

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

Drafted by the Service's Potential Threats Concentration Team - July 26, 2014

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### 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.

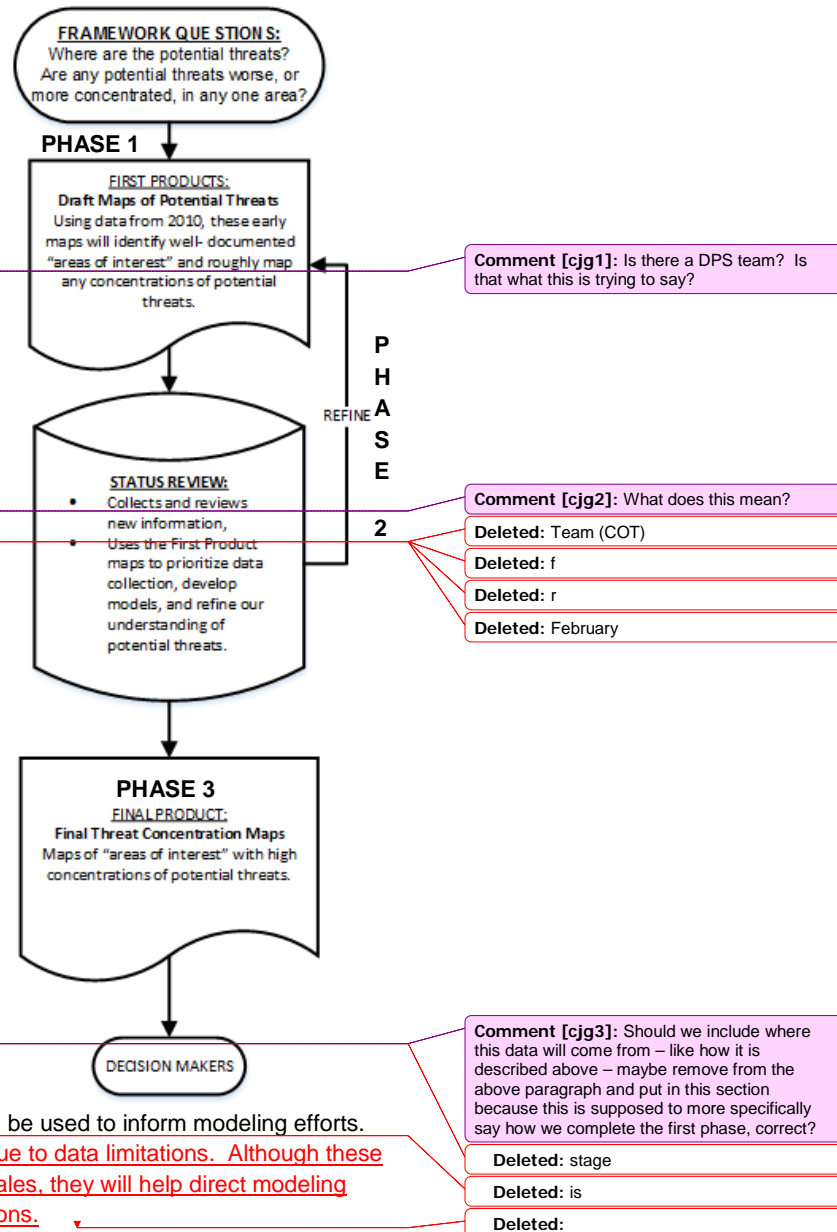
## The Framework

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: Final Report (COT Report 2013; hereafter, COT Report). 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 phase, the Service identifies and compiles areas where threat concentrations are well-documented, and then maps these as “areas of interest.” These first product maps will be used to inform modeling efforts. These first maps will likely be low resolution, or coarse, due to data limitations. Although these maps may not display potential concentrations at finer scales, they will help direct modeling efforts and our general understanding of threats distributions.



- **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 2 seeks to increase the resolution of the Phase 1 maps.
- **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 Conservation Objective: Final Report (COT Report 2013), the Near-Term Greater-Sage Grouse Conservation Action Plan (COT NTCAP 2012), the USGS' *Summary of Science* open-file report (Manier et al. 2013), and other sources of information to compile readily available, well-documented information regarding concentrations of potential threats. Figure 1 below provides an example of how the threat information could be mapped.

Figure 1 coarsely illustrates the distribution of weeds according to population area. Because the COT Report summarizes the intensity and distribution of threats by population, Figure 1 is low-resolution and does not display finer, more localized data below the population level. Phase 2 will work with modeling efforts to refine the resolution at appropriate scales. ▼

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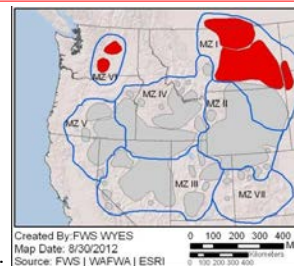
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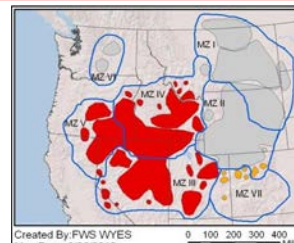
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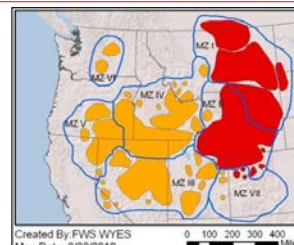
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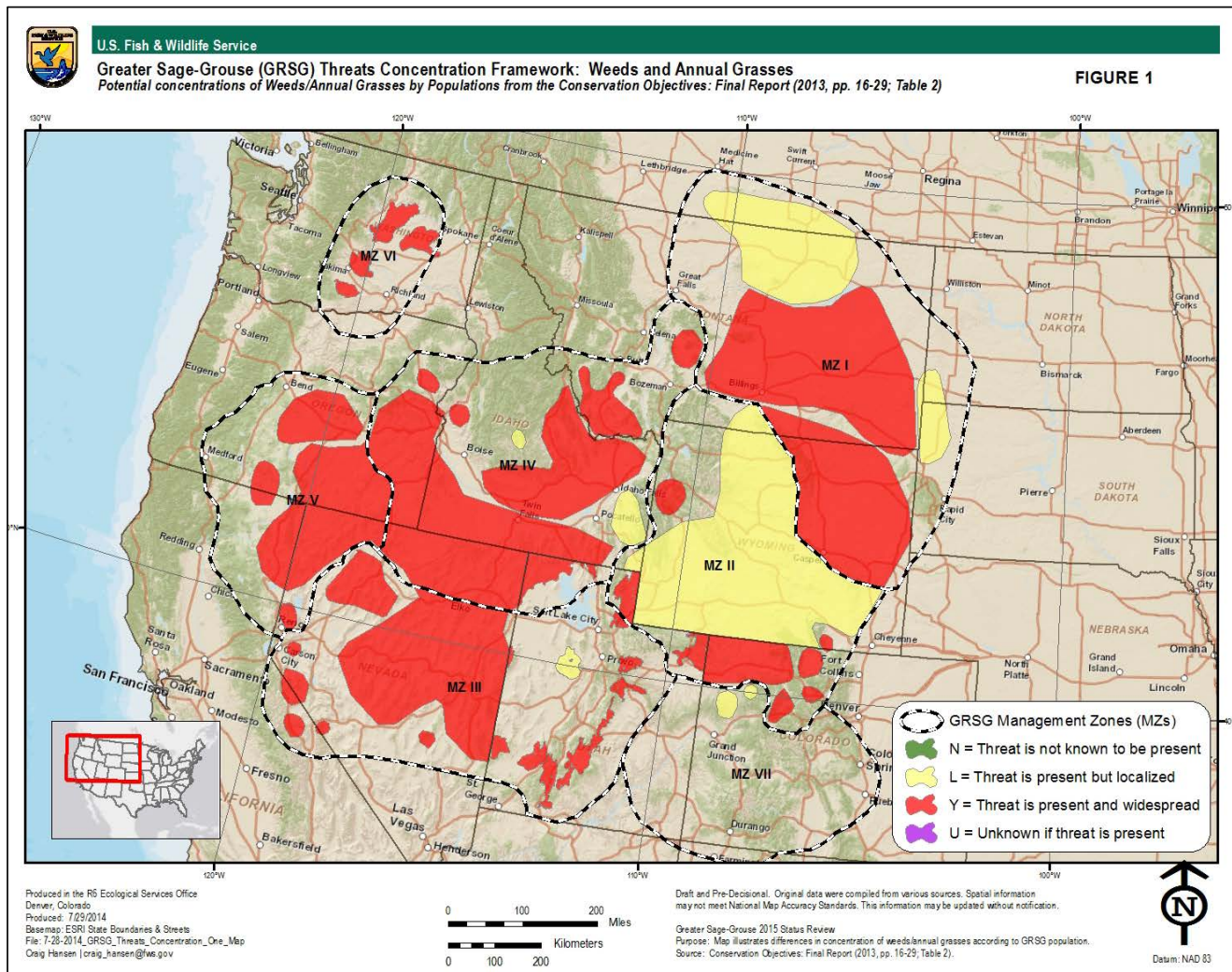


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## References Cited:

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/>.