

**CENTRAL MOUNTAINS AND PLAINS SECTION
OF THE WILDLIFE SOCIETY**

POSITION STATEMENT ON GREATER SAGE-GROUSE

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The Central Mountains and Plains Section (CMPS) of The Wildlife Society acknowledges that Greater Sage-grouse (*Centrocercus urophasianus*) (hereafter referred to as sage-grouse) have experienced a range-wide population decline. The status of sage-grouse populations and habitats has been a concern to sportsmen and biologists for over 80 years (Hornaday 1916; Patterson 1952; Autenrieth 1981). Despite a relatively thorough knowledge of the population ecology and habitat requirements of sage-grouse and management and research efforts that date to the 1930's (Girard 1937), populations of this species have declined by approximately 77 percent between 1965 and 2003 (Connelly et al. 2004).

Greater sage-grouse populations are closely allied with sagebrush (*Artemisia* spp.) habitats (Patterson 1952, Braun et al. 1977, Braun 1987, Connelly et al. 2004). Dependence of sage-grouse on sagebrush for winter habitat has been well documented (Eng and Schladweiler 1972, Beck 1975, Beck 1977, Robertson 1991). There is no evidence that severe winter weather affects sage-grouse populations unless sagebrush cover has been eliminated (Wallestad 1975, Beck 1977, Robertson 1991). Similarly, the relationship between sagebrush habitats and sage-grouse nest success has been thoroughly described (Klebenow 1969, Wallestad and Pyrah 1974, Wakkinen 1990, Connelly et al. 1991, Gregg et al. 1994).

Despite the well known importance of this habitat to sage-grouse and other sagebrush obligates (Braun et al. 1976), the quality and quantity of sagebrush habitats has declined in western North America for at least the last 50 years (Braun et al. 1976, Braun 1987, Swenson et al. 1987, Connelly and Braun 1997, Connelly et al. 2004). About 10 percent of the original range of sagebrush has been replaced by deleterious invader plant species such as cheatgrass or intentionally seeded with non-native grasses (West 1988, 1996). Other portions of sagebrush habitats have seen increased conifer woodland expansion, especially pinyon-juniper (Miller and Tausch 2001). These changes in sagebrush habitats have resulted in changes in disturbance regimes, especially fire frequency, that further affects sage-grouse habitat quality. Another 10 percent has been converted to cropland (West 1988, 1996). Conservatively, at least half of the original area occupied by sage-grouse is no longer capable of sustaining this species because of habitat degradation and/or fragmentation caused by roads, powerlines, overgrazing, housing developments and increased fire frequency in portions of the range (Braun 1998).

Predation is thought by some to be a major factor in the reduction of sage-grouse populations. CMPS believes predation is largely symptomatic of habitat degradation and is not a cause of the decline in and of itself (Schroeder and Baydack 2001). Predator/prey relationships are complex and interrelated with habitat conditions. Broad scale lethal control efforts have been shown to be prohibitively expensive and socially unacceptable (Messmer et al. 1999) and would probably be ineffective. Predator management efforts in localized areas where predators are documented to be a problem—such as in the case of exotic predators—in recovering sage-grouse

populations may be warranted, but only on a very limited basis. Specific goals and objectives should be identified prior to implementing any predator management program and should be judiciously conducted with an experimental design, including controls, using sound adaptive management practices (Aldridge et al. 2004).

Sage-grouse populations occupy relatively large habitat areas on a year-round basis (Berry and Eng 1985, Connelly et al. 1988, 1994; Wakkinen 1990). Some sage-grouse populations migrate large distances between summer and winter habitats. Thus, in most cases, state and federal natural resource agencies and private landowners must coordinate efforts to successfully manage sage-grouse and their habitat.

Routine population monitoring should be used to assess trends and identify problems. Sage-grouse have relatively low reproductive rates (Connelly et al. 1993) and high survival rates (Zablan et al. 2003, Connelly et al. 1994, Crawford et al. 2004) compared with other gamebird species. Therefore, their response to improved habitat conditions will be slower than that of most other species (Connelly and Braun 1997). Population monitoring and quantitative habitat assessment are necessary to implement management.

Various groups and individuals have cited grazing by domestic livestock as a cause of sage-grouse habitat degradation and population decline. Domestic livestock have grazed most areas used by sage-grouse for over 100 years and this use is generally repetitive with annual or biennial grazing periods of varying timing and length (Braun 1998). Sage-grouse nesting and early brood-rearing occur in sagebrush-dominated rangelands with a healthy herbaceous understory. Grass height and cover affect sage-grouse nest site selection and success by providing visual obstruction from predators (Wakkinen 1990, Gregg 1991, Gregg et al. 1994, Delong et al. 1995, Sveum et al. 1998). Historic and scientific evidence indicates that livestock grazing did not increase distribution of sagebrush (Peterson 1995) but it markedly affected the understory over relatively large areas and may have altered sagebrush density in localized areas (Vale 1975, Tisdale and Hironaka 1981). Moreover, grazing by wild ungulates may reduce sagebrush cover (McArthur et al. 1988, Peterson 1995) and livestock grazing may result in high trampling mortality of sagebrush seedlings (Owens and Norton 1992). In many areas sage-grouse would benefit from improved livestock grazing systems that favor the herbaceous understory required for successful nesting and early brood-rearing. A change from season-long grazing to a more variable system is encouraged. Numbers of wild ungulates should also be managed in a manner mindful of potential impacts to sage-grouse habitat.

Oil and gas development activities have impacted sage-grouse habitat since the discovery of commercial recoverable quantities of oil near Lander, Wyoming in the 1880's. From the 1880's to the early 1960's development of oil dominated development efforts. Since the 1960's and to date, natural gas has dominated energy development in the intermountain west (Braun et al. 2002). The development of oil and gas resources results in the construction of access roads, well pads, pipelines, transmission and power lines, compressor stations, and other ancillary facilities (Connelly et al. 2004). Construction of these facilities results in direct loss of sagebrush habitats. Degradation of sage-grouse habitats occurs from spread of noxious weeds and invasive plant species and noise associated from construction and operation of facilities. Lyon and Anderson (2003) found female sage-grouse nested greater distances from leks and had lower nesting initiation rates in areas that had vehicle traffic than in areas that had no

vehicle traffic. The placement of oil and gas facilities also fragments sagebrush landscapes for periods of 20 to 100 years depending upon the life of the oil or gas field (Connelly et al. 2004).

Degraded sagebrush habitats can be restored by mechanical disturbance, fire, and herbicides. Appropriate techniques should be decided by local wildlife biologists in consultation with range ecologists on a case-by-case basis. The treatment technique and its size and scope must consider the needs of sage-grouse so that adequate sagebrush habitats remain while treated areas rejuvenate. While fire may be a useful tool in some locations, the cheatgrass invasion across the Great Basin has limited the efficacy of fire in this environment. Wildfires in cheatgrass prone areas, or in areas of limited sagebrush/sage-grouse distribution, should be aggressively extinguished.

Recommendations:

1. CMPS believes state/provincial wildlife agencies are in the best position to take the lead in changing the status of greater sage-grouse populations. State/provincial wildlife agencies are strongly encouraged to promote management programs that will not only halt the decline of sage-grouse populations but also begin recovery to a higher population level. These programs need to include monitoring and reporting of the results of management actions to the appropriate regulatory agency and all partners. These programs also are generally very sensitive to the needs and culture of local ranchers and farmers. In some states/provinces, maintaining existing populations may be the best possible scenario. It may be possible to halt further loss of sage-grouse habitat but to replace lost habitat may be impossible for the majority of acres lost. Reclaiming sage-grouse habitat that has been lost to cropland, roads, energy development and other development may be cost prohibitive. An incentive program to compensate private landowners will be essential in some areas and costs will be high.
2. Because the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) are the largest managers of sage-grouse habitat (58 percent), CMPS encourages these agencies to be more aggressive, effective, and timely in their management of these habitats. However, CMPS also advocates management that actions be developed within an adaptive management framework—merging sound experimental designs with all management policies—increasing understanding and learning of management initiatives (Aldridge et al. 2004). CMPS believes the status and condition of sagebrush habitats on federal lands needs more attention. Many sagebrush obligate wildlife species, in addition to sage-grouse, also have experienced significant population declines (Paige and Ritter 1999). CMPS encourages federal land management agencies to develop land management plans consistent with state/provincial sage-grouse conservation plan and local working group objectives that include monitoring and reporting. Furthermore, CMPS strongly encourages aggressive implementation of these plans.
3. CMPS believes each state and province should develop a conservation plan for sage-grouse that uses local working groups comprised of representatives of agencies, non-government organizations, and individuals to identify and solve local issues. These local working groups should cooperate to document amount and condition of sagebrush rangeland remaining in each state or province. Conservation plans should summarize common problems for conserving sage-grouse and general conditions needed to maintain healthy sage-grouse populations. Local differences may occur and should be considered in conservation plans. Conservation plans should specify conservation projects, including an implementation

schedule and a plan for monitoring and reporting effectiveness. The plans should follow the guidelines set forth by the Sage Grouse Framework Team established by the Western Association of Fish and Wildlife Agencies, BLM, USFS and the U.S. Fish and Wildlife Service (USFWS) and be consistent with the U.S. Fish and Wildlife Service's Policy for Evaluation of Conservation Efforts (PECE Policy).

4. CMPS believes the states/provinces need to continually strive to update population monitoring and reporting by improving and adequately funding lek surveys and counts. Associated with these surveys and counts there needs to be a sound evaluation component, allowing the assessment and improvement of these strategies (Aldridge et al. 2004).
 5. CMPS does not believe federal intervention under the Endangered Species Act (ESA) is in the best interest of sage-grouse. The species is still found in 11 states and two Canadian provinces, thus has a wide distribution. Some recent recovery has been noted in some states/provinces. If states/provinces can use their funds to match local sources and federal dollars, they may be able to halt habitat declines, and some recovery of populations is possible. Private landowners are much more likely to respond to local planning and activity than to federal ESA actions and associated mandates.
 6. CMPS does not believe sage-grouse should be a tool to further an agenda to remove domestic livestock from public lands by special interests. Domestic livestock and sage-grouse have co-existed for over a hundred years. Continually fine-tuning grazing systems based on scientific principles will work to benefit both livestock and grouse. During, during periods of drought, more aggressive livestock management is especially critical, and drought periods may require lower stocking levels and less intensive use.
 7. CMPS believes USFWS efforts should be directed toward providing administrative and financial assistance to help states/provinces complete the conservation planning and implementation process for sage-grouse on a statewide and local basis. CMPS believes USFWS involvement should also include assisting the local working group in scrutinizing the progress of development, implementation, monitoring and application of adaptive management to better assure credibility and compliance.
 8. CMPS believes non-government organizations should support the sage-grouse conservation. Government and non-government organizations and the local citizens can help to develop sources of funding for private landowner incentive programs to protect important habitats.
 9. CMPS encourages protection/development of sage-grouse habitats on private lands and supports Farm Bill conservation programs that provide incentives and effectiveness monitoring to landowners in this regard.
 10. CMPS supports *Guidelines for Management of Sage Grouse Populations and Habitats* as published (Connelly et al. 2000) and approved by the Western States Sage and Columbian Sharp-tailed Grouse Technical Committee and the Western Association of Fish and Wildlife Agencies. These guidelines should be considered and incorporated as applicable into natural resource agency management decisions regarding sage-grouse populations and habitat. Agencies should work cooperatively to refine guidelines based on reasonable and ecologically defensible data to meet local situations.
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Literature Cited

- Aldridge, C.L., M.S. Boyce, and R.K. Baydack. 2004. Adaptive management of prairie grouse: how do we get there? *Wildlife Society Bulletin* 32: 92-103.
- Autenrieth, R. E. 1981. Sage grouse management in Idaho. Idaho Department of Fish and Game Wildlife Bulletin 9, Boise, USA.
- Beck, T. D. I. 1975. Attributes of a wintering population of sage grouse, North Park Colorado. Thesis, Colorado State University, Fort Collins, USA.
- Beck, T. D. I. 1977. Sage grouse flock characteristics and habitat selection in winter. *Journal of Wildlife Management* 41:18-26.
- Berry, J. D., and R. L. Eng. 1985. Interseasonal movements and fidelity to seasonal use areas by female sage grouse. *Journal of Wildlife Management* 49:237-240.
- Braun, C. E. 1987. Current issues in sage grouse management. *Proceedings of the Western Association of Fish and Wildlife Agencies* 67:143-144.
- Braun, C. E. 1998. Sage grouse declines in western North America: what are the problems? *Proceedings of the Western Association of State Fish and Wildlife Agencies* 78:139-156.
- Braun, C. E., M. F. Baker, R. L. Eng, J. S. Gashwiler, and M. H. Schroeder. 1976. Conservation committee report on effects of alteration of sagebrush communities on the associated avifauna. *Wilson Bulletin* 88:165-171.
- Braun, C. E., T. E. Britt, and R. O. Wallestad. 1977. Guidelines for maintenance of sage grouse habitats. *Wildlife Society Bulletin* 5:99-106.
- Braun, C. E., O. O. Oedekoven, and C. L. Aldridge. 2002. Oil and gas development in western North America: effects on sagebrush steppe avifauna with particular emphasis on sage grouse. *Transactions of the North American Wildlife and Natural Resources Conference* 67:337-349.
- Connelly, J. W., and C. E. Braun. 1997. Long-term changes in sage grouse *Centrocercus urophasianus* populations in western North America. *Wildlife Biology* 3:229-234.
- Connelly, J. W., H. W. Browsers, and R. J. Gates. 1988. Seasonal movements of sage grouse in southeastern Idaho. *Journal of Wildlife Management* 52:116-122.
- Connelly, J. W., R. A. Fischer, A. D. Apa, K. P. Reese, and W. L. Wakkinen. 1993. Renesting of sage grouse in southeastern Idaho. *Condor* 95:1041-1043.
- Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. *Western Association of Fish and Wildlife Agencies*. Unpublished Report. Cheyenne, Wyoming.
- Connelly, J. W., K. P. Reese, W. L. Wakkinen, M. D. Robertson, and R. A. Fischer. 1994. Sage grouse ecology report. Idaho Department of Fish and Game. Job Completion Report W-160-R-19, Subproject 9, Boise, Idaho, USA.
- Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. *Wildlife Society Bulletin* 28:967-985.
- Connelly, J. W., W. L. Wakkinen, A. D. Apa, and K. P. Reese. 1991. Sage grouse use of nest sites in southeastern Idaho. *Journal of Wildlife Management* 55:521-524.
- Crawford, J. A., R. A. Olson, N. E. West, J. C. Mosley, M. A. Schroeder, T. D. Whitson, R. F. Miller, M. A. Gregg, and C. S. Boyd. 2004. Ecology and management of sage-grouse and sage-grouse habitat. *Journal of Range Management* 57:2-19.
- DeLong, A. K., J. A. Crawford, and D. C. DeLong. 1995. Relationship between vegetational structure and predation of artificial sage grouse nests. *Journal of Wildlife Management* 59:88-92.
- Eng, R. L., and P. Schladweiler. 1972. Sage grouse winter movements and habitat use in central Montana. *Journal of Wildlife Management* 36:141-146.
- Girard, G. L. 1937. Life history, habits, and food of the sage grouse, *Centrocercus urophasianus* Bonaparte. University of Wyoming, Publication 3, Laramie, USA.
- Gregg, M. A. 1991. Use and selection of nesting habitat by sage grouse in Oregon. Thesis, Oregon State University, Corvallis, USA.
- Gregg, M. A., J. A. Crawford, M. S. Drut, and A. K. DeLong. 1994. Vegetational cover and predation of

- sage grouse nests in Oregon. *Journal of Wildlife Management* 58:162-166.
- Hornaday, W. T. 1916. Save the sage grouse from extinction, a demand from civilization to the western states. *New York Zoological Park Bulletin* 5:179-219.
- Klebenow, D. A. 1969. Sage grouse nesting and brood habitat in Idaho. *Journal of Wildlife Management* 33:649-662.
- Lyon, A. G., and S. H. Anderson. 2003. Potential gas development impacts on sage grouse nests initiation and movement. *Wildlife Society Bulletin* 31:486-491.
- McArthur, E. D., A. C. Blauer, and S. C. Sanderson. 1988. Mule deer-induced mortality of mountain sagebrush. *Journal of Range Management* 41:114-117.
- Messmer, T.A., M.W. Brunson, D. Reiter, and D.G. Hewitt 1999. United States public attitudes regarding predators and their management to enhance avian recruitment. *Wildlife Society Bulletin* 27:169-179.
- Miller, R.F. and R.J. Tausch. 2001. Role of fire in juniper and pinyon woodlands: a descriptive analysis. Tall Timbers Research Station Miscellaneous Publication No. 11:15-30.
- Owens, M. K., and B. E. Norton. 1992. Interactions of grazing and plant protection on basin big sagebrush (*Artemisia tridentata* spp. *tridentata*) seedling survival. *Journal of Range Management* 45:257-262.
- Paige, C., and S. A. Ritter. 1999. Birds in a sagebrush sea: managing sagebrush habitats for bird communities. Partners in Flight Western Working Group, Boise, Idaho, USA.
- Patterson, R. L. 1952. The sage grouse in Wyoming. Wyoming Game and Fish Commission and Sage Books. Denver, Colorado, USA.
- Peterson, J. G. 1995. Ecological implications of sagebrush manipulation: a literature review. Montana Fish, Wildlife and Parks. Helena, Montana, USA.
- Robertson, M. D. 1991. Winter ecology of migratory sage grouse and associated effects of prescribed fire in southern Idaho. Thesis, University of Idaho, Moscow, USA.
- Schroeder, M.A. and R.K. Baydack 2001. Predation and the management of prairie grouse. *Wildlife Society Bulletin* 29: 24-32.
- Sveum, C. M., W. D. Edge, and J. A. Crawford. 1998. Nesting habitat selection by sage grouse in south-central Washington. *Journal of Range Management* 51:265-269.
- Swenson, J. E., C. A. Simmons, and C. D. Eustace. 1987. Decrease of sage grouse *Centrocercus urophasianus* after ploughing of sagebrush steppe. *Biological Conservation* 41:125-132.
- Tisdale, E. W., and M. Hironaka. 1981. The sagebrush-grass ecoregion: a review of the ecological literature. Forest, Wildlife, and Range Experiment Station Contribution No. 209. University of Idaho, Moscow, USA.
- Vale, T. R. 1975. Presettlement vegetation in the sagebrush-grass area of the intermountain west. *Journal of Range Management* 28:32-36.
- Wakkinen, W. L. 1990. Nest site characteristics and spring-summer movements of migratory sage grouse in southeastern Idaho. Thesis, University of Idaho, Moscow, USA.
- Wallestad, R. O. 1975. Life history and habitat requirements of sage grouse in central Montana. Montana Fish and Game Department Technical Bulletin. Helena, USA.
- Wallestad, R. O., and D. B. Pyrah. 1974. Movement and nesting of sage grouse hens in central Montana. *Journal of Wildlife Management* 38:630-633.
- West, N. E. 1988. Intermountain deserts, shrub steppes and woodlands. Pages 209-230 in M. G. Barbour and W. D. Billings, editors. North American terrestrial vegetation. Cambridge University Press, Cambridge, UK.
- West, N. E. 1996. Strategies for maintenance and repair of biotic community diversity on rangelands. Pages 326-346 in R. C. Szaro and D. W. Johnston (eds.). Biodiversity in managed landscapes. Theory and practice. Oxford University Press, New York.
- Zablan, M. A., C. E. Braun, and G. C. White. 2003. Estimation of northern sage-grouse survival in North Park, Colorado. *Journal of Wildlife Management* 67:144-154.