Impact Summary Table

IMPACT	MZ	SUMMARY 2010	Δ	SUMMARY 2015
Fire		***Summary of determination category (e.g. Threat, Not a threat) goes here***		***Summary of determination category (e.g. Threat, Not a threat) goes here***
Invasive Plants / Annual Grasses				
Conifer				

IMPACT	MZ	SUMMARY 2010	Δ	SUMMARY 2015
Encroach.				
Agricultural Conversion	**I IV VI**	Estimated 10% historic losses due to ag conversion. ☐ Direct loss ofhabitat, indirect impacts of predation, disturbance ☐ Estimated ¾ of all habitat directly or indirectly impacted ☐ Greatest losses in MZ I, IV, and VI ☐ Some conversion continues, but rate in 2010 and into the future is unknown.		
Nonrenewable Energy Development				

IMPACT	MZ	SUMMARY 2010	Δ	SUMMARY 2015
Mining				**IMPACTS INDIVIDUALS, MAY IMPACT SOME POPULATIONS**
		Note: No definitive summary statement in 2010 Finding)		Localized impacts where minerals are located. Regulatory: Federal agencies have discretionary authority over most mineral exploration and production; Federal agencies have little discretionary authority over locatable minerals & notice–level activities. Range-wide - direct footprints from mineral mining vary locally or regionally from very large to very small; But indirect effects are potentially large. Difficult to predict future mining use with precision, but generally mining production has remained amazingly stable for the last decade. Future mining impacts to sage-grouse will be primarily determined by the location of the minerals with the range. Mining will continue to provide incremental impacts to sage-grouse populations or regional

IMPACT	MZ	SUMMARY 2010	Δ SUMMARY 2015
			groups of populations and their habitat, and to interact with other impacts (e.g., energy **development, infrastructure development, etc.)**
Renewable Energy Development			
Infrastructure			

IMPACT	MZ	SUMMARY 2010	Δ	SUMMARY 2015
Fences	All	**THREAT**		**IMPACTS INDIVIDUALS, NOT POPULATIONS**
		• We grouped fences with roads, communication towers, and powerlines under Infrastructure, which concluded that linear structures: o Encouraged presence of raven; o Fragmented habitat; and o Contributed to destruction, modification, curtailment of habitat.		• New science shows fence marking can reduce collision by ~83% but it is unlikely to eliminate it. • Population level repercussions of reduced collisions not well understood. • Fence Collision Risk Tool available to identify high risk areas. • No new science on indirect threats from fences. • We lack 1) demographic data to know whether populations can compensate for mortality via increased productivity, 2) data on proportional mortality of male and female grouse, and 3) data on fence location and density across the species range. • No evidence to indicate that fences impact more than individual sage-grouse.
Grazing and Rangeland Management				

IMPACT	MZ	SUMMARY 2010	Δ	SUMMARY 2015
Free-Roaming Equids	**II III V**	**POTENTIAL FOR POPULATION-LEVEL IMPACTS**		
		2010 36,000 free-roaming equids occurred in 10 Western States on BLM-managed lands. Impact 12% of the sage-grouse's range. Free-roaming equid population on BLM-managed lands was 134% of the recommended maximum appropriate management level (AML). Grazing has the potential for population-level impacts. Conservation Two horse gathers (2,957 equids) were reported. 13,919 acres of brood-rearing areas were fenced to exclude equids.		57,000 free-roaming equids occur on BLM- and FS-lands. Impact 12% of the sage-grouse's current range; However, actual impact may be much **higher** Current population is double the recommended AML and increasing. Nevada is home to half of the free-roaming equids. MZs II, III, V are more heavily impacted than in other MZs. BLM is limited in management options to control equid populations Without additional management actions by BLM, FS, and other entities, the impact of free-roaming equids will increase**.**
Urban and Exurban Development		**THREAT**		**IMPACTS**
		urban/exurban development, contribute individually and collectively to the present and threatened destruction, modification, and curtailment of sage-grouse habitat and range.		Since the 2010 12-month finding, the NRCS has enrolled more than 450,000 ac within the species' current range in permanent conservation easements, protecting these lands from future development. Urban and exurban development directly impact anywhere from approximately 0.2% to 1% of the various management zones. Approximately 0.4% of the species' current habitat is impacted rangewide. Urban/exurban development is considered the primary stressor to the Eagle-South Routt and Middle Park sage-grouse populations in Colorado (Wyoming Basin MZ

IMPACT	MZ	SUMMARY 2010	Δ SUMMARY 2015
			2). However, we conclude that, by itself, urban/exurban development is not a threat at a management zone or rangewide scale. Urban/exurban development exacerbates several other stressors including: infrastructure, fences, predation, invasive species, and recreation.
Recreation	**All**	**NO CHANGE**	**IMPACTS INDIVIDUALS**
		NO CHANGE	• Recreational use impacts from lek viewing are negligible • Recreational activities in GRSG habitat occurs across the range, unlikely that these have large-scale impacts on GRSG populations • BLM and FS plans will likely play role in reducing impact of OHVs • No major changes since 2010.
Climate Change			

IMPACT	MZ	SUMMARY 2010	Δ	SUMMARY 2015
Drought				
				Future impacts to GRSG from drought are likely to increase from climate change and increasing demand for water. Since 2010, climate models have continued to predict increased drought risk, including potential for decade and multidecadal scale drought within the GRSG range Difficult to completely ameliorate drought impacts, through proper grazing and water management reduces impacts on GRSG. Current levels of drought unlikely to have large-scale impacts on GRSG populations, but increased drought severity and duration, combined with additional stressors may result in impacts on populations in the future, especially within the southern Management Zones.
Hunting				**IMPACTS INDIVIDUALS, MAY IMPACT SOME LOCAL POPULATIONS**
				• Decade average annual hunting mortality is 34% lower than the previous decade as a result of both management actions and a decrease in hunter participation. • Recreational hunting not driving population dynamics on a rangewide basis. • Negative impacts on local populations have been demonstrated. • All states have more conservative seasons and have adaptive management approach in place.

IMPACT	MZ	SUMMARY 2010	Δ	SUMMARY 2015
Scientific and Education Purposes				
Disease	All	**NO CHANGE**		**IMPACTS INDIVIDUALS, SOME SMALL ISOLATED POPULATIONS**
		NO CHANGE		• WNv is not currently a significant, rangewide threat to sage-grouse. • No change since 2010. • WNv will remain a localized threat to sage-grouse, esp. small, isolated populations • Other threats to sage-grouse could exacerbate impacts of WNv in the future

IMPACT	MZ	SUMMARY 2010	Δ	SUMMARY 2015
Predation				
Small Populations				
Contaminants		**NOT A THREAT NO CHANGE**		**IMPACTS INDIVIDUALS**

IMPACT	MZ	SUMMARY 2010	Δ SUMMARY 2015
		2010: Identified as continuing indefinitely, but no evidence that contaminants resulted in local or range-wide declines	Conservation Proper placement and management of sources of contaminants (oil and gas, agriculture, infrastructure, development, wildfire) outside of GRSG habitat Current Impacts individuals sporadically at a local scales Unlikely that contaminants cause widespread mortality or declines in sage-grouse populations across management zones (MZ).
Military Activities			