to degraded habitat. This relationship is confirmed by the literature (Schroeder and Baydack, p. 28; Connelly *et al.* 2004, pp. 10–2 and 10–3). However, the petitioners' statement that ''56 percent of monitored sage-grouse leks were lost from predation in Long Valley in 2003'' is inaccurate. This statement is based on a table comparing nest initiation rates, nest success, renesting success, nest predation rate, and other nesting parameters from Long Valley with those for the Bodie Hills (BLM-Bishop Field Office, undated). The statement in the November 2005 petition should have read, ''56 percent of monitored sage-grouse nests were lost from predation in Long Valley in 2003.'' This translates to a nest success of 44 percent for monitored nests in Long Valley, which is well within the range of nest success from across the range of the species, 14.5 to 86.1 percent, as summarized for a variety of studies in a variety of states and one province by Connelly *et al.* (2004, p. 3–21).

Annual mortality of breeding-age sage-grouse varies from 55 to 75 percent for females and 38 to 60 percent for males (Schroeder and Baydack 2001, p. 25); therefore the statement in the November 2005 petition ''that predators killed 55 of 136 radio-collared sage-grouse in the Mono Basin area in 2003 and 2004,'' although accurate (Casazza *et al.* 2005, p. 10), is misleading. Similar to the nest success rate for Long Valley, the loss of approximately 40 percent of the radio-collared sage-grouse to predators is well within the normal range of annual mortality for the species.

The 2005 petition statement that ''steep declines in the sage-grouse population for any reason * * * could render the population vulnerable to predation impacts'' was taken out of context. The statement only applies to the Bodie PMU and not the Bi-State area as a whole (Bi-State Plan 2004, p. 77). Additionally, the Bodie PMU discussion (Bi-State Plan 2004, p. 77) also stated that predation is not known to be a significant limiting factor in the Bodie PMU, and few studies have identified predation as primary factor limiting sage-grouse populations elsewhere.

In summary, neither the petitioners, nor our files, provide substantial information to document the extent or magnitude of the present or future threat of disease or predation to sage-grouse in the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing of the Mono Basin area sage-grouse may be warranted due to disease or predation.

D. Inadequacy of Existing Regulatory Mechanisms

The November 2005 petition asserts that no plan or agreement has been drafted that contains adequate regulatory mechanisms to prevent further decline of Mono Basin area sage-grouse and avoid listing the species. The petition discusses Candidate Conservation Agreements (CCAs) and references a 2001 application by CDFG to the Service to acquire funding for developing a CCA for sage-grouse in Mono County, and asserts that the Service awarded the funding but the CCA was not developed.

The November 2005 petition discusses the Bi-State Plan (2004) and acknowledges it is a component of the *Greater Sage-Grouse Conservation Plan for the Bi-State Plan Area of Nevada and Eastern California*. Petitioners reference the six goals and objectives of the Bi-State Plan (2004) and indicate they are an excellent starting point but that the Bi-State Plan will not meet them. The petitioners contend that the Bi-State Plan (2004) only seeks to maintain current populations of sage-grouse in the Bi-State planning area and that there is no discussion of restoring historic sage-grouse numbers or habitat in the area.

The 2005 petition cites the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE) (March 28, 2003, 68 FR 15100) and lists the criteria under the policy regarding the certainty that a conservation effort will be implemented and the certainty that the conservation effort will be effective. According to the petitioners,

the Bi-State Plan (2004) does not contain adequate regulatory mechanisms that meet PECE policy criteria to avoid listing the Mono Basin area sage-grouse under the ESA. They further contend that the Bi-State Plan's (2004) management prescriptions are voluntary, dependent on the cooperation and participation of interested parties and agencies, and may be altered or abandoned at any time. Also, there is no penalty for non-compliance with the Plan and no prohibition against activity that will harm sage-grouse or their habitat. The petitioners contend that the Service cannot rely on voluntary conservation efforts, or on the promise of future conservation efforts, by Federal and State agencies and private parties to delay listing the Mono Basin area sage-grouse under the ESA. From their review of the Bi-State Plan (2004), the petitioners conclude that often action items were not included to address risks, that the action items are voluntary and lack funding to complete, that regulatory mechanisms are lacking, and that often the actions identified do not conserve sage-grouse.

The petitioners cite a Service review of the Bi-State Plan (USFWS 2004) in which we evaluated the conservation measures proposed in the Plan pursuant to PECE. In citing that review, petitioners state the Service found that 1 of the 30 individual conservation efforts in the Bi-State Plan fully meets PECE and the other 29 do not. Petitioners conclude that if the Bi-State Plan (2004) does not meet the Service's PECE policy (March 28, 2003, 68 FR 15100), then adequate regulatory mechanisms are not in place to conserve the sage-grouse in the Mono Basin area.

Finally, the 2005 petition references the BLM-Bishop Field Office Resource Management Plan (BLM-Bishop Field Office 1993) and asserts that sage-grouse have continued to struggle since the Resource Management Plan was adopted in 1993. The petitioners suggest that a possible reason for suppressed sage-grouse populations is the small management buffers recommended by the Resource Management Plan for certain activities within 0.4 to 0.5 km (0.25 to 0.33 mi) of active leks.

The 2001 petition contends that existing regulatory mechanisms are virtually non-existent and existing management is inadequate to conserve the sage-grouse. This petition contends that Federal laws such as NEPA, National Forest Management Act, Federal Lands Policy and Management Act, and others do not provide for sage-grouse conservation. The petitioner also reviewed management on BLM lands and concluded that BLM has seriously mismanaged public lands; that BLM does not adequately monitor, plan, or measure sage-grouse populations or habitat needed to restore the species; and that the Service cannot rely on BLM to follow Federal environmental laws to conserve sage-grouse. This petition also provided a review of management on USFS lands and concluded that the agency is not giving adequate attention to sage-grouse on National Forests or National Grasslands. Management of a National Guard training area, Department of Energy lands, and National Park Service lands were also included in the petition, which found shortcomings in the management of all these federal lands with regard to sage-grouse. The petitioner also reviewed management of sage-grouse by the Service and asserts that the Service has mismanaged both its ESA duties, including listing responsibilities, and the lands in the National Wildlife Refuge System. The petition also asserts that management of the Conservation Reserve Program (CRP) of the U.S. Department of Agriculture has failed to halt severe declines in sage-grouse populations to date.

At the State level, the petition assessed management of sage-grouse by the States and asserts they have a poor record of conserving the species. Regarding State management, the petition cites the general lack of conservation plans for sage-grouse and indicates that those which have been completed are not regulatory mechanisms in any sense and do not assure funding for conservation actions. Finally, the petition provided an assessment of management by private parties and concluded that, aside from hunting seasons, there are no regulatory mechanisms to protect sage-grouse on private lands.

We concur that the Service did provide funding to CDFG for development of a CCA for sage-grouse in Mono County, and to our knowledge this CCA has not yet been completed. However, a CCA is not essential to providing adequate regulatory mechanisms. Regarding the Bi-State Plan (2004), we agree that it is focused on maintaining existing breeding population in the Bi-State area (Bi-State Plan 2004, p. 186). However, there is no apparent need to return sage-grouse populations and habitat in the Mono Basin area to historic levels in order to preclude the need for listing the species as threatened or endangered. When populations and habitat are at less than historic levels, it does not mean a species is threatened or endangered as defined by the Act. Thus, the fact that the Bi-State Plan does not prescribe restoring historic sage-grouse numbers or range does not mean the Plan is inadequate, nor does it mean that existing regulatory mechanisms are inadequate.

We agree that the recommended actions in the Bi-State Plan are voluntary and depend on the cooperation and participation of interested parties and agencies, and that the Bi-State Plan does not include any prohibitions against actions that harm sage-grouse or their habitat. The Service did review the Bi-State Plan as part of our rangewide status review for greater sage-grouse (January 12, 2005, 70 FR 2244). In that review, we evaluated formalized conservation efforts that have not been implemented or have not demonstrated effectiveness, to determine if they met the standard in PECE. In accordance with PECE, a conservation effort can contribute to a determination that listing is not necessary if it is found to be sufficiently certain to be implemented and effective so as to have contributed to the elimination or adequate reduction of one or more threats to the species. (March 28, 2003, **Federal Register**, p. 15111). The petition correctly states that the Service found that 1 of 30 conservation efforts included in the Bi-State Plan fully met standard in PECE (USFWS 2004, p. 4). This does not, however, mean that regulatory mechanisms are inadequate. The fact that conservation efforts in the plan are voluntary does not mean that further regulatory mechanisms are necessary to conserve the sage-grouse in the Mono Basin area, nor does it mean that the actions it recommends to conserve sage-grouse will fail to be implemented and effective. Further, PECE applies to determining that a conservation effort(s) is sufficiently certain to be implemented and effective so as to have contributed to the elimination or adequate reduction of one or more threats to the species identified through the threats analysis (March 28, 2003, **Federal Register**, p. 15115); PECE is not applicable when such threats are not documented to exist.

In regard to the BLM-Bishop Resource Management Plan, although the petitioners assert that management buffers and seasonal restrictions that BLM imposes on land use activities are insufficient to conserve sage-grouse, they do not provide information that documents how this impacts sage-grouse. We note also that BLM resource management plans are guided by direction in the Federal Land Policy and Management Act (FLPMA) and associated regulations, BLM's Special

Status Species Management Policy, the National BLM Sage-Grouse Habitat Conservation Strategy, and Regulations on Grazing Administration Exclusive of Alaska (January 12, 2006, FR p. 2272–2274.

The 2001 petition provides many citations to support the petitioners' contention that existing regulatory mechanisms are inadequate and threaten Mono Basin area sage-grouse. We cannot validate the substantiality of the petitioners' claims concerning the inadequacy of regulatory mechanisms because the petitioners did not provide copies of these citations and thus we cannot verify the quality and validity of the citations, whether the information was cited correctly, or whether the information directly relates to the status of sage-grouse in the Mono Basin area. We note that most of the information in the petition regarding this factor is not specific to the Mono Basin area. Specifically, most of the discussion in the 2001 petition regarding BLM and USFS lands was not specific to the Mono Basin area. Further, there are no National Guard training areas in the Mono Basin area, and the only U.S. Department of Defense lands in the area are the Hawthorne Army Depot, an area that provides some of the best remaining habitat for sage-grouse, as discussed above. There are no National Parks or National Wildlife Refuges in any of the PMUs in the Mono Basin area, and we are unaware of any private lands in the area that are enrolled in the CRP program. Thus, none of the assertions in the 2001 petition regarding these lands are relevant. The 2001 petition indicated that California and Nevada had not yet completed conservation plans for sage-grouse, but this is no longer the case for the Mono Basin area, due to completion of the *Greater Sage-Grouse Conservation Plan for the Bi-State Plan Area of Nevada and Eastern California* and its component, the Bi-State Plan (2004).

As discussed under Factor B, above, there are only two areas where sage-grouse are hunted in the Mono Basin area and the harvest of birds in these areas is closely regulated by CDFG such that it has determined that there is no significant environmental impact on this game bird (CDFG 2002, p. 7). Also, 89 percent of the lands in the Mono Basin area are public lands managed by BLM and USFS under federal laws such as FLPMA, the National Forest Management Act, and NEPA, along with other related agency policies (January 12, 2005, **Federal Register**, pp. 2272–2276). Neither the petitions, nor our files, provide substantial scientific or commercial information indicating that the inadequacy of existing regulatory mechanisms is presently a threat to Mono Basin area sage-grouse such that the petitioned action may be warranted.

E. Other Natural or Manmade Factors Affecting the Species' Continued Existence

Off-Road Vehicle Use

The November 2005 petition states that off-road vehicles are a threat to a number of sage-grouse populations in the Mono Basin area. Regarding the Bodie PMU, the petition quotes the Bi-State Plan (2004) as stating that ''population impacts of motorized recreation include disturbance, displacement, and direct mortality from vehicle collisions'' and that recreation in this PMU ''is characterized as a past, current, and future risk to multiple birds and multiple sites.'' It also cites the South Mono PMU section of the Bi-State Plan (2004) in stating that recreational activities are affecting multiple birds on multiple sites year round and increased urbanization threatens to increase this risk. Petitioners also quote a portion of the Pine Nut PMU section of the Bi-State Plan (2004), which states that ''unrestricted road access throughout the Pine Nut PMU provides the potential for increased human presence in critical habitats during critical times of the year,'' and ''people particularly affect nesting, early brood, and late brood habitat during spring through fall where critical habitats are easily accessed by vehicles [and] increased human presence disrupts daily activities for individual birds and broods.'' The petition also asserts that another threat in the Pine Nut PMU is an off-road vehicle race that goes through sage-grouse brood habitat and affects birds by direct mortality or by disturbances that break up broods and cause chick mortality. Finally, the petitioners cite Robertson and Bushman (2001) in asserting that BLM is currently considering recommendations to develop new off-road facilities within sage-grouse habitat.

The December 2001 petition also cited off road vehicles as a threat to sage-grouse. However, this petition did not provide additional information beyond what was provided in the November 2005 petition.

We are not aware of any published studies concerning recreational effects on sage-grouse, although recreation could disturb sage-grouse on leks and in nesting areas (January 12, 2005, **Federal Register**, p. 2278). Also, we are not aware of any scientific reports that document direct mortality of sage-grouse through collision with off-road vehicles (January 12, 2005, **Federal Register**, p. 2278). Off-road vehicle use could have indirect impacts to sage-grouse habitat; this type of activity generally is known to reduce sagebrush canopy cover through repeated trips in an area, increased sediment production, and decreased soil infiltration rates (January 12, 2005, **Federal Register**, p. 2278).

The Bi-State Plan discusses off-road vehicles as a risk factor in the Pine Nut PMU and the Mount Grant PMU (Bi-State Plan 2004, p. 27 and pp. 137–138, respectively). However, for the Bodie and South Mono PMUs, the Bi-State Plan (2004, pp. 91–92 and pp. 170–171 respectively) discusses off-road vehicles in the context of all types of recreational activities (motorized and non-motorized). For the Pine Nut PMU, the Bi-State Plan (2004, p. 24) indicates concerns about unrestricted road access, including increased human presence in critical habitats in critical times of the year, disruption of daily activities for individual birds and broods, and existing law enforcement limitations. The Pine Nut PMU section of the Bi-State Plan also mentions off-road vehicle races, which could impact individual and multiple birds by direct mortality or disturbance (Bi-State Plan 2004, p. 27). However, the Bi-State Plan (2004, p. 27) does not indicate that this is a major risk for the Pine Nut PMU. The off-road vehicle discussion for the Mount Grant PMU states that off-road vehicle use is restricted to designated routes within this PMU, minimizing any risks to birds in this PMU. However, the Bi-State Plan (2004, p. 137) continues to state that some off-road vehicle use is on undesignated routes within the Mount Grant PMU, causing damage to meadows that provide potential habitat for sage-grouse. For the Bodie PMU, the Bi-State Plan considered population impacts of motorized recreation, including disturbance, displacement, and direct mortality (Bi-State Plan 2004, p. 91), but the statement that recreation is a past, current, and future risk to multiple birds and multiple sites refers to all types of recreation, not just off-road vehicles (Bi-State Plan 2004, p. 91). The Bi-State Plan states that the prospect of increased motorized recreational use is a concern, but it does not indicate that this factor is a major threat to sage-grouse in the Bodie PMU (Bi-State Plan 2004, p. 92). In the South Mono PMU, the Bi-State Plan (2004, p. 170) states that recreational activities are affecting multiple birds on multiple sites year round, but this statement refers to all types of recreational

activities combined, not just off-road vehicle use alone.

Robertson and Bushman (2001) provide limited recommendations to BLM for managing existing recreational uses (motorized and non-motorized) in the wildland urban interface zone east of Carson City, Minden, and Gardnerville, including improvements at existing staging areas, creation of new staging areas, and improving management of existing recreational activities at access points to Federal land that are already being used. We do not know whether BLM has implemented the recommendations in the report. Using Robertson and Bushman (2001), we mapped the locations of the recreational areas described in the report. While there may be some sagebrush habitat associated with these recreational areas, the majority (80 percent) of the known lek areas in the Pine Nut PMU are at least 17.6 km (11 mi) east of these areas, and the other few remaining leks in this PMU are a minimum of 11.2 km (7 mi) southeast of these areas. Hence, sage-grouse do not currently use sagebrush habitat in the near vicinity of the recreation areas discussed in Robertson and Bushman (2001).

In summary, the Bi-State Plan (2004) discusses the effects of recreational activities and off-road vehicles. Most of the discussions in the Bi-State Plan relate to only the potential for off-road vehicles to disturb, disrupt, or cause mortalities to sage-grouse, with relatively few specific examples of impacts to the species in the area, and all of these examples involved indirect effects. Neither the petitions, nor our files, provided information that documents the extent, magnitude, or immediacy of the threat of off-road vehicles to sage-grouse, or their habitat, within the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing of the Mono Basin area sage-grouse may be warranted due to the present or threatened effects to Mono Basin area sage-grouse, or their habitat, due to off-road vehicle use.

Human Disturbance

The November 2005 petition cites the Bi-State Plan (2004) in asserting that human disturbance is affecting multiple birds on multiple sites in the Desert Creek-Fales PMU.

Other than citing the Bi-State Plan (2004) with regard to the Desert Creek-Fales PMU, the November 2005 petition does not specify the types of human disturbances that affect sage-grouse or the extent of the impacts. The Desert Creek-Fales PMU part of the Bi-State Plan includes human disturbance as a risk factor for sage-grouse, stating that some sage-grouse habitats in this PMU are accessible for public recreation year round or are adjacent to recently developed housing areas, but it does not indicate this is a major threat to sage-grouse in this PMU (Bi-State Plan 2004, p. 51). Neither the petitions, nor our files, present information that documents the extent, magnitude, or immediacy of human disturbance as a threat to sage-grouse for the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing of the Mono Basin area sage-grouse may be warranted due to human disturbance.

Insecticides

The November 2005 petition lists insecticides as a factor affecting sage-grouse habitat in the Mono Basin area. The petitioners cite Beck and Mitchell (2000) as recommending against application of insecticides to sage-grouse summer habitat, a Johnson and Boyce (1990) finding that insects are essential to chick development and that they are required by chicks of all ages for normal development, and a report by Blus *et al.* (1989) that in southeastern Idaho there was a sage-grouse die-off after organophosphorus insecticides were applied to cultivated crops.

None of the studies cited by the petitioners are specific to the Mono Basin area. In the Bi-State Plan the only mention of this as a threat factor was for the White Mountains PMU risk assessment, which indicates that accidental exposure to pesticides and herbicides can kill sage-grouse, but that these compounds are not generally used in this area because the human population and agricultural activities are limited (Bi-State Plan 2004, p. 112). Neither the petitions, nor our files, provide any specific information about how insecticides impact sage-grouse in the Mono Basin area. Therefore, we conclude that there is not substantial scientific or commercial information to indicate that listing Mono Basin area sage-grouse may be warranted due to insecticide use.

Other Threats

The December 2001 petition cited other threats to sage-grouse in the Mono Basin area, including: Noise, acoustic interference, disturbance, oil and gas operations, weather effects, climate change and global warming, ozone layer depletion, air pollution, acid precipitation, effects of chemical and radiological agents, natural factors and environmental variation, habitat recovery time, and genetic introgression.

The December 2001 petition cited numerous sources to support the contention that these other threats pose a threat to Mono Basin sage-grouse. The information cited is generic in nature and was not specific to sage-grouse or not specific to the Mono Basin or Mono Basin sage-grouse. The petitioner did not provide copies of these citations and hence we cannot validate the substantiality of the petitioner's claims regarding these threats, nor do our files contain information to validate any of the other threats cited by the petitioner. We cannot verify the quality and validity of the citations, or whether the information was correctly cited. These other threats cited by the petition are speculative in nature. The 2001 petition does not provide information that documents the extent, magnitude, or immediacy of these other threats on sage-grouse throughout the Mono Basin area.

In summary, neither the petition nor our files contain substantial scientific or commercial information that indicating other natural or man-made factors threaten the sage-grouse population in the Mono Basin area such that the petitioned action may be warranted.

Finding

We reviewed the petitions and supporting information provided by the petitioners and evaluated that information to determine whether the sources cited in the petitions support the claims made in the petitions. Based on this review and evaluation, we find the petitions do not present substantial scientific or commercial information that listing the Mono Basin area sage-grouse as threatened or endangered may be warranted at this time. We note that in making this finding we did not use any of the new information received from the States or USGS–BRD subsequent to our receipt of the 2005 petition; if we had used that new information, we would have reached the same conclusion. We encourage interested parties to continue gathering data that will assist with the conservation and monitoring of sage-grouse in the Mono Basin area. Information regarding the Mono Basin area sage-grouse may be submitted to the Field Supervisor, Nevada Fish and Wildlife Office (see **ADDRESSES** section), at any time.

References Cited

A complete list of all references cited herein is available upon request from the Nevada Fish and Wildlife Office (see **ADDRESSES**).

Author

The primary author of this notice is Kevin Kritz, U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office (see **ADDRESSES**).

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: December 7, 2006.

Kenneth Stansell,

Acting Director, Fish and Wildlife Service.

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