

**November 20, 2014**

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**USGS FAQs for Open-File Report: Conservation Buffer Distance Estimates for Greater Sage-Grouse**

**Q: What is this report about and who requested it?**

**A:** This peer-reviewed report compiles and evaluates a vast body of scientific literature on the influence of human activity on greater sage-grouse populations. The Interior Department's Bureau of Land Management (BLM) requested this assessment.

**Q: Why was the report requested and what is its purpose?**

**A:** The report was requested because across the range of greater sage-grouse a wide variety of buffer distances have been posed in the literature and by managers as appropriate for providing protections for the species and implementing conservation measures. This report, by providing a common reference for sage-grouse buffer distances, can help DOI and others make informed land-management decisions about buffer distances.

**Q: How many published reports did we review in our scientific literature review?**

**A:** The current citation list includes 61 reports and journal publications, and we reviewed and considered at least twice that many during our evaluation process. It is important to recognize that most detailed, population based research does not encompass the range of the species, and only some of the literature addresses conservation and ecology issues across very broad scales.

**Q: Was their literature published about the categories examined in all the 11 states where greater sage-grouse occur?**

There is not research for each of the evaluated categories specific to each state in the assessment, therefore some extrapolation and interpretation of results was necessary. Sage-grouse behaviors, habitats, and our understanding, vary across its range and while we attempted to capture that in this report, the addition of local knowledge and interpretations are important for management application.

**Q: What are the human activity categories you examined for this report?**

**A:** The report is organized into six sections representing different land uses or human activities typically found in land-use plans:

- generalized surface disturbances and associated activities;
- linear features such as active roads and highways, and pipelines;
- oil, gas, wind and solar energy development;
- tall structures such as electrical, communication and meteorological towers;
- low structures such as fences and buildings;
- and activities that don't involve habitat loss, such as noise and related disruptions.

**Q: How did you develop conservation buffer distances for the six categories listed in the report?**

**A:** The team of USGS scientists who reviewed and synthesized the literature used that body of research information and knowledge of affected areas and distribution of birds around leks to develop possible minimum and maximum estimates for conservation buffer distances.

**Q: What were the main findings of the report?**

**A:** The scientific literature indicates that in some populations 90-95 percent of sage-grouse movements are within 5 miles (8 km) of lek sites, and the majority of females nest within approximately 3.1 miles (5 km) of the lek. This suggests that considerable protection of sage-grouse could be achieved using protective measures within these generalized conservation buffer distances. Designating protective buffers around lek sites offers a consistent and practical solution for identifying and conserving seasonal habitat for sage-grouse.

**Q: How did you calculate the “interpreted ranges” listed in the table? Was a mathematical formula used or are they an average of all the published buffer distances for the respective human activity and land-use categories?**

**A:** There is not a formula, and our interpretation must be considered a combination of *quantitative evidence and scientific interpretation*. Published papers and reports specific to effects of particular land-use features or patterns on sage-grouse directly informed “literature minimum” and “literature maximum” values, but results do not exist to quantify all potential circumstances across the species’ range. The “interpreted ranges” fields combine this information (measured effects areas) with interpretation of habitat use patterns (distinct set of literature) to develop a more specific interpretation of potential effect sizes to focus conservation efforts within regions likely to affect most animals.

**Q: Is the USGS making management recommendations?**

**A:** These are not management recommendations. USGS is a non-regulatory, non-management or policy organization. As such, it offers no recommendations on policy, management, or legislation, and its peer-reviewed science is but one factor that regulatory agencies may consider in their deliberations. Thus, this report, by providing a common reference for sage-grouse buffer distances, is *one* source of sound scientific information that can help DOI and other leaders make informed land management decisions about buffer distances.

**Q: Are there caveats to the conservation buffer distances published and summarized in the report?**

**A:** Yes. It is very important to recognize that other factors must be taken into consideration when setting conservation buffer distances. This is because sage-grouse movement patterns can vary widely between populations and because of differences in sagebrush habitat and habitat condition across the landscape. For example, high or poor quality sagebrush habitat could play an important role on the potential effects of human infrastructure and activities on sage-grouse populations. Conservation activities might

best be focused on intact sagebrush habitats and known seasonal habitats; local understanding should be used to refine these broad estimates for local planning and management.

Another consideration is that there could also be effects in much larger areas because sage-grouse home ranges as large as 100 square miles (3,000 sq km) have been documented in some portions of the species' range. These larger distance effects suggest that for some populations, the minimum distance inferred in our report (5km, 3.1mi) may be insufficient to protect nesting and other seasonal habitats.

**Q: How does the USGS ensure scientific objectivity?**

**A:** The USGS is committed to providing unbiased, objective scientific information upon which other entities may base judgments. USGS scientific information is subject to a high degree of transparency about data and methods to facilitate the reproducibility of such information by other qualified scientists. To ensure objectivity, independent scientific review is required of every USGS publication. Peer reviewers are selected from experts with no organizational or close professional ties to the authors. Standards require a minimum of two reviews, after which the USGS authors must provide a detailed response to each review that explicitly states how each comment on the document was addressed. Adequacy of the authors' responses to reviews is assessed by both research managers and independent scientists within the USGS.