

A proposed framework for identifying, documenting, and mapping concentrations, or “hotspots,” of potential threats to the Greater sage-grouse (*Centrocercus urophasianus*) during the 2015 status review

Drafted by the Potential Threats Concentration Team - July 1, 2014

Purpose

This document provides a framework to identify, document, and map concentrations of potential threats to the Greater sage-grouse during the 2015 status review. Our previous status review identified that potential threats may operate equally across the entire range of the Greater sage-grouse, or they may be concentrated within specific geographic areas. Due to this variability, the following framework builds on previous work to identify, refine, and map geographic “areas of interest” where potential threats to the Greater sage-grouse may be concentrated. By identifying “hotspots” of potential threats to the Greater sage-grouse, the framework provides spatially explicit data and maps that will be valuable to biologists and decision-makers during all stages of the status review. Additionally, the information could potentially be used by decision-makers if an evaluation of the Greater sage-grouse’s status under the Service’s newly finalized Significant Portion of the Range (SPR) policy is necessary at a later time.

Benefits to the Status Review

Documenting and considering the distribution of potential threats across a landscape or a species’ range is already an integral part of the status review process. The threats concentration framework does not duplicate this effort, but is an embedded process within the overall status review to capture and improve information regarding the concentration and spatial distribution of potential threats. The framework strengthens the information regarding potential threats that will be documented in the species report and available throughout the status review and to decision-makers. In other words, the threats concentration framework ensures that the status review’s species report not only provides full descriptions of the potential threats, but also documents the best available information regarding the spatial distribution and concentration of these potential threats across the range of the Greater sage-grouse.

During its initial phase, the framework compiles and maps available data regarding threat concentrations from the existing literature, status reviews, and reports, such as the Conservation Objectives Team (COT) final report (February 2013). These early maps of potential threat concentrations will inform and help direct the modeling efforts. The framework then works closely with the modeling and data call teams to further investigate, refine, and map the spatial distribution of potential threats. Through a feedback loop, the framework identifies data needs regarding threats concentrations, and works with the other teams to improve the resolution of both the spatial data and models at appropriate scales. Finally, by visually illustrating gradients of potential threats, the framework’s final “hotspot” maps will provide valuable information to the status review.

Comment [KNorman1]: May be “lightening” or other term

If needed, framework products would also be readily available to Service decision makers who may need to quickly evaluate the status of the Greater sage-grouse and who may need to review the information using the Service's SPR policy. By collecting, cataloguing, and mapping the best available scientific information regarding concentrations of potential threats to the Greater sage-grouse during the status review, the framework ensures that any potential application of the SPR policy, if needed, is efficient, repeatable, scientifically based, transparent, and clearly articulated in the administrative record.

Disclaimer

The proposed framework *proactively* seeks and documents the best available scientific information regarding the concentration and spatial extent of potential threats to the Greater sage-grouse. The framework does not *preemptively* evaluate any of the collected information using the Service's SPR policy, or any other Federal policies or regulations. The proposed framework does not determine the status of any portions of the Greater sage-grouse's range, nor does it evaluate the potential significance of any portions within the range. However, the information collected by the framework would be readily available throughout the status review process and could be used at a later time, if needed, to evaluate significant portions of the Greater sage-grouse's range under the Service's SPR policy. Because information regarding potential threats and their concentrations will be useful throughout the status review, this information will also be used to inform other aspects of our analysis.

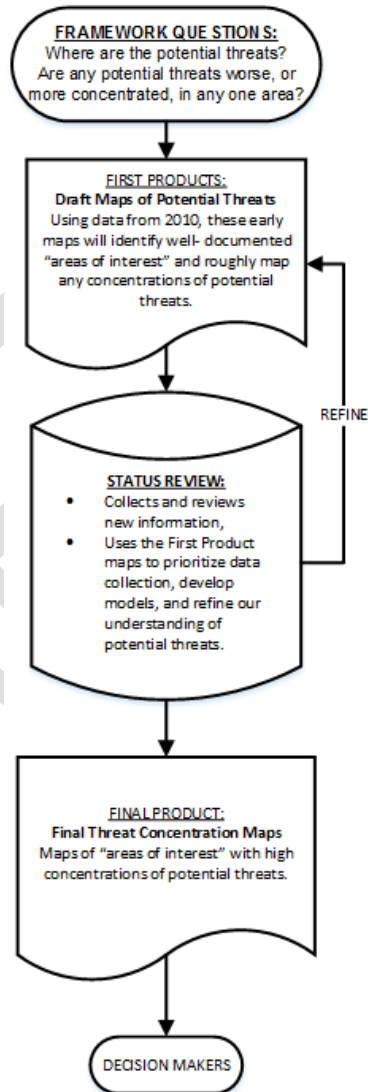
The proposed framework provides information and "hotspot" maps of potential threats that could inform an evaluation under the Service's SPR policy, but it operates independently of any regulation or policy and, as mentioned above, could assist other aspects of the status review. The framework ensures that the status review collects, documents, and maps relevant scientific information regarding concentrations of potential threats, information which could potentially be used during a review under the SPR policy, but will be useful throughout the process as we understand and evaluate potential threats during the status review. However, any geographic areas of interest that this framework identifies are not necessarily significant and may not encompass all possible scenarios.

The Framework

Potential threats to the Greater sage-grouse may occur rangewide, or they may be localized, isolated, or concentrated within a particular area. This framework assists status review biologists identify, document, and map concentrations of potential threats to the Greater sage-grouse during the 2015 status review. The framework is one component of the status review process, linking efforts from the multiple status review teams (e.g. Data Call, DPS, GIS, and Modeling) to ensure that any differences in the magnitude, scope, and geographic extent of potential threats are documented in the species status report.

The threats concentration framework has three (3) phases:

- **Phase 1 – First Product:** In its first stage, the framework identifies and compiles areas where threat concentrations are well-documented. The framework maps these as “areas of interest” (first product) and will inform modeling efforts.
- **Phase 2 - Refine:** During the early phases of the status review (e.g. data call and collection), the framework assists the status review teams collect and document scientific information regarding potential concentrations and the spatial extent of any potential threats. Phase 2 uses the first product maps to prioritize data collection, develop and improve models, and refine our understanding of potential threats.
- **Phase 3 – Final Product:** After collecting data and refining models the framework synthesizes the information and produces revised maps of any “areas of interest” or “hotspots” where potential threats may be concentrated.

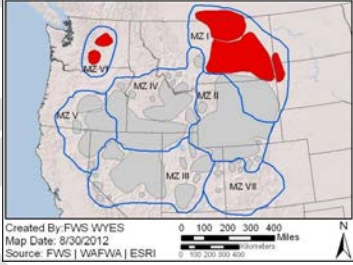
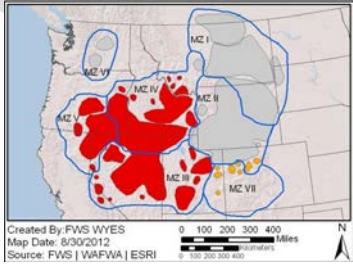


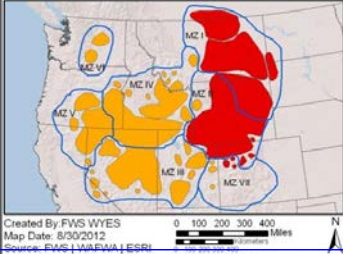
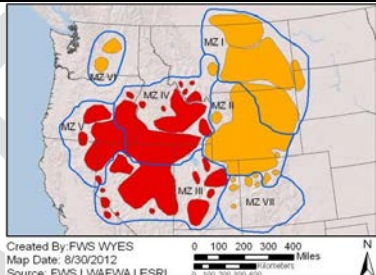
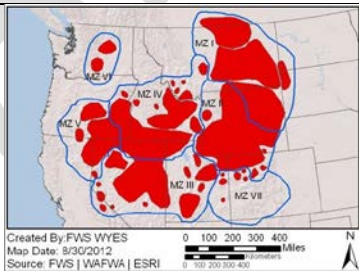
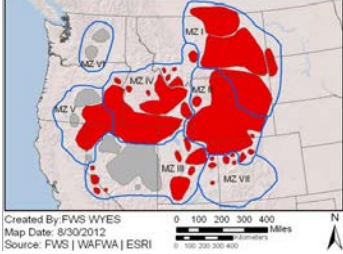
Phase 1: First Product

The threats concentration team reviewed the existing literature, the March 23, 2010, finding, the COT Report (2013), and other sources of information to compile already available, well-documented information regarding concentrations of potential threats.

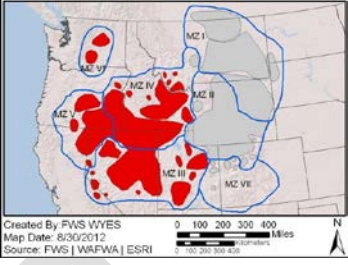
Table 1 summarizes information and available maps regarding the concentration of potential threats to the Greater sage-grouse from the COT Report (2013) and the Near-Term Greater-Sage Grouse Conservation Action Plan (COT Team 2012). The USGS' *Summary of Science* open-file report (Manier *et al.* 2013) will provide additional detail and resolution regarding the spatial distribution and concentration of potential threats.

Table 1. Potential threats and potential concentrations as documented in COT Report (2013) and the Conservation Action Plan (COT Team 2012).

Potential Threat	Rangewide or Select Concentrations?	Potential Areas of Interest			Available Maps	Citations
		States	MZs	PACs		
Agricultural Conversion	Select	MT, ND, SD, WA	I, VI			COT Report 2013; COT Team 2012
Conifer Encroachment	Primarily in the west, but localized elsewhere.	CA, CO, ID, NV, OR, UT	III, IV, V, VII			COT Report 2013; COT Team 2012

Potential Threat	Rangewide or Select Concentrations?	Potential Areas of Interest			Available Maps	Citations
Energy Development	Rangewide (however, different types of energy development are occurring regionally and threats will be assessed according to available data)	All*	All*			COT Report 2013; COT Team 2012
Invasive Plants (Exotic annual grasses)	West	CA, ID, NV, OR, UT, WA	III, IV, V, VI			COT Report 2013; COT Team 2012
Infrastructure	Rangewide	All	All			COT Report 2013; COT Team 2012
Urbanization	Rangewide, but localized	All	I, II, III, IV, VII, and Bi-State			COT Report 2013; COT Team 2012

Comment [KNorman2]: Kevin Doherty mentioned that it might be good to caveat this that although energy development is occurring rangewide, different energy development threats may be present in different areas (e.g. oil vs gas vs solar vs transmission) – Red is more oil and gas ;orange might be potential wind development. 2013 assessment (USGS)

Potential Threat	Rangewide or Select Concentrations?	Potential Areas of Interest			Available Maps	Citations
Wildfire	West	CA, ID, NV, OR, UT, WA	III, IV, V, VI			COT Report 2013; COT Team 2012
Small population sizes	Rangewide, with potential local areas of interest	All	I, II, III, IV, V, VI, VII		Maps unavailable at this time.	COT Report 2013; COT Team 2012
Sagebrush Removal	Select Concentrations	Low: ND, SD, WY, OR, ID	Low: I, II, III, IV, VI, VII		Maps unavailable at this time.	COT Report 2013; COT Team 2012
Mining	Select Concentrations	All	I, II, III, IV, V		Maps unavailable at this time.	COT Report 2013; COT Team 2012
Grazing	Select Concentrations	All	I, II, Some III, IV, V, VI, VII		Maps unavailable at this time.	COT Report 2013; COT Team 2012

Potential Threat	Rangewide or Select Concentrations?	Potential Areas of Interest			Available Maps	Citations
Free-Roaming Equids	Select Concentrations	All	Some II, III, IV, V, and VI. All VII		Maps unavailable at this time.	COT Report 2013; COT Team 2012
Recreation	Select Concentrations	All	I, II, III, Low IV, Some V, VI, No VII		Maps unavailable at this time.	COT Report 2013; COT Team 2012

References Cited:

COT Report. U.S. Fish and Wildlife Service. 2013. Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report. U.S. Fish and Wildlife Service, Denver, CO. February 2013.

COT Team. Range-wide Interagency Sage-Grouse Conservation Team. 2012. Near-term Greater sage-grouse conservation action plan. Presented to the Greater sage-grouse Executive Oversight Committee and the Sage-grouse Task Force. Dated September 11, 2012. 27 pp.

Manier, D.J., Wood, D.J.A., Bowen, Z.H., Donovan, R.M., Holloran, M.J., Juliusson, L.M., Mayne, K.S., Oyler-McCance, S.J., Quamen, F.R., Saher, D.J., and Titolo, A.J., 2013, Summary of science, activities, programs, and policies that influence the rangewide conservation of Greater Sage-Grouse (*Centrocercus urophasianus*): U.S. Geological Survey Open-File Report 2013–1098, 170 p., <http://pubs.usgs.gov/of/2013/1098/>.