

Greater Sage-Grouse

**12-month
Finding**



Fact Sheet
Endangered Species Act Listing Decision for the Greater Sage-Grouse

March 5, 2010:

After thoroughly analyzing the best scientific and commercial information available, the Fish and Wildlife Service has concluded that the greater sage-grouse warrants protection under the Endangered Species Act. However, the Service has determined that proposing the species for protection is precluded by the need to take action on other species facing more immediate and severe extinction threats.

As a result, the sage-grouse will be added to the list of species that are candidates for Endangered Species Act protection. The Service will review the status of the sage-grouse annually, as we do all candidate species, to determine whether it warrants more immediate attention.

The Service analyzed potential factors that may affect the habitat or range of the greater sage-grouse and determined that habitat loss and fragmentation resulting from wildfire, energy development, urbanization, agricultural conversion, and infrastructure development are the primary threats to the species.

The negative effects of fragmentation on greater sage-grouse are diverse and include reduced courtship site persistence, courtship site attendance, winter habitat use, recruitment, yearling annual survival, and female nest site choice.

Greater sage-grouse populations have been declining since the 1960s. Population projections and our analysis of threats suggest the declining population trend will continue across the species' range, and extirpation is anticipated in areas affected by energy development and increased wildfire frequency within the next 30 to 100 years. The resulting landscape is likely to consist of scattered sage-grouse populations across the species range with minimal, if any, connectivity placing the species in danger of extinction.

Invasive plants are also a serious rangewide threat to greater sage-grouse habitat because they can out-compete sagebrush and are increasing wildfire frequencies, further contributing to direct loss of habitat. Once established, invasive plants reduce and eliminate vegetation essential for greater sage-grouse to use as food and cover. Sagebrush restoration techniques are limited and have generally been ineffective.

Research examining the effects of energy development (primarily oil, gas, and coal-bed methane) indicates that greater sage-grouse populations are negatively affected by energy development activities, especially those that degrade important sagebrush habitat, even when mitigative measures are implemented. Impacts can result from direct habitat loss, fragmentation of important habitats by roads, pipelines and powerlines, and direct human disturbance. The negative effects of energy development often add to the impacts from other human development resulting in declines in greater sage-grouse populations. For example, 12 years of coal-bed methane gas development in the Powder River Basin of Wyoming has coincided with a 79 percent decline in the greater sage-grouse population. Population declines associated with energy development results from abandonment of leks (courtship sites), decreased attendance at

the leks that persist, lower nest initiation, poor nest success and chick survival, decreased yearling survival, and avoidance of energy infrastructure in important wintering habitat.

It is predicted that continued energy exploration and development will increase over the next 20 years. Greater sage-grouse populations are predicted to decline 7 to 19 percent due to the effects of oil and gas development in the eastern part of the range; this decline is in addition to the 45 to 80 percent decline that is estimated to have occurred rangewide.

Over 30 percent of the habitat in greater sage-grouse range has high potential for wind power. The effects of renewable energy development are likely to be similar to those of nonrenewable energy as similar types of infrastructure are required.

The Intergovernmental Panel on Climate Change concludes that global climate change is occurring and has published research that represents the best available science on the subject. Projected climate change and its associated consequences have the potential to affect the greater sage-grouse and increase its risk of extinction as the impacts of climate change interact with other stressors that are already affecting the species.

The long-term impact of climate change to greater sage-grouse is yet to be determined. However, climate change will facilitate the incursion of invasive plants and the associated changes in fire regime which currently pose significant threats to greater sage-grouse and the sagebrush ecosystem.

As there is some degree of uncertainty regarding the potential effects of climate change on greater sage-grouse, climate change in and of itself was not considered a significant factor in our determination whether greater sage-grouse is warranted for listing.

Federal agencies manage the majority of greater sage-grouse habitat in the United States. Overall, the ability of these agencies to adequately address the issues of wildfire and invasive plants across the landscape is limited. However, the Service believes new mechanisms could be adopted to target the protection of greater sage-grouse habitats from fire. Energy development and its associated infrastructure are expected to continue. Protective measures and strategic siting of energy developments away from core sage grouse habitats are needed to reduce this threat into the future.

This finding combined two additional and related actions into one range-wide status review: (1) whether there is a western subspecies of greater sage-grouse; and (2) if the sage-grouse populations in the Bi-State area of California and Nevada qualify as Distinct Population Segments (DPS) and if they warrant listing.

The Service determined that the Bi-State population of greater sage-grouse constitutes a valid Distinct Population Segment (DPS) and thus is a listable entity under the Endangered Species Act (ESA). Further, after evaluating all the best available scientific and commercial information regarding the greater sage-grouse, including an analysis of the threats to sage-grouse and sagebrush habitat in the Bi-State area, the Service has determined that protection under the ESA is warranted. However, listing the Bi-State DPS of the greater sage-grouse at this time is

precluded by the need to take action on other species facing more immediate and severe extinction threats.

As a result, the Bi-State sage-grouse DPS will be placed on the list of species that are candidates for Endangered Species Act Protection

The Service found no morphological, behavior or genetic data to support a delineation of a western or eastern subspecies of the greater sage-grouse. As a result, the designation of the Columbia Basin populations, currently candidates for listing as a distinct population of the western subspecies, is no longer appropriate. The Columbia Basin populations were considered in the rangewide species status review and are included in the determination for the entire species.

The Service based its final determination on the accumulated scientific data provided by State and Federal agencies and Tribes, as well as data and information provided through commercial and public comments. The review of relevant materials included 25 chapters of new information and or analyses contained in the peer-reviewed monograph entitled: *Ecology and Conservation of Greater Sage-Grouse: A Landscape Species and Its Habitats* which was edited by the U.S Geologic Survey for publication by the Cooper Ornithological Society in their Studies in Avian Biology Series. Thirty-eight scientists from federal, state, and nongovernmental organizations collaborated to produce the analyses, synthesis and findings presented in the chapters of this monograph.



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Greater Sage-Grouse: Threats from the 2010 Finding

Primary Threats

Fragmentation of sagebrush habitats due to:

- Conversion of habitat for agriculture or urbanization
- Inadequate regulatory mechanisms
- Infrastructure (e.g., powerlines, roads)
- Invasive species
- Energy development/infrastructure
- Wildfire

Secondary Threats

- Climate change effects
- Collisions (e.g., fences, powerlines)
- Conifer invasion (localized and regional)
- Contaminants
- Disease/West Nile virus
- Hunting
- Poorly managed livestock grazing
- Mining
- Predation (localized)
- Prescribed Fire/range treatments
- Water Development

Questions and Answers for the Greater Sage-Grouse Status Review

Q1: What is the U.S. Fish and Wildlife Service's determination regarding the status of the greater sage-grouse?

A1: After evaluating all the available scientific and commercial information regarding greater sage-grouse, including an analysis of the threats to the species and sagebrush habitat, the U.S. Fish and Wildlife Service has determined that protection under the Endangered Species Act (ESA) is warranted. However, listing the greater sage-grouse at this time is precluded by the need to address other listings of higher priority.

The greater sage-grouse will be added to the list of candidate species under the ESA and will be proposed for listing when funding and workload priorities for other listing actions allow.

Q2: What information did the Service use to make this decision?

A2: The Service based its final determination on the accumulated scientific data provided by State and Federal agencies and Tribes, as well as data and information provided through public comments. The review of relevant materials included 25 chapters of new information and or analyses contained in the peer-reviewed monograph entitled: *Ecology and Conservation of Greater Sage-Grouse: A Landscape Species and Its Habitats* which was edited by the U.S Geological Survey for a forthcoming publication by the Cooper Ornithological Society in their Studies in Avian Biology Series. Thirty-eight scientists from federal, state, and nongovernmental organizations collaborated to produce the analyses, synthesis, and findings presented in the chapters of this monograph.

The Service recognizes and thanks all the States within the range of the greater sage-grouse for their contributions to our knowledge of greater sage-grouse and sagebrush habitat.

Q3: During the previous Administration, the Service determined that the greater sage-grouse did not warrant proposal for listing. What are the principal reasons why FWS has now reached the opposite conclusion?

A3: Since our 2005 status review, a significant amount of new science is available concerning the status of the species and the effects of different land uses on the species' survival, including new information obtained from the Cooper Ornithological Society Monograph chapters the Service received in pre-publication form in 2008 and 2009. This information contained extensive scientific analysis that integrated the species' ecology with existing land uses and clearly documented that certain factors occurring on the landscape result in population declines and population extinctions.

Q4: If protecting the sage-grouse is warranted, why is taking action on the sage-grouse a lower priority than for other species? What criteria did the Service use to determine this lower priority?

A4: In order to make the most effective use of its limited resources for listing species under the ESA, the Service has developed a priority system designed to direct its efforts towards the plants and animals in greatest need of protection. Candidate species are assigned a priority number from 1 to 12, with 1 being the highest priority, based on multiple criteria. The magnitude of threat is the most important consideration, followed by the immediacy of the threat and the taxonomic distinctiveness of the species (the most distinctive is a monotypic genus, then a full species, and lastly a subspecies, variety or vertebrate population).

The greater sage-grouse population as a whole remains large enough and is distributed across such a large portion of the western United States that the immediate threat of extinction is low. The Service has assigned it a listing priority number of 8, which indicated relatively lower priority when compared with most of the species on the candidate list. As a result, the needs of other species facing more immediate and severe threat of extinction must take priority for preparing listing proposals.

Q5: How many species are currently on the candidate list? How many candidate species will be addressed in the coming year?

A5: Currently, 249 species are candidates for listing, and due to pending petitions to list several hundred additional species, this number may increase by FY 2011. Despite this potential increase, the Service anticipates that the number of candidates in FY 2010 will decrease to approximately 186. This decrease is anticipated as the Listing Program completes proposed rules to list species or determinations that listing is not warranted in FY 2010.

Q6: Given how many species will remain on the candidate list after 2011, how long is it likely to be before the sage-grouse will be proposed for protection under the ESA?

A6: The Service has been making steady progress in recent years to prepare listing proposals for candidate species. In any given fiscal year, multiple factors dictate how much work the Service can undertake to prepare proposed listing documents. The resources available for listing actions are determined through the annual Congressional appropriations process. The number of listing actions the Service can undertake also is influenced by the complexity of those actions, which can vary widely. Thus, it is difficult to predict how long it might be before the Service prepares a proposed rule for the greater sage-grouse. We will, however, review its status annually and work with States, other Federal agencies, private landowners, and other partners to step up efforts to conserve the species.

Q7: Is it possible that, before the sage-grouse is actually proposed for listing, the Service might decide that it no longer warrants proposed listing, and if so, what would have to happen for that to be the case?

A7: Yes, it is possible that the Service might decide the greater sage-grouse no longer warrants listing. The Service is required to annually update a finding that a species is warranted but precluded for listing. During that process, we consider new information that becomes available about the species and its status, including new information about its biology, threats and their estimated impact and estimated risk to the species, and the effectiveness of conservation efforts.

This formal annual process allows the Service to review the status of the greater sage-grouse until such time as either a proposed listing rule is published or a finding is made that listing is not warranted.

Q8: What is being done now to conserve greater sage-grouse?

A8: Concern about long-term declines in greater sage-grouse populations was raised by State game and fish agencies more than a decade ago. In response, the Fish and Wildlife Service joined with the Western Association of Fish and Wildlife Agencies (WAFWA), representing all of the Western state wildlife agencies, in 2006 to develop the Greater Sage-Grouse Comprehensive Conservation Strategy. The release of this strategy marked a true turning point, enabling a shift from conservation planning to conservation implementation incorporating adaptive management principles to inform and guide future management practices.

In order to begin implementing the conservation strategy – which is aimed at jointly conserving and managing sagebrush habitat for the benefit of greater sage-grouse and other sagebrush-dependent species – WAFWA and federal agencies including the Bureau of Land Management, U.S. Forest Service, and U.S. Fish and Wildlife Service, Natural Resources Conservation Service, U.S. Geological Survey and Farm Services Agency joined together under a Memorandum of Agreement (MOA) in 2008.

As a result of these steps, Western states have begun to implement significant sage-grouse conservation efforts within their own borders. For example, in Wyoming, the state has developed the Wyoming sage grouse core area conservation strategy. This important strategy is designed to ensure a population objective of maintaining up to 80 percent of the breeding sage-grouse in the State. The state of Montana has developed a Management Plan and Conservation Strategies to direct sage-grouse management in the State. Montana has also developed a State core area strategy to focus management, and is developing an off-site mitigation and compensation system for sage-grouse. In addition, the state is supporting research on grazing strategies in sage-grouse habitats in coordination with University of Montana and NRCS. And in Idaho, the Fish and Wildlife Service and the Idaho Department of Fish and Game recently finalized the first ever CCAA (candidate conservation agreement with assurances) for the greater sage-grouse. Fish and Wildlife Service regulations allow for these agreements to be developed for potential candidate species. These are just a few examples of widespread actions being implemented to benefit the greater sage-grouse.

Q9: What is a candidate species?

A9: Candidate species are plants and animals for which the Service has sufficient information on their biological status and threats to propose them for listing as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by higher priority listing actions to address species in greater need.

Candidate species receive no statutory protection under the ESA. The Service encourages voluntary cooperative conservation efforts for these species because they are, by definition, species that warrant future protection under the ESA.

Q10: What conservation actions are encouraged for candidate species?

A10: Effective conservation actions for candidate species require a means of addressing immediate, long-term, and identifiable threats. Depending on the threats in a local area, specific on-the-ground activities could include: increasing the size of buffer zones around various types of development activities, such as oil and gas development; removal of pinyon-juniper woodland in areas where it is encroaching on sagebrush habitat important to greater sage-grouse, protecting riparian (streamside) or other moist areas from inappropriate levels of livestock grazing or other activities which impact habitat important for brood-rearing by greater sage-grouse, and a variety of habitat restoration or protection measures to reduce habitat fragmentation and maintain or restore habitat connectivity. These and other types of conservation actions maximize management options for landowners and for the species, minimize the cost of recovery, and reduce the potential for restrictive land use policies that may be necessary in the future if listing occurs. Addressing the needs of species before the regulatory requirements associated with listed species come into play often allows greater management flexibility to stabilize or restore these species and their habitats. Ideally, sufficient threats can be removed to eliminate the need for listing. State agencies and the Service offer technical expertise and provide funding for conservation of candidate and other species at-risk.

Q11: What tools are available for candidate species?

A11: The Service and other federal partners have greater ability to provide technical and financial assistance for conservation of candidate species on private land. The Service provides financial and technical assistance to landowners seeking to conserve candidate species on their land through its Partners for Fish and Wildlife Program. Additional financial assistance is available through various Service grants and agreements, as well as through Farm Bill and Department of Defense programs. In addition, the Service has the ability to take advantage of the additional management flexibility afforded to candidate species by facilitating development and implementation of Candidate Conservation Agreements (CCAs) and Candidate Conservation Agreements with Assurances (CCAAs).

CCAs are formal, voluntary agreements between the Service and one or more parties to address the conservation needs of one or more candidate species. Participants voluntarily commit to implement specific actions designed to remove or reduce threats to the covered species. CCAs can involve both federal and non-federal lands. In some cases, these agreements have been so successful that listing the species proved to be unnecessary. For non-federal landowners seeking regulatory assurances, CCAAs are an effective tool. A CCAA provides participating property owners with a permit containing assurances that if they engage in certain conservation actions for species included in the agreement, they will not be required to implement additional conservation measures beyond those in the CCAA in the event the species becomes listed. Also, additional land, water, or resource use limitations will not be imposed on them should the species become listed in the future, unless they consent to the change. For additional information on these tools, see <http://www.fws.gov/angered/landowner/index.html>.

Q12: Why did the Service conduct a range-wide status review of the greater sage-grouse?

A12: The Service was sued by Western Watersheds Project on the merits of the 2005 finding which determined that listing the greater sage-grouse was not warranted based on the scientific information available at that time. In a stipulated agreement with the plaintiffs, we agreed to submit a new finding to the Federal Register by February 26, 2010; by mutual agreement and with approval of the involved court. That date was extended by one week to March 5, 2010.

Q13: What is a status review?

A13: A status review is an in-depth examination of all the scientific information relating to a species and its habitat. It provides the basis for making a finding as to whether listing is warranted.

The Service sought out all available scientific and commercial information on greater sage-grouse population trends, as well as information on the loss and modification of sagebrush habitat. The purpose of the status review was to determine whether the greater sage-grouse warranted listing as endangered or threatened under the ESA.

Q14: What is a greater sage-grouse and where do they live?

A14: Greater sage-grouse are large, rounded-winged, ground-dwelling birds, up to 30 inches long and two feet tall, weighing from two to seven pounds. They have a long pointed tail with legs feathered to the base of the toes. Females are a mottled brown, black, and white color. Males are larger and have a large white ruff around their neck and bright yellow air sacks on their breasts, which they inflate during their mating displays. They are found in 11 States: Washington, Oregon, California, Nevada, Utah, Colorado, Idaho, Montana, North Dakota, South Dakota, and Wyoming. Small populations are also found in the Canadian provinces of Alberta and Saskatchewan.

Q15: How did the Service determine the extinction risk for greater sage-grouse?

A15: A large volume of new information has been obtained, analyzed and published in peer reviewed scientific documents since the 2005 finding. As a result, the causes of population declines, and the loss of greater sage-grouse populations, are now better understood. This new scientific information, combined with updated information on the current status and the known and projected uses of sagebrush habitat, was evaluated by the Service in making the finding.

Q16: What are the primary threats to greater sage-grouse?

A16: Fragmentation of sagebrush habitats has been cited as the primary cause of the decline of greater sage-grouse populations. Greater sage-grouse are a landscape scale species, requiring large expanses of sagebrush to meet all seasonal habitat requirements.

The Service analyzed potential factors that may affect the habitat or range of the greater sage-grouse and determined that habitat loss and fragmentation resulting from wildfire, invasive

plants, energy development, urbanization, agricultural conversion, and infrastructure development are the primary threats to the species. The negative effects of fragmentation on greater sage-grouse are diverse and include reduced lek (courtship site) persistence, lek attendance, winter habitat use, recruitment, yearling annual survival, and female nest site choice.

Fire: Fire is a primary cause of recent large-scale losses of habitat. Fire frequencies have increased as a result of the incursion of invasive plant species. As a result, this stressor is anticipated to increase.

Invasives:

Once established, invasive plants reduce and eliminate vegetation essential for greater sage-grouse to use as food and cover, and facilitate a shorter fire cycle. Techniques to control invasive plants on a landscape scale necessary to support the greater sage-grouse are limited and have generally been ineffective to date.

Energy Development:

Greater sage-grouse populations are negatively affected by energy development activities (primarily oil, gas, and coal-bed methane), especially those that degrade important sagebrush habitat, even when mitigative measures are implemented. Impacts can result from direct habitat loss, fragmentation of important habitats by roads, pipelines and powerlines, and direct human disturbance. The negative effects of energy development often add to the impacts from other human development, resulting in declines in greater sage-grouse populations.

Population declines associated with energy development results from abandonment of leks, decreased attendance at the leks that persist, lower nest initiation, poor nest success and chick survival, decreased yearling survival, and avoidance of energy infrastructure in important wintering habitat. Energy exploration and development is projected to increase over the next 20 years.

An estimated 30 percent of habitat in greater sage-grouse range has high potential for wind power. The effects of renewable energy development are likely to be similar to those of nonrenewable energy as similar types of infrastructure are required.

Urbanization:

Since 1950, the western United States has exceeded the national average in the population growth rate, with rural areas growing faster than urban areas in 60 percent of the counties in the Rocky Mountain States. This growth has led to increases in urban, suburban and rural development. In addition, the presence of domestic pets and predators associated with humans (e.g. foxes, skunks, ravens) also negatively affect the greater sage-grouse. Given the current demographic and economic trends in the Rocky Mountain West, we believe urbanization will continue to increase, resulting in further habitat fragmentation and degradation.

Agricultural conversion: Greater sage-grouse become locally extinct when the amount of tilled agriculture within an area exceeds 25 percent of the surrounding land cover. Agriculture also results in indirect effects to both the sage-grouse and sagebrush habitats due to the supporting infrastructure and the presence of human-associated predators.

Grazing: Grazing is the most extensive land use across the range of the greater sage-grouse. Grazing can be managed appropriately to be compatible with conservation of the sage-grouse. We caution that the removal of sagebrush to promote forage production is not compatible with greater sage-grouse conservation and should be avoided.

Infrastructure:

Infrastructure includes a broad array of structures necessary to support most kinds of energy and human developments (e.g., powerlines, pipelines, fences and roads). As an example, powerlines can directly affect greater sage-grouse by posing a collision and electrocution hazard and can have indirect effects by increasing predation by providing hunting perches for many species of raptors. Impacts from roads may include direct habitat loss, direct mortality, barriers to migration corridors, facilitation of predators and spread of invasive vegetative species and other indirect impacts such as noise.

Climate Change:

Projected climate change and its associated consequences have the potential to affect the greater sage-grouse and increase its risk of extinction as the impacts of climate change compound the effects of other stressors already impacting the species.

The long-term impact of climate change to greater sage-grouse is yet to be determined. However, changes in temperature and precipitation regimes associate with climate change are likely to facilitate the incursion of invasive plants and the associated changes in fire regime which currently pose significant threats to greater sage-grouse and the sagebrush ecosystem.

As there is some degree of uncertainty regarding the potential effects of climate change on greater sage-grouse, climate change in and of itself was not considered a significant factor in our determination whether greater sage-grouse is warranted for listing.

Regulatory Mechanisms:

Federal agencies manage the majority of greater sage-grouse habitat in the United States. Their participation in controlling greater sage-grouse habitat fragmentation is essential to long-term persistence. Overall, the ability of these agencies to adequately address the issues of wildfire and invasive plants across the landscape is limited. However, the Service believes a strategic conservation approach can be adopted to target the protection of greater sage-grouse habitats from fire and other forms of habitat loss and fragmentation. Energy development and its associated infrastructure are expected to continue. Protective measures and strategic siting of energy developments away from core sage grouse habitats are needed to reduce this threat into the future. Such efforts should be undertaken in collaboration with State Wildlife agencies who will continue to manage greater sage-grouse; and should be consistent with the Western Association of Fish and Wildlife Agencies 2006 Greater sage-grouse Rangeland Conservation Strategy developed jointly by WAFWA, the Service, Bureau of Land Management and U.S. Forest Service.

Q17: Is there an estimate of how many sage-grouse current exist?

A17: Population numbers are difficult to estimate due to the large range of the species and inconsistent sampling protocols for lek surveys. The annual counting of males on leks remains the primary approach to monitoring long-term trends of populations and standardized techniques are beginning to be implemented throughout the species' range.

Population projections suggest the population will decline across the species' range in coming years, and extirpation is anticipated in some areas affected by energy development and increased wildfire frequency within the next 30 to 100 years. The resulting landscape will consist of scattered sage-grouse populations across the species range with minimal, if any, connectivity, placing the species at increasing risk of at increasing risk of substantial decline or extirpation in additional areas.

Q18: How much sagebrush habitat is there?

A18: Current sagebrush habitat is estimated at approximately 160 million acres – about half of the estimated historic acreage.

Q19: Is the greater sage grouse the only wildlife dependent upon sagebrush habitats?

A19: No. In fact, the following wildlife species are either partially or entirely dependent upon sagebrush habitat: Pronghorn Antelope (also benefits from grassland habitats), the Sage Thrasher, the Gunnison Sage-Grouse (different species found in Utah and western Colorado), the Pygmy Rabbit, the Sage Sparrow, the Brewer's Sparrow, Ferruginous hawks, the Loggerhead Shrike, and the White-Tailed Prairie Dog.

Q20: How will today's action affect oil and gas development within the range of the sage grouse? What about wind power development and livestock grazing?

A20: As a candidate species, the greater sage-grouse does not have any regulatory protection. We recommend that project proponents wanting to conduct activities in occupied sage-grouse habitat coordinate with the Service and the States to develop projects that are compatible with greater sage-grouse conservation. Oil and gas development and wind power development is not compatible with the species unless done in a strategic way where key habitats are conserved. Livestock grazing can be managed in a manner compatible with sage-grouse conservation. Service biologists are available to assist project proponents in developing projects that are compatible with greater sage-grouse conservation.