

A Sampler Digest of Potential Range-wide Issues of Relevance to Greater Sage-grouse Conservation Efforts

Subject	Reference	Summary	Summary Reference
Risk of Extinction:	12-Month Finding: Listing Factor A; summary of Factor A	Loss of sagebrush and greater sage-grouse habitat has been occurring since arrival of European settlers in the 1800s, as evidenced by the change in the sage-grouse's distribution and loss of local populations. Habitat loss and fragmentation continues today as a result of many factors. Extinction risk factors identified by the expert panel convened by the Service as contributing to habitat loss and fragmentation were invasive species, infrastructure as related to energy development and urbanization, wildfire, agriculture, grazing, energy development, urbanization, strip/coal mining, weather, and pinyon-juniper expansion. Several experts identified concerns with the synergistic effects of threat factors (e.g., infrastructure increases and invasive species expansion).	Risk of Extinction 1
	12-Month Finding: Listing Factor B; summary of Factor B	Hunting was not identified as a primary threat factor for the greater sage-grouse in the 12-Month Finding. For the 12-Month Finding, no data were collected suggesting that poaching, non-consumptive use, or scientific use limit greater sage-grouse populations range-wide.	Risk of Extinction 2
	12-Month Finding: Listing Factor C; summary of Factor C	Disease and predation are not factors that endanger or threaten the sage-grouse throughout all or a significant portion of its range at this time. FWS is concerned about the effects of West Nile Virus on greater sage-grouse and will closely monitor future infections and observed population effects.	Risk of Extinction 3
	12-Month Finding: Listing Factor D; summary of Factor D	Existing regulatory mechanisms do not endanger or threaten the greater sage-grouse throughout all or a significant portion of its range.	Risk of Extinction 4
	12-Month Finding: Listing Factor E; summary of Factor E	Other natural and manmade factors do not endanger or threaten the sage-grouse throughout all or a significant portion of its range.	Risk of Extinction 5

Subject	Source	Summary	Narrative Reference
Habitat threats	12-Month Finding: Listing Factor A	Agents of habitat loss or change discussed in Listing Factor A: “habitat conversion, habitat fragmentation, powerlines, communication towers, fences, roads and railroads, grazing, mining, non-renewable and renewable energy development, fire, invasive species/noxious weeds, pinyon-juniper, and urbanization. ... Several members of the FWS expert panel identified concerns with the synergistic effects of threat factors (e.g., infrastructure increases and invasive species expansion). The expert panelists also discussed that the range of the greater sage-grouse would likely contract and fragment due to habitat modifications and losses.”	Habitat Threats -1 through 12
Data gaps	12-Month Finding: Petition finding	With respect to extinction risk, “areas of uncertainty discussed by the expert panel included: systematic relationships among various grouse species; underlying mechanisms by which sage-grouse populations respond to habitat changes; how to scale grouse habitat preference up to the level at which federal land is managed; lack of studies across the range limits inferences; effects of invasive plants; application of grazing techniques to favor sagebrush habitat; underutilization of the case study approach for sage-grouse management; future gas and oil development impacts; future advances in horticulture and fire suppression; the role of crested wheatgrass in sagebrush management; and the effectiveness of CRP program. No attempt was made to rank the effects of these and other areas of uncertainty on the estimates of future risk.”	
Inventory and Monitoring; baseline data	Conservation Assessment	Introduction: “we still lack baseline information across much of the sagebrush biome against which to evaluate population and habitat changes. Therefore, most information that we present is recent but perhaps now we can begin the daunting task of providing a baseline database for future efforts.”	Inventory and Monitoring 5

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Inventory and Monitoring; sage-grouse*	Conservation Assessment	<p>Chapter 6: “ ... results from our questionnaire indicated monitoring techniques continue to vary among areas and years both within and among agencies. This variation complicates attempts to understand grouse population trends and make comparisons among areas.”</p> <p>Agencies not only vary greatly in how they collect data but also how they manage databases.”</p> <p>Although monitoring efforts have increased, there still appears to be a reluctance by some states/provinces to use established and accepted monitoring techniques (Jenni and Hartzler 1978, Emmons and Braun 1984, Connelly et al. 2003).”</p> <p>Until recently, no effort has been made to compile and standardize all major monitoring techniques useful for assessing sage-grouse habitats and populations.</p>	Inventory and Monitoring 1, 4
Inventory and Monitoring; Habitat treatments*	Conservation Assessment	<p>Page 7-32: “With few exceptions, monitoring vegetation and wildlife response to habitat treatments across appropriate spatial and temporal scales is lacking (Crawford et al. 2004).”</p> <p>Published methods for assessing vegetation were not developed specifically for sage-grouse habitats. Some population monitoring techniques have not been described in detail while others were based on work done in a single area or over a relatively short time</p>	Inventory and Monitoring 2(a & b), 3

* The technical aspects of inventory and monitoring of both sage-grouse populations and their habitats are being addressed through a separate sub-group. Their report will be included in the final Conservation Strategy. The issues are presented here for your information and consideration in formulating recommendations.

Subject	Source	Summary	Narrative Reference
Habitat disturbance and resiliency	Conservation Assessment	<p>p 13-8; The cumulative impacts of the disturbances, rather than any single source, may be the most significant influence on the trajectory of sagebrush ecosystems. ... Those remaining landscapes of sagebrush habitats most important to sage-grouse also are the most sensitive to disturbance impacts and also will require the longest recovery periods.</p> <p>P 13-10 ;“Many regions of the sagebrush biome now exist in an ecological state past thresholds from which recovery is likely (West 1999).”</p>	Habitat Disturbance and Resiliency 1
Habitat Disturbance and Resiliency	Other	<p>“... Soils that are highly productive for agricultural products are also highly productive for wildlife.... many habitat conversions or other treatments targeted the most productive of the remaining soils and hence native vegetation communitiesresulting in further disproportionate losses of habitat and population resilience..... Because the plant biomass is greater on more productive soils ... these areas can also have the greatest fuel loads and be more susceptible to burning and/or invasion by undesirable plant species, including noxious weeds.</p> <p>Habitat improvement treatments for wildlife, including sage-grouse, frequently similarly focus on the most productive soils,... This presents the potential for significantly adverse ecological changes if projects do not respond as intended, or if the, number, type, size and sequencing of projects within the range of the sage-grouse population are not fully coordinated across the entire range of that population. It is these remaining most productive soils that are in many cases also the most critical for sage-grouse production and protection. . Considering the potentially large number of habitat treatment projects associated with implementation of sage-grouse</p>	Habitat Disturbance and Resiliency 2

		<p>conservation plans, a lack of appropriately scaled coordination could result in substantial, widespread loss of habitat from which it could be very difficult to recover.</p> <p>Soils are also a consideration for infrastructure development projects, such as the energy corridors attendant transmission and distribution lines, and other factors related to human population growth in the West. Such projects generally seek soils and substrates that offer the fewest physical impediments to facility construction and maintenance.</p>	
Habitat restoration	Conservation Assessment	P 7-49; "Bottlenecks to Success: Availability and cost of native seed is a major obstruction to the use native seeds in revegetation projects (McArthur 2004)... Equipment for sowing native seeds is not widely available."	Habitat Restoration 1
Habitat restoration	Conservation Assessment	The level and distribution of existing expertise related to seeding/restoration of rangelands is believed to be well below that needed.	Habitat Restoration 2

Subject	Source	Summary	Narrative Reference
Land uses	Conservation Assessment	P 1-3, Introduction: “Less than 1% of the 668,412 km ² currently occupied by greater sage-grouse, and very little sagebrush habitat is legally protected Multiple-use management dominates approximately 70% of the sagebrush habitats, which are owned publicly Consumptive uses that potentially influence sagebrush habitats include livestock grazing, mining, energy development, conversion to agriculture, and urbanization. Non-consumptive uses, such as use of off-road vehicles for recreation, also have the potential to influence habitats and populations of sage-grouse.”	
Technical Assistance	Local Working Group Conference Report	The need was expressed (recommendation #3) “That WAFWA facilitates (<i>sic</i>) the development of a clearinghouse for research, data, funding, best management practices, and project implementation stories that local working groups can easily access.”	Technical Assistance 1
Technical Assistance	Local Working Group Conference Report	The level and distribution of existing expertise related to seeding/restoration of rangelands is believed to be well below that needed.	Technical Assistance 2
Coordination	Conservation Assessment	: 2-13 “Many greater sage-grouse populations have distributions that span one or more jurisdictional boundaries (Chapter 6). Effective management of these populations requires coordination between the various landowner, (<i>sic</i>) wildlife managers and the public.”	Coordination 1
Coordination	Local Working Group Conference Report	P 6; “They requested assistance from the agencies to develop a system to prioritize projects. This system would prioritize implementation of local working group planned, regional and range-wide projects to maximize the impacts on sage-grouse populations. The regional and range-wide coordination will be especially critical during implementation and monitoring.”	Coordination 1
Coordination	Local Working Group Conference Report	Concerns regarding networking and communication between local working groups	Coordination 2

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Coordination	Local Working Group Conference Report	State Wildlife Comprehensive Conservation Strategies	Coordination 3
Coordination	Dept. of Interior policy	The Policy for the Evaluation of Conservation Efforts when Making Listing Decisions	Coordination 4
Coordination		There is no comprehensive analysis of agency policies, programs and regulations at national, regional and/or state levels to address issues that may adversely affect sage-grouse conservation and which are not within the purview of local working groups. Local working groups and States are not positioned to address federal agency policies and regulations at national and regional levels, and likely not at state levels, as well.	Coordination 5