

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

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*Drafted by the Service's Potential Threats Concentration Team - July 11, 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 uncertainty, this framework will be used to identify, refine, and map geographic “areas of interest” where potential threats to the Greater sage-grouse may be concentrated. By identifying concentrations of potential threats to the Greater sage-grouse, the framework collects, organizes, and creates spatially explicit data and maps used by biologists and decision-makers during all stages of the status review, including an evaluation under the Service’s Significant Portion of the Range (SPR) policy if we find that listing is not warranted throughout the species’ range.

## Benefits to the Status Review

Documenting and considering the existence and distribution of potential threats across a landscape or a species’ range is an integral part of the status review process. The threats concentration framework does not duplicate this effort, but is a refined process within the overall status review to capture and illustrate information regarding the concentration and spatial distribution of potential threats. Use of this framework will ensure that the Greater sage-grouse status review species report will provide a full description of the potential threats in a way that allows the biologists and decision-makers to evaluate the spatial distribution and concentration of these potential threats across the range of the species. This will also facilitate analyses to determine the listing status of the species, including an SPR analysis, if needed.

## Framework Limitations

Through the framework, the Service will *proactively* seek and document the best available scientific information regarding the concentration and spatial extent of potential threats to the Greater sage-grouse. The framework process 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 will not determine the status of any portions of the Greater sage-grouse’s range, nor will 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.

Geographic areas of interest identified through this framework are not necessarily significant under the ESA or the Service's policies and regulations.

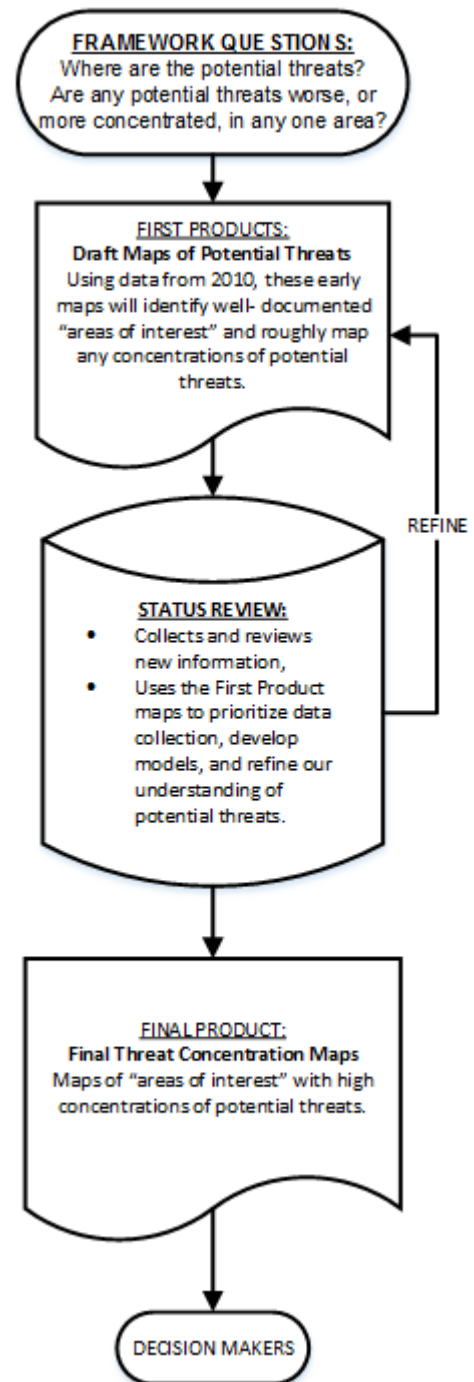
## The Framework

Potential threats to the Greater sage-grouse may occur range-wide, or they may be localized, isolated, or concentrated within a particular geographic area. This framework will be used to identify, refine, and map concentrations of potential threats to the Greater sage-grouse for the status review. The framework is one component of the status review process, linking efforts from the multiple status review teams (e.g., Data Call (including Conservation Efforts Database), Distinct Population Segment, GIS, and Modeling) to ensure that differences in the magnitude, scope, and geographic extent of threats are documented in manner that facilitates analyses under the ESA, implementing regulations, and applicable policies.

The first step is to compile and map available data informing threat concentrations from the existing literature, status reviews, congruent analysis efforts, and reports, such as the Conservation Objectives Team (COT) final report (February 2013). These draft maps of threat concentrations will inform and help direct the modeling efforts. The framework will then be used by the modeling and data call teams to further investigate, refine, and map the spatial distribution of threats. Through a feedback loop, the framework will be used to identify data needs regarding threats concentrations, and will be used by other teams to improve the resolution of both the spatial data and models at appropriate scales. Finally, by illustrating gradients of threats, the concentration maps generated through this process will provide spatial threat information for use in the status review.

The threats concentration framework has three (3) phases:

- **Phase 1 – First Product:** In the first stage, the Service identifies and compiles areas where threat concentrations are well-documented, and then map these as “areas of interest.” This first product will be used to inform modeling efforts.
- **Phase 2 - Refine:** During the early phases of the status review (e.g., data call and collection), the framework will assist the status review teams collect and organize information regarding



potential concentrations and the spatial distribution of threats. Phase 2 uses the maps generated in Phase 1 to prioritize data collection, develop and improve models, and refine our understanding of threat presence and intensity.

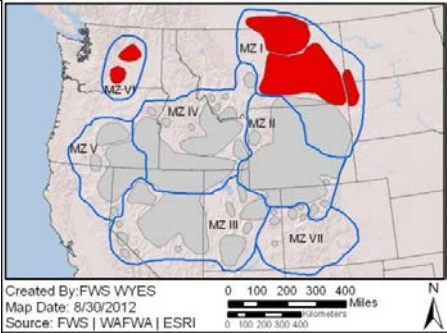
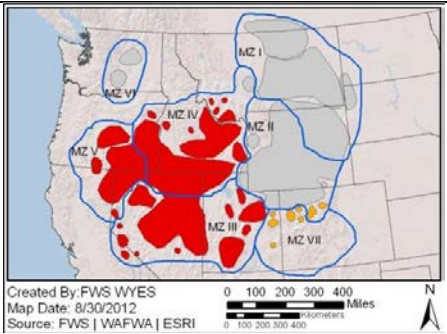
- **Phase 3 – Final Product:** After collecting data and refining models we will synthesize the information and produce revised maps of any “areas of interest” where threats are concentrated.

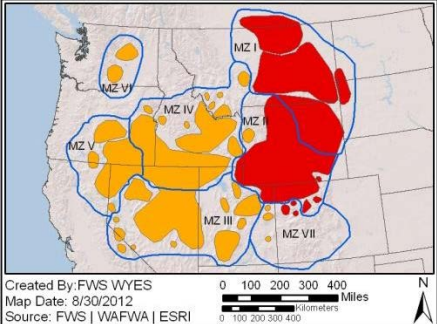
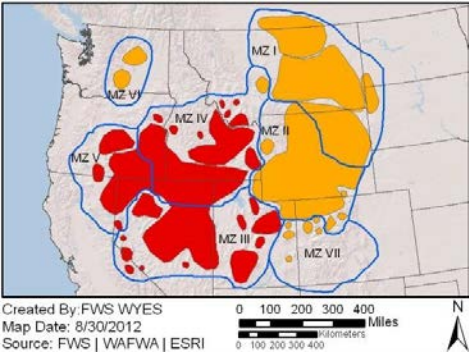
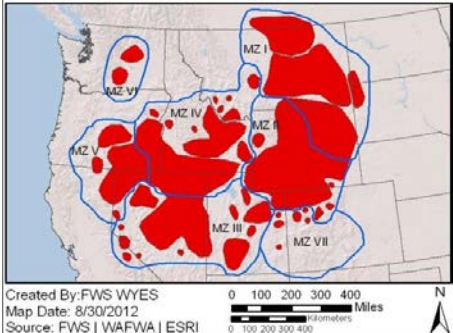
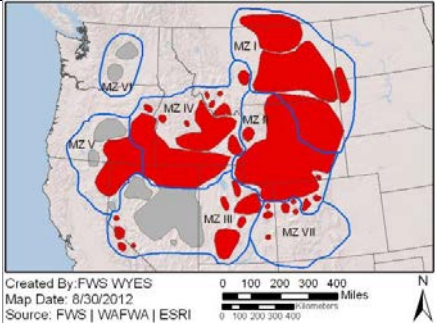
## Phase 1: First Product

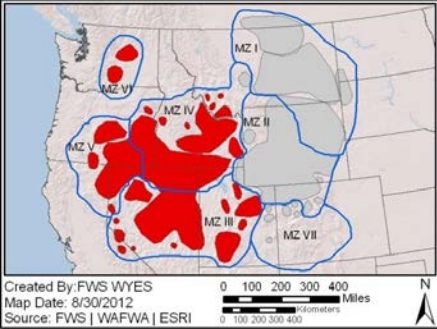
The Service’s threats concentration team reviewed the existing literature, the March 23, 2010, finding, the COT Report (2013), and other sources of information to compile already available, well-documented information regarding concentrations of potential threats.

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 NTCAP 2012). The USGS’ *Summary of Science* open-file report (Manier *et al.* 2013) provides 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		 <p>Created By: FWS WYES                      Map Date: 8/30/2012                      Source: FWS   WAFWA   ESRI</p>	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		 <p>Created By: FWS WYES                      Map Date: 8/30/2012                      Source: FWS   WAFWA   ESRI</p>	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*		 <p>Created By: FWS WYES                      Map Date: 8/30/2012                      Source: FWS   WAFWA   ESRI</p>	COT Report 2013; COT Team 2012
Invasive Plants (Exotic annual grasses)	West	CA, ID, NV, OR, UT, WA	III, IV, V, VI		 <p>Created By: FWS WYES                      Map Date: 8/30/2012                      Source: FWS   WAFWA   ESRI</p>	COT Report 2013; COT Team 2012
Infrastructure	Rangewide	All	All		 <p>Created By: FWS WYES                      Map Date: 8/30/2012                      Source: FWS   WAFWA   ESRI</p>	COT Report 2013; COT Team 2012
Urbanization	Rangewide, but localized	All	I, II, III, IV, VII, and Bi-State		 <p>Created By: FWS WYES                      Map Date: 8/30/2012                      Source: FWS   WAFWA   ESRI</p>	COT Report 2013; COT Team 2012

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 NTCAP. 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/>.