

## EXHIBIT A

### Data Quality Act Issues with Key Documents Behind Management Prescriptions in the LUPAs

#### I. Data Quality Act (DQA) Issues with the Reports

The Trades have a direct interest in the quality and integrity of agency science and decision making to ensure effective conservation. BLM's National Technical Team Report (NTT Report), the U.S. Fish and Wildlife Service's (FWS) Conservation Objectives Team Report (COT Report), and the U.S. Geological Survey (USGS) Monograph and Buffers Report (collectively the Reports) if uncorrected, will cause substantial actual harm by implementing unduly restrictive regulatory measures upon millions of acres of public lands based upon irreproducible, biased and speculative information.

The Reports violate the Data Quality Act in implementing Guidelines. The Reports are not presented in an accurate, reliable or unbiased manner. These errors are improperly influencing BLM and USFS decision-making about management of the public lands.

The Reports advance a one-sided narrative that is simply not supported by the full body of scientific literature. The agencies are relying on an insular group of scientist-advocates who deviate from providing credible, accurate scientific data to advance policies that they personally support.<sup>1</sup> This small group of scientists have interlocking relationships as authors of the Reports, authors of the studies used in the Reports, peer reviewers, and policy advocates. Their conflicts of interest include receiving multi-millions of dollars from the agencies while supposedly developing independent studies. When faced with conflicting science, these scientists simply ignore studies that don't fit their view. The Trades have extensively documented the vast body of scientific literature ignored in the Reports. More diverse expertise and viewpoints are clearly needed for these highly influential documents that will have far-reaching and long-lasting negative impacts to western economies and livelihoods.

The DQA requires federal agencies to ensure and maximize the quality, objectivity, utility, and integrity of information disseminated. The Reports were developed with unsound research methods resulting in a partial and biased presentation of information, and peer reviewers have found them to be inaccurate, unreliable, and one-sided. They contain substantial technical errors, including misleading use of authority and fail to address studies that do not support a federal, one-size-fits all narrative.

As a result, the Reports impetuously reach conjectural conclusions that are not scientifically supported, especially the frequently repeated but flawed assumption that a temporary decrease in lek counts equates to a population decline. Driven by policy considerations rather than defensible biological criteria, the Reports do not address specific cause and effect threats to the Greater Sage-Grouse (GRSG). Rather, they selectively present biased information while ignoring contrary information and the scientific method.

The Reports fundamentally and erroneously ignore accurate population data and adopt flawed modeling approaches that have consistently failed to accurately predict populations. This

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<sup>1</sup> A recent example is a letter advocating policies that are "supported" by their own work but refuted by many other scientists. See letter from Baker et al. to Secretary of the Interior Sally Jewell and Secretary of Agriculture Tom Vilsack dated March 11, 2015.

selective use of science creates a narrative that assumes GRSG populations are in decline despite contrary evidence. The Reports ignore natural population fluctuations, blame human activities such as energy development, mining and ranching for alleged declines, ignore actual threats to GRSG such as predation, and then seek to impose unfounded regulatory restrictions on human activities.

The errors contained in the Reports are improperly influencing agency decision-making. The management restrictions, regulatory measures, and closures recommended in the Reports will negatively impact the economy and future viability of countless communities, local governments, small businesses, and family farms and ranches as well as efforts to conserve GRSG. Reliance on this narrow-minded and faulty information has and will continue to harm Petitioners and their members. In addition, the public, GRSG and western economies will be negatively impacted by these errors.

#### **A. The Reports are Not Based on the Best Available Science**

The Reports failed to meet DQA standards for the best available data. Agencies are directed<sup>2</sup> to adopt congressional standards of scientific integrity stemming from the Safe Drinking Water Act (SDWA),<sup>3</sup> for agency action based on science. The SDWA standards must entail:

- (i) the best available, peer-reviewed science and supporting studies conducted in accordance with sound and objective scientific practices; and (ii) data collected by accepted methods or best available methods (if the reliability of the method and the nature of the decision justifies use of the data).<sup>4</sup>

The Reports and studies cited therein fail to meet the best available science standards discussed in detail herein. Significant uncertainties are ignored and conjecture and opinion are presented as facts. Generally, the Reports are speculative in terms of effectiveness, based on subjective interpretation of results, selective citation of information, contains misuse of citations, relies on opinion rather than the scientific method, lacks peer review and reproducibility, and does not address the primary cause and effect mechanisms limiting GRSG, and will likely do nothing for the GRSG by promoting passive rather than active management.

Executive Order 13562 also requires that regulations “must be based on the best available science” and that costs of regulation are clearly justified by the benefits.<sup>5</sup> Further, “[i]t is also the policy of the United States that necessary and appropriate environmental regulations comply with the law, are of greater benefit than cost, when permissible, achieve environmental improvements for the American people, and are developed through transparent processes that employ the best available peer-reviewed science and economics.”<sup>6</sup> In this case, USGS cannot possibly justify the alleged benefits of the buffer range recommended in the Buffer Report against the dramatic societal costs they would entail. USGS is directed to select approaches that impose the least

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<sup>2</sup> OMB Guidelines V3.b.ii.B.ii.C.

<sup>3</sup> 42 U.S.C. § 300g-1(b)(3)(A).

<sup>4</sup> Available at: [http://www.whitehouse.gov/omb/fedreg\\_reproducible](http://www.whitehouse.gov/omb/fedreg_reproducible).

<sup>5</sup> Federal Register, Vol. 76, No. 14 (January 21, 2011) at 3821. Executive Order 13563: Improving Regulation and Regulatory Review, <http://www.gpo.gov/fdsys/pkg/FR-2011-01-21/pdf/2011-1385.pdf>.

<sup>6</sup> Federal Register, Vol. 82, No. 61 (Mar. 31, 2017) at 16,093. Executive Order 13783: Promoting Energy Independence and Economic Growth, <https://www.federalregister.gov/documents/2017/03/31/2017-06576/promoting-energy-independence-and-economic-growth>.

burden on society and to identify alternatives to direct regulation. Here, USGS did not even attempt to do so.

From 2003 to 2015, the USFS received 20 Requests for either Correction or Reconsideration of Forest Service Decisions.<sup>7</sup> Through online research and by inference, the BLM received approximately 11 such requests between 2004 and 2016.<sup>8</sup> It appears that the USFS and the BLM rarely grant even the simplest requests or make a good faith effort to address requests made under the DQA.<sup>9</sup> The DQA directs agencies to ensure that, among other things, they disseminate information that will be shared and accessible.<sup>10</sup> Further, the DQA requires agencies to establish administrative mechanisms to allow affected persons to make requests such as this, and to enable OMB to track the complaints received by each covered agency and how such complaints were handled by the agency.<sup>11</sup>

There is little confidence in the “quality, objectivity, utility, and integrity of information disseminated by Federal agencies,”<sup>12</sup> such as the Reports here. In an affront to the DQA, regarding requests for correction or reconsideration since 2016, neither the USFS nor the BLM has updated the information that it supposed to make accessible to the public. To make matters worse, the publicly available information is poorly organized and difficult to navigate.<sup>13</sup> The USFS has not updated its instructions concerning peer review since 2013<sup>14</sup>, presenting the question whether the federal government - and the USFS and BLM specifically – consider compliance with the DQA as among their responsibilities.

Unfortunately, the Reports do not qualify as a comprehensive review of all of the available scientific literature about conservation of the species. Instead, they provide a limited and selective review of the scientific literature and subjective post-hoc interpretations of analytical results. No hypothesis testing occurred. As a result, outdated information and beliefs are perpetuated in the Reports, and all resulting agency reliance thereon by USFS is in violation of the DQA, the Guidelines, and this presidential direction to the agencies.

## **B. State, Local and Private Conservation Efforts are Ignored**

The Reports fail to recognize that states have undertaken significant efforts to conserve GRSG. Rather, the agencies should incorporate and adopt state GRSG conservation plans and local and private conservation efforts as the primary means by which to address threats to GRSG. As Utah Governor Gary Herbert pointed out, state plans that better balance future economic activities with robust protections for GRSG were developed using a bottom-up process with input from diverse stakeholders, rather than the top-down approach taken by the federal agencies.

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<sup>7</sup> USFS, Quality of Information, <https://www.fs.fed.us/qoi/disclosure.shtml> (last visited Dec. 11, 2018).

<sup>8</sup> BLM, Data Quality Guidelines/Bulletin for Peer Review, <https://www.blm.gov/about/data/data-quality> (last visited Dec. 11, 2018).

<sup>9</sup> For example, the USFS mentioned that would eventually update a trail map in the Carson National Forest to correct inaccurate information, but gave no timeframe for the publication of a correction. *See* Letter from Diana Apple, Director, Knowledge Management and Communications, USFS, to Andriy Zhugayevych (Mar. 3, 2015), *available at* <https://www.fs.fed.us/qoi/documents/2015/carson-national-forest/acknowledgement-response.pdf>

<sup>10</sup> Consolidated Appropriations Act of 2001, Pub. L. No. 106-554, 114 Stat. 2763 (2000).

<sup>11</sup> *Id.*

<sup>12</sup> *See id.*

<sup>13</sup> It is difficult to tell if the OMB is actually tracking the complaints received by each agency and how each agency handles such complaints.

<sup>14</sup> *Infra* not 47.

Contrary to some assertions, federal regulation of private land is not conducive to continued conservation. Rather, it has a significant chilling effect on local, state and private conservation efforts. For example the Natural Resources Conservation Service (NRCS) found that private conservation efforts declined significantly when the FWS proposed listing the bi-state population of GRSG.

Furthermore, the Reports regard voluntary conservation efforts on private land as inferior to federal land acquisition and management. This view is contrary to the “new paradigm” of cooperative conservation. There are numerous published papers on the success of private land conservation versus a federal “command and control” approach.

### **C. GRSG Populations Naturally Fluctuate**

The Reports fails to recognize that populations of any given species naturally fluctuate. The amount and timing of spring and summer rainfall affects annual plant production and influences population dynamics of GRSG causing short term fluctuations (*i.e.*, < 10 years) in GRSG abundance.<sup>15</sup> The effects of both annual and long-term fluctuations in weather patterns on the nest success and survival of GRSG have been well documented.

### **D. Predation and Predator Control were Not Addressed**

The Reports ignore substantive threats to GRSG in favor of pre-conceived notions of human impacts. Predation is the most common cause of direct mortalities of the GRSG. The common raven is the most abundant and greatest threat to survivorship of the GRSG. Raven populations have increased an estimated 300% in the past 27 years in the United States (Sauer, *et al.* 2008) with reports of 1,500% increases within a 25-year period in some areas of the West.<sup>16</sup> Management of some predator populations, especially ravens, are needed to ensure that GRSG populations are not depressed. USDA APHIS has observed that GRSG nest success near these raven removal activities were significantly greater (73.6%) than the mean nest success (42.6%) based on 14 studies from 1941 to 1997.<sup>17</sup>

The Reports ignored the body of literature relevant to raven predation on GRSG, including its deleterious effect on survivorship and recruitment, and most importantly, the integrated management strategies that can reduce losses of GRSG. The Reports did not mention predator management that could benefit GRSG within high risk areas. The Reports instead viewed predation as a byproduct of human activities that could be regulated (*i.e.*, land health assessments and emphasizing vegetation cover as a means to measure and mitigate livestock use or increasing landscape level habitat connectivity).

### **E. Hunter Harvest was Not Considered**

The Reports gave insufficient attention to hunting as a threat to GRSG. For example, some 207,430 GRSG were harvested during hunting seasons between 2001 and 2007.<sup>18</sup> As a

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<sup>15</sup> Eustace 2002.

<sup>16</sup> Boarman 1993.

<sup>17</sup> Schroader et al. 1999.

<sup>18</sup> Kerry P. Reese and John W. Connelly, *Harvest Management for Greater Sage-Grouse: A Changing Paradigm for Game Bird Management*, in *Greater Sage-Grouse Ecology and Conservation of a*

result, past and potentially ongoing hunting is likely a contributor to declines in GRSG populations or avoidance of human activities in GRSG populations. This number, however, does not account for unrecovered wounded birds which can increase mortality rates as much as 50%. Mortality from hunting and predation could be as high as 10% of the population annually.

#### **F. The Importance of Livestock Grazing**

The Reports fail to recognize the best available science on grazing. Instead of focusing on the negative impacts of historic grazing (some citations are decades old), the agencies should evaluate modern grazing management. A 1990 BLM report shows that good condition rangeland increased by 100% and poor condition rangeland decreased by 50% between 1936 and 1989. In the years since, there has been extensive progress in the implementation of proper grazing management on federal, state and private lands. Without grazing, GRSG habitat would suffer greatly in the West and many contributions of grazing and ranching would be lost. The Reports largely ignore or understate these benefits.

#### **G. The Reports Misrepresent Impacts from Oil and Natural Gas Operations**

The Reports present a biased view of oil and natural gas operations by conveying that *“impacts are universally negative and typically severe.”* They selectively present information in support of that preconceived conclusion, while ignoring contrary information. Key assertions in the Reports are both biased and in error, especially the frequently repeated, but erroneous assumption, that a temporary decrease in lek counts immediately adjacent to active wells is equivalent to a population decline.

Recommendations rely on older research in areas like the Jonah gas field in Wyoming which was developed before current improved technologies. Technical innovations such as horizontal drilling combined with sophisticated mitigation and reclamation are dramatically reducing impacts to habitat. The Reports fail to represent the current reality of oil and natural gas development.

#### **H. The Reports Do Not Comply with Applicable Federal Standards**

In contravention to this presidential direction, the Reports present a distorted and one-sided view of threats to the GRSG and mechanisms proposed to protect them. They are riddled with misrepresentation, misuse of citations, and reliance on opinion rather than the scientific method.

The Reports also run afoul of Department of Interior (DOI) direction on scientific integrity. The DOI Manual that implemented secretarial order: Integrity of Scientific and Scholarly Activities (effective Jan. 28, 2011) defines “scientific and scholarly integrity” to mean, “[t]he condition resulting from adherence to professional values and practices, when conducting and applying the results of science and scholarship, that ensures objectively, clarity, reproducibility, and utility.”<sup>19</sup> On December 16, 2014, DOI updated and strengthened the policy to “ensure that all Interior employees and contractors uphold the principles of scientific

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Landscape Species and its Habitats. Studies in Avian Biology (vol. 38) Table 7.3 p. 106 (Steven T. Knick and John W. Connelly eds., 2011).

<sup>19</sup> DOI Manual, Available at: <http://elips.doi.gov/elips/browse.aspx>.

integrity.”<sup>20</sup> The BLM defines integrity as “the protection of information from unauthorized access or revision, to ensure that the information is not compromised through corruption or falsification.”<sup>21</sup>

The agencies also failed to meet the charge in OMB Circular A-130, “[A]gencies should inform the public as to the limitations inherent in the information dissemination product (e.g., possibility of errors, degree of reliability, and validity) so that users are fully aware of the quality and integrity of the information.”<sup>22</sup> The Reports clearly glossed over limitations and errors inherent in the report and the studies cited therein.

## **I. The Format of the Data Quality Act Challenges**

The elements of each of these DQA Challenges are as follows:

- The DQA Challenges specify how each Report fails to meet required standards for scientific integrity and transparency.
- Exhibit A to the Challenges detailed scientific flaws with each Report.
- Exhibit B critiqued the studies relied on in each Report as well as inappropriate and selective use of citations.
- Exhibit C to the Challenges included a comprehensive review of the scientific literature on GRSG that includes studies ignored by or published subsequent to the reports that need to be considered by the agencies before making policy decisions.
- The final Exhibit for all three Reports is a critique detailing significant issues and errors with one of the most influential papers cited in the Reports, Garton, *et al.* 2011.

## **J. Data Quality Issues Specific to the USGS Monograph**

The USGS Monograph is a highly influential report prepared by the Cooper Ornithological Society<sup>23</sup> and used extensively in the 2010 GRSG listing decision. The FWS cited four of the most influential chapters of the Monograph with no fewer than 174 times in that decision.<sup>24</sup> While the Monograph was purposed to “produce new scientific information about

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<sup>20</sup> U.S. Department of the Interior, *Press Release: Interior Department Announces Strengthened Scientific Integrity Policy for Employees and Contractors*, <http://www.doi.gov/news/pressreleases/interior-department-announces-strengthened-scientific-integrity-policy-for-employees-and-contractors.cfm>.

<sup>21</sup> BLM, *Information Quality Guidelines: Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Bureau of Land Management* (Apr. 2, 2018) at 7, <https://www.blm.gov/documents/national-office/public-room/guidebook/blm-information-quality-guidelines>.

<sup>22</sup> OMB, *Memorandum for Heads of Executive Departments and Establishments* (Circular No. A-130) [http://www.whitehouse.gov/omb/circulars\\_a130](http://www.whitehouse.gov/omb/circulars_a130) (Feb. 8, 1996).

<sup>23</sup> USGS, *Ecology and Conservation of Greater Sage-Grouse: a Landscape Species and Its Habitats*, A Release of a Scientific Monograph with Permission of the Authors, the Cooper Ornithological Society, and the University of California Press, (<http://web.archive.org/web/20100527124712/http://sagemap.wr.usgs.gov/monograph.aspx>

<sup>24</sup> Center for Environmental Science, *Accuracy & Reliability, Science or Advocacy? Ecology and Conservation of Greater Sage-Grouse: a Landscape Species and its Habitats: An Analysis of the Four Most Influential Chapters of the Monograph*, <https://www.hightail.com/download/UW14OU1VMVh0TWxYd3NUQw> (Feb. 1, 2012) (hereinafter “CESAR”) at 7.

GRSG populations, sagebrush habitats, and relationships among GRSG, sagebrush habitats, and land use,”<sup>25</sup> it lacks the scientific quality, integrity, objectivity and utility required by the DQA.

The Monograph suffers from fatal flaws, including: 1) significant mischaracterization of previous research; 2) substantial errors and omissions; 3) lack of independence in authorship and peer review; 4) methodological bias; and 5) lack of reproducibility. Many of the aforementioned flaws are directly attributable to: the editors reviewing their own work, peer review comments were ignored, the relied upon data was not made public, and subjective interpretations were employed over objective hypothesis testing.

OMB Guidelines provide a higher standard than even peer review applies to influential information, namely a “substantial reproducibility standard.”<sup>26</sup> The Monograph fails to meet the substantially reproducible standard required as underlying data was not publicly available. Monograph authors each reached different conclusions on which data to include or exclude from the final data set, because of how the lek data was interpreted (*i.e.* definition of a lek) and reliability of the observations.<sup>27</sup> This makes it impossible to provide scientific verification of the Monograph’s claims.

The Monograph is also rife with conflicts. In many cases, the Monograph editors (Knick and Connelly) appear to have reviewed, edited and approved their own work for publication. For example, Knick (USGS) authored (or co-authored) nine (9) of the Monograph’s 25 chapters. Connelly (Idaho Game and Fish) authored or co-authored seven (7) chapters.

The Monograph was compiled of only a limited variety of sources and without adherence to established peer-review standards.<sup>28</sup> Peer review of the Monograph was not subject to any public scrutiny whatsoever contrary to OMB Peer Review requirements.<sup>29</sup> Research designs were chosen to yield desired outcomes rather than objectively test alternative hypotheses, and research designs ranged from the use of invalid assumptions to arbitrary thresholds for describing population connectivity (*i.e.*, Knick and Hanser), using smoothing to search for patterns in the data that do not have any statistical significance (*i.e.*, Johnson *et al.*) to using equations that are in error and population persistence thresholds that have been discredited (*i.e.*, Garton, *et al.*). The data critical to the analyses, particularly lek count and location data used in Knick and Hanser, Garton, *et al.*, and Johnson, *et al.*, relied upon simulations. Data points excluded from analyses were not available to the public. Further, there is no evidence that any of the raw or final data sets were provided to the peer reviewers.

Here, a small number of GRSG specialist-advocates have had a disproportionate influence on formulating federal policy including their overlapping participation in preparation of the Monograph. More diverse expertise and viewpoints are clearly needed. Other issues included

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<sup>25</sup> USGS, Ecology and Conservation of Greater Sage-Grouse: a Landscape Species and Its Habitats, A Release of a Scientific Monograph with Permission of the Authors, the Cooper Ornithological Society, and the University of California Press, (<http://web.archive.org/web/20100527124712/http://sagemap.wr.usgs.gov/monograph.aspx>)

<sup>26</sup> 67 Fed. Reg. 8452, 8457 (Feb. 22, 2002).

<sup>27</sup> (Each group employed different methods, including undocumented and subjective methods, for defining what constituted a “lek” and including/excluding lek counts obtained from them).

<sup>28</sup> Elsevier, Journal of Molecular Biology: Guide for Authors, <http://www.elsevier.com/journals/journal-of-molecular-biology/0022-2836/guide-for-authors>

<sup>29</sup> USGS Manual 502.3.4.E (emphasis added).

authorship shared with peer reviewers listed in acknowledgements, authorship shared with Monograph editors, grant support from the FWS and USGS, significant financial support for GRSG research (Drs. Holloran and Reese listed millions in federal support),<sup>30</sup> and authorship with other influential GRSG authors. This interplay amongst close peers on the Monograph and the NTT and COT Reports cannot be understated.<sup>31</sup>

The Monograph exhibits serious prejudice against oil and gas development. USGS describes energy development as one of the greatest threats to GRSG. As one example, Garton, *et al.* 2011 and Knick and Hanser 2011 (Knick and Hanser were cited eight times in the COT Report, six times in the NTT Report, and 38 times in the 2010 GRSG listing decision) claim populations in the Colorado Plateau have a 96% chance of declining below 200 males by 2037 due primarily to threats from oil and gas (referred to as "energy development" in the papers). Such assertions are unfounded given the status of GRSG populations today. While surface disturbance from oil and gas had local negative effects on male sage grouse lek attendance, it did not result in significant effects at a population level.<sup>32</sup> Data shows GRSG population increased despite intensive energy development that has occurred in Jonah, Labarge, and Pinedale Anticline within four miles of active leks.<sup>33</sup> In Pinedale, the Pacific Decadal Oscillation (PDO) a climate index derived from sea surface temperatures in the North Pacific accounted for 78% of population variations and 67% in Wyoming GRSG working groups.<sup>34</sup>

Frequently cited studies in the Monograph regarding energy infrastructure and disturbance on GRSG are outdated. Kirol *et al.* 2014, Ramey, Brown and Blackgoat 2011, and Applegate and Owens 2014, have demonstrated technological advances such as directional drilling, hydraulic fracturing, and mitigative methodologies help to minimize impacts to GRSG. In addition, many of the studies cited within the Monograph were conducted in heavily developed energy fields which did not utilize today's technology.

The Monograph also failed to consider myriad conservation measures. A study prepared by SWCA Environmental Consultants found that most major oil and natural gas companies have more stringent standards in place than the agencies acknowledge. From just a sample of 103 NEPA documents for oil and natural gas projects, the study found that companies have implemented 773 conservation measures (an average of 6.5 conservation measures to protect GRSG per project) in the NEPA decision records.<sup>35</sup> These commitments are enforced through regulatory mechanisms: Conditions of Approval (COAs) on Applications for Permit to Drill (APDs).

Implemented measures for the GRSG include monitoring existing populations, restricting human activities to protect leks, interim and final reclamation, noxious weed control, dust suppression through application of water or chemical suppressant to roadways, seeding of all disturbed areas that are not used during the well production phase, NSO buffers to protect

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<sup>30</sup> Reese listed over \$6.3 million in funding and in-kind contributions, but failed to account for precisely how much can be attributable to sage-grouse.

<sup>31</sup> These issues are illustrative. However, it should be noted Petitioners and the public do not have access to the reviewers or the reviewer comments on the Monograph.

<sup>32</sup> Ramey, Thorley and Ivey 2014.

<sup>33</sup> Ramey, Thurley and Ivey 2014; *See also* Wyoming Game and Fish Department, *Wyoming Sage-Grouse Population Lek Count Data* (2013); Wyoming Oil and Gas Conservation Commission *Well Data*; Disturbance Data from PAPO, JDMIS, and PDMIS databases.

<sup>34</sup> Ramey, Thorley and Ivey 2014.

<sup>35</sup> *See Id.* at page 5; *see also* List of NEPA Documents Reviewed beginning at page 35.



wetlands, and general noise abatement.<sup>36</sup> Companies have performance standards in place to proactively reduce threats to the GRSG.<sup>37</sup> Additionally, the oil and natural gas industry has made concerted efforts to reduce human-subsidized GRSG predators, and access to wastewater pits to prevent GRSG oiling and drowning.<sup>38</sup>

### **K. Data Quality Issues Specific to BLM's NTT Report**

The BLM "*Report on National Greater Sage-Grouse Conservation Measures*" (NTT Report) failed to follow basic scientific and peer-review standards. A small number of GRSG specialist-advocates, rather than a broad cross-section of scientific researchers, had a disproportionate influence on formulating federal policy through the NTT Report. The failure to follow basic scientific methods combined with serious conflicts of interest, render the NTT Report a biased assessment. The NTT Report offers a predetermined narrative that simply ignores a vast body of contrary evidence.

The peer review process was neither scientific nor objective. Even then, some of the reviewers expressed real concerns with the NTT Report, summed up by one who complains that "...the approach taken in the document is rather short-term and narrow, and it seems to miss the opportunity to take a more holistic and long-term view of sage-grouse management."<sup>39</sup> Yet another reviewer remarked, "[t]he document suffers from a 1-size fits all approach that lacks context." Indeed, the NTT Report is being used to impose a uniform federal approach that ignores more effective state and local efforts to protect GRSG.

The NTT Report fundamentally and erroneously ignores accurate population data and adopts flawed modeling approaches that have consistently failed to accurately predict populations. This selective use of science creates a narrative that assumes GRSG populations are in decline despite contrary evidence. The NTT Report ignores natural population fluctuations, blames human activities such as energy development and ranching for alleged declines, ignores actual threats to GRSG such as predation, and then seeks to impose unfounded regulatory restrictions on human activities.

Through the NTT Report, BLM proposes proscriptive management regimes including:

- Four-mile No Surface Occupancy (NSO) of active leks.
- 3% limit on surface disturbance.
- 50-70% sagebrush cover threshold.
- Right-of-Way (ROW) exclusion and avoidance areas.
- One disturbance per 640 acres.

In addition, BLM proposes arbitrary conservation measures based on unproven assumptions that:

- A minimum range of 70% of the acreage in sagebrush cover is required for long-term persistence of GRSG;

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<sup>36</sup> *Id.* at page 7-8.

<sup>37</sup> *Id.* at page 23.

<sup>38</sup> *Id.* at page 18; *see also* 139 (Exxon Mobile: "It will be the responsibility of the operator to effectively preclude migratory bird access to, or contact with, reserve pit contents that possess detrimental properties (i.e., through ingestion or exposure) or have potential to compromise the water-repellent properties of birds' plumage").

- 15-25% minimum canopy cover is necessary in all GRSG seasonal habitats;
- A temporary decrease in local lek attendance equates to a population decline.

These arbitrary measures conflict with a large body of scientific literature detailed in the DQA Challenge to the NTT Report.

The NTT presents a one-sided view of oil and natural gas operations by conveying that *“impacts are universally negative and typically severe.”* The NTT Report selectively presents information in support of that preconceived conclusion, while ignoring contrary information. Key assertions in the NTT report are both biased and in error, especially the frequently repeated, but erroneous assumption, that a temporary decrease in lek counts immediately adjacent to active wells is equivalent to a population decline.

Recommendations rely on older research in areas like the Jonah gas field in Wyoming which was developed before current improved technologies. For example, horizontal drilling combined with sophisticated mitigation and reclamation are dramatically reducing impacts to habitat. The NTT Report fails to represent the current reality of oil and natural gas development such as directional drilling and hydraulic fracturing.

The NTT Report regards voluntary conservation efforts on private land as inferior to federal land acquisition and management. This view is contrary to the “new paradigm” of cooperative conservation. There are numerous published papers on the success of private land conservation versus a federal “command and control” approach.

#### **L. Data Quality Act Issues Specific to the COT Report**

The COT Report is a highly influential document prepared to develop range-wide conservation objectives for GRSG and to inform the U.S. Fish and Wildlife Service’s listing decision. The COT Report was developed with unsound research methods resulting in a partial and biased presentation of information. It contains substantial technical errors, including misleading use of authority and failure to address studies that do not support its narrative. As a result, it impetuously reaches conjectural conclusions that are not scientifically supported, especially the frequently repeated but flawed assumption that a temporary decrease in lek counts equates to a population decline.

The COT Report, and many of the most influential studies and models it relies upon, are neither transparent nor reproducible. It relies extensively upon models to evaluate the alleged human footprint on sagebrush habitat and GRSG population responses. The underlying data used in many of the models have not been fully released nor provided to peer reviewers for independent analysis.

Driven by policy considerations rather than defensible biological criteria, the COT Report does not address specific cause and effect threats to GRSG. Rather, it presents biased and erroneous information and then selectively presents information in support of its conclusions while ignoring contrary information.

With no credible scientific support or citation, the COT Report blindly states that oil and natural gas development results in GRSG population declines. Data actually shows GRSG populations have increased in energy intensive areas in Jonah, Labarge, and the Pinedale Anticline within four miles of active leks.

Other problems with the COT Report include noise objectives that are neither reasonable nor based on the best science available, lack of evidence of the purported population declines and genetic isolation that FWS contends, and fails to acknowledge that the size of the GRSG population sufficiently negates threats.

There were extensive conflicts of interest between authors and reviewers of the COT Report, with substantial grants awarded by FWS to lead authors whom then also served on the COT development and/or review teams. These issues are in direct conflict the standards of scientific integrity and peer review required by this administration, the DQA, and the National Academy of Science.

Notwithstanding the above, "...the majority of the reviewers found that the [COT] report fell short of meeting its stated goals in several important areas, and they identified opportunities to better achieve those goals and improve its utility for decision making..."<sup>40</sup> It should also be noted that Exhibit D to the COT Report Challenges detail significant issues and errors with one of the most influential papers cited in the COT Report, Garton, *et al.* 2011.

### **M. Data Quality Act Issues Specific to the Buffers Report**

The November 21, 2014, United States Geological Survey ("USGS") "Conservation Buffer Distance Estimates for Greater Sage-Grouse—A Review"<sup>41</sup> (the "Buffer Report") compiles and summarizes various GRSG related studies evaluating the impacts of six types of disturbances to its habitat, including cumulative surface disturbance, linear features, energy development, tall structures, low structures, and activities without habitat loss (noise). A number of serious flaws exist with the Buffer Report that, if implemented, will have enormous social and economic consequences without commensurate benefits to GRSG populations and habitat.

#### **1. Buffers Do Not Work**

For conservation actions to be effective for GRSG, prescriptive buffers are not the answer. Instead, threats must be distilled into their basic cause and effect mechanisms and then addressed through specific measures (Ramey, *et al.* 2011). The studies contained in the Buffer Report did not test buffers. Rather they documented use by male GRSG at 8 km (5 mi), or distance from lek to nesting habitat 5 km (3.1 mi). There is no evidence that this range of buffer distances will result in quantifiable population level benefits to GRSG. As with all buffer distances, they are based on the frequently repeated and erroneous assumption that avoidance or decline in male lek attendance equates to population declines. Moreover, the authors failed to consider that regional climate and weather variation is the primary driver leading to population changes rather than human disturbance (*see* Blomberg, *et al.* 2012, and Guttery, *et al.* 2013).

The Buffer Report: (1) was developed with unsound research methods including failure to disclose how the "interpreted range" of buffers was reached, and is therefore not reproducible; (2) ignores scientific studies that do not support its conclusions; (3) reaches conclusions that are pure conjecture; and (4) disseminates information that is neither objective nor reliable and that lacks scientific integrity.

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<sup>40</sup> Scientific Peer Review of the Sage-Grouse Conservation Objectives Draft Report at 3.

<sup>41</sup> Manier, D.J., Bowen, Z.H., Brooks, M.L., Casazza, M.L., Coates, P.S., Deibert, P.A., Hanser, S.E., and Johnson, D.H., 2014, Conservation buffer distance estimates for Greater Sage-Grouse—A review: U.S. Geological Survey Open-File Report 2014-1239, 14 p., <http://dx.doi.org/10.3133/ofr20141239>

There was no hypothesis testing whatsoever. Instead, the authors relied on subjective post-hoc interpretation of results. Three of the key studies used to delineate the minimum and maximum distances (Johnson, *et al.*, Blickley, *et al.*, and Holloran and Anderson 2005) contain serious technical and statistical flaws, and misleading conclusions. Further, research designs were chosen to yield desired outcomes rather than objectively test alternative hypotheses, and research designs ranged from the use of misrepresentation of results (Holloran and Anderson 2005) to using smoothing in order search for patterns in the data that do not have any statistical significance (*i.e.*, Johnson *et al.*), to using inadequate equipment (Blickley, *et al.*).

## **2. The Buffer Report is Not Reproducible**

OMB explained in its February 22, 2002, agency-wide guidelines that the “general standard” for robustness checks is “that the information is capable of being substantially reproduced, subject to an acceptable degree of imprecision.”<sup>42</sup> The more important the information disseminated, the more rigorous the standard.<sup>43</sup> Since the underlying data from which the Buffer Report is based is not disclosed, and the authors of the Buffer Report do not explain how the “interpreted buffer range” was delineated for each of the categories of disturbance, the conclusions in the Buffer Report are not reproducible.

As an example, the data used in Holloran and Anderson 2005 are not public so their results are not reproducible. Additionally, Holloran and Anderson 2005 as well as Holloran 2005, which is referred to for additional detail, did not identify any of the leks by name or identifier that could be used to trace their locations through the State of Wyoming's GRSG database.

## **3. Buffers Report Fails Rigorous Requirements for Peer Review**

Peer review of the Buffer Report was not subject to any public scrutiny whatsoever. DOI Guidelines require not only that information be consistent with the Guidelines, but that the agency maintain an administrative record of review proceedings.<sup>44</sup> The Department of Agriculture requires its agencies to “[r]ecord and maintain, for an appropriate period of time, all experimental results, data, and analytic procedures needed to reproduce the released information” in accordance with the Guidelines and “widely recognized scientific practices.”<sup>45</sup> For influential information, DOI commits to provide “more rigorous review of the conclusions than the review performed by the originating office.”<sup>46</sup> The Department of Agriculture, similarly, requires peer review comments to be publically posted,<sup>47</sup> and influential information be disseminated “with a high degree of transparency” to “ensure reproducibility.”<sup>48</sup> USGS has not issued any such records for the Buffer Report and has certainly provided no evidence of the rigorous review required.<sup>49</sup>

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<sup>42</sup> 67 Fed. Reg. 8452, 8457 (Feb. 22, 2002).

<sup>43</sup> OMB Guidelines V10.

<sup>44</sup> DOI Guidelines II.5.

<sup>45</sup> U.S. Dept. of Ag., Scientific Research, <https://www.ocio.usda.gov/policy-directives-records-forms/guidelines-quality-information/scientific-research>.

<sup>46</sup> *Id.*

<sup>47</sup> U.S. Dept. of Ag., Information Quality Bulletin for Peer Review FY 13 Annual Report, <https://www.ocio.usda.gov/document/usda-2013-information-quality-bulletin-peer-review-annual-report>.

<sup>48</sup> *Supra* note 37.

<sup>49</sup> *See*, USGS Peer Review Agenda, available at: [www.usgs.gov/peer\\_review](http://www.usgs.gov/peer_review) (last visited August 27, 2015).

Government-wide guidance to peer review of government science is established in the “*Final Information Quality Bulletin for Peer Review*” issued by the Office of Management and Budget (“OMB”) of the Executive Office of the President (the “OMB Peer Review Bulletin”).<sup>50</sup> The OMB Peer Review Bulletin provides detailed guidelines for peer review of influential scientific information and applies more stringent peer review requirements to highly influential scientific assessments. It includes guidance on what information is subject to peer review, the selection of appropriate peer reviewers, and opportunities for public participation and related issues. Such is clearly applicable to the Buffer Report. In violation of the DQA, the OMB Peer Review Bulletin, the Guidelines and the USGS Manual, we find no reference to the Buffer Report or to USGS papers relied upon within the Buffer Report on the USGS Peer Review Agenda.<sup>51</sup>

Table 1 lists the minimum and maximum distances where observed effects to GRSG were reported in the literature, along with the authors’ interpreted range of possible buffer distances “based on multiple sources” (*see* Buffer Report at 14). However, the interpreted buffer distances in Table 1 are not cited nor is the methodology described on how these distances were reached--leaving the reader to guess how the rest of the distances were “interpreted.” A lack of a clearly defined, repeatable methodology for interpreting buffer distances is a major failing of the Buffer Report.

Regardless of how the authors of the Buffer Report reached their “interpreted range,” as with all buffer distances, they are based on the frequently repeated and erroneous assumption that avoidance or decline in male lek attendance equates to population decline.

#### **4. The Buffer Report Perpetuates Subjective Interpretation of Results**

The studies cited in the Buffer Report did not test buffers. Rather they attempted to quantify male GRSG habitat use at 8 km (5 mi), or by the distance from leks to nesting habitat 5 km (3.1 mi). Many of the results reported were not statistically significant but interpreted as if they were. The authors simply stated their opinions about buffer distances, and are cited in subsequent documents as if they were results. There was no evidence that this range of buffer distances would result in any quantifiable population-level benefit to GRSG.

Ironically, the authors recognize that variation in habitat and other factors exist across the range such that a one-size-fits-all buffer is inappropriate (Buffer Report at 1), but the authors then recommend the use of such buffers anyway. This is a major shortfall because buffers, regardless of their size, fail to account for non-uniform habitat conditions such as naturally fragmented habitats. Northwest Colorado and other areas provide many examples where GRSG habitat is naturally fragmented by geological features like cliffs and canyons, and ecological features such as non-habitat areas of large stands of Aspen trees or coniferous dominated ecosystems. In instances like these, a lek may be separated by a 3,000 foot drop in elevation from the potential disturbance but still fall within a buffer.

#### **5. Conclusions are Not Supported**

The underlying studies to the Buffer Report contain methodological and/or statistical flaws, were not reproducible (because the data is not public), were mischaracterized in citations (discussed above), or have limited applicability. For example, with respect to population

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<sup>50</sup> DOI Guidelines II.5.

<sup>51</sup> *Id.*

persistence, the results of Aldridge, *et al.* 2008 are extremely limited and suggest that fringe populations are more at risk of extirpation than core populations. However, the loss of fringe populations has not been shown to have any overall impact on the persistence of GRSG range-wide. Furthermore, more recent genetic research by Bush 2009 demonstrates even fringe populations have been sustaining.

## **6. Flawed Rationale Behind Buffers**

In four of the disturbance categories (cumulative surface disturbance, linear features, energy development, tall structures) the rationale for the "interpreted" range of 5 km (3.1 mi) to 8 km (5 mi) surrounding leks is based on research suggesting most movements occurred within this range. The underlying assumption with using those as buffers is that protecting 90-95% of the birds within this range will result in population-level benefits even though they do not protect against any specific threat. There is no evidence that the range of buffer distances will result in quantifiable population-level benefits to GRSG, nor is there evidence that these buffers will result in detectable benefits like increased survivorship or reproduction to the populations they are applied to. As previously discussed, the need for buffers is based on the frequently repeated and erroneous assumption that avoidance or decline in male lek attendance equates to population decline.

## **7. Fundamental Flaws in Statistical Inference**

The primary studies cited in the Buffer Report have serious statistical issues and/or misleading results. For example, Johnson, *et al.* 2011 is cited in Table 1 for establishing the maximum distance of observed effect for cumulative surface disturbance, linear features, energy development, and tall structures. However, Johnson, *et al.* 2011 utilized extremely weak statistical inference such that its results and recommendations are not statistically reliable. Reliability was further compounded by the fact that 37% of the lek counts used by Johnson, *et al.* 2011 had only four years of data associated with them. Possible conflicts of interest were also noted in the DQA challenges.<sup>52</sup>

In the case of Holloran and Anderson 2005, applying accepted procedure (Bonferroni) would have rendered all of their results non-significant. Nonetheless, the authors also appear to have a preconceived notion that a 5 km buffer surrounding leks is needed to "protect" GRSG nests. However, their study did not quantify any anthropogenic threats or explain why the proposed buffer would protect them. Moreover, according to the authors, the study was carried out in areas "free of large scale habitat conversions" and "areas fragmented by oil and gas development were removed from consideration." If the study purposefully avoided areas with oil and natural gas development, how does it then purport to claim that buffers are necessary?

## **8. The Recommended Buffer Distances are Contrary to DQA**

The authors failed to account for regional climate and weather patterns as the primary factors influencing population level impacts to GRSG. Interestingly, another USGS report authored by Manier describes the influence of climate as an important ecological influence on

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<sup>52</sup> See NTT Report Data Quality Act Challenge, Exhibit B at 13. See also, Monograph DQA Challenge, Exhibit B at 93-95.

GRSG population dynamics.<sup>53</sup> Adding credence to this issue, the Western Association of Fish and Wildlife Agencies reported an astounding 63% increase in male attendance at leks from 2013 to 2015.<sup>54</sup> Notably, these population gains occurred without implementation of buffers recommended in the Buffer Report.

## 9. Linear Features

While the discussion of linear features in the Buffer Report deals primarily with roads, the authors of the Buffer Report concede these issues are far from settled. It is interesting that the authors found it necessary to “explain away” results that undermine the need for buffers, while ignoring the flaws of studies favorable to their views.

Further, the recommended buffer range does not adequately account for factors that might influence GRSG behavior such as class of road, density of roads, volume of traffic, quality of habitat, and environmental factors such as topography. Therefore, any benefit to GRSG is purely speculative. In other words, applying a buffer based on the impacts associated with an interstate highway to a two-track service road would be inappropriate because the impacts of these types of roads on GRSG are different.

## 10. Energy Development

The Buffer Report authors do not establish population level impacts to GRSG from energy development. Naugle, *et al.* 2011 is cited in Table 1 to establish the literary minimum distance at which impacts to GRSG were observed. However, Naugle, *et al.* 2011 only estimated potential direct and indirect impacts to GRSG (*see* Buffer Report at 7). Naugle, *et al.* 2011 is not an impartial review of the literature but rather selective representation of previous research and selective exclusion of others.

While various studies may have documented declines in lek attendance in the presence of energy development (Johnson, *et al.* 2011), avoidance (Blickley, *et al.* 2012), or a negative relationship to well density and certain seasonal habitat selection (Fedy, *et al.* 2014), these behaviors do not necessarily equate to population declines. Rather, there could be evidence of avoidance or displacement, which is not necessarily permanent.

Many of the cited findings describe impacts from intensive energy development and fail to consider other recent publications such as Ramey, Brown and Blackgoat 2011, Kirol, *et al.* 2014,<sup>55</sup> and Applegate and Owens 2014,<sup>56</sup> which demonstrate that with improved technological advances, resource management, and best management practices/enhanced mitigation, GRSG

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<sup>53</sup> See Manier, D.J., Wood, D.J.A., Bowen, Z.H., Donovan, R.M., Holloran, M.J., Juliusson, L.M., Mayne, K.S., OylerMcCance, 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. at 101, 106. Available at: <http://pubs.usgs.gov/of/2013/1098/>

<sup>54</sup> Available at:

<http://www.wafwa.org/Documents%20and%20Settings/37/Site%20Documents/News/Lek%20Trend%20Analysis%20final%208-14-15.pdf>.

<sup>55</sup> Kirol C.P., A.L. Sutphin, L. Bond, M.R. Fuller, T.L. Maechtle. 2015. Mitigation effectiveness for improving nesting success of greater sage-grouse influenced by energy development. *Journal of Wildlife Biology* 21(2):98-109.

<sup>56</sup> Applegate D., N. Owens. 2014. Oil and gas impacts on Wyoming’s sage-grouse: summarizing the past and predicting the foreseeable future. *Human–Wildlife Interactions* 8(2):284–290

have responded positively (including increased nest success) to mitigation and other conservation efforts, without utilizing buffers.

### **11. Tall Structures**

The section on tall structures opens with the disclaimer that the effect of tall structures to GRSG “remains debated” and that determining the effects of tall structures has “remained difficult due to limited research and confounding effects...” (Buffer Report at 8). The discussion on tall structures cites Wallestad and Schladweiler 1974 for the literary minimum distance at which impacts were observed at 1 km (0.6 mi), and is based upon movements of male GRSG in relation to a lek. However, Table 1 cites Howe, *et al.* 2014 as the 1 km literary minimum. These inconsistencies underscore the arbitrary nature of the interpreted distances in the Buffer Report.

### **12. Low Structures**

The discussion on low structures is described in the context of avoidance behavior (Connelly, *et al.* 2004, Rogers 1964), fence collision (Beck, *et al.* 2006, Stevens, *et al.* 2012a,b), and potential risk associated with forage behavior of ravens (Coates, *et al.* 2014a). However, the authors of the Buffer Report appear to be unaware of a 2012 NRCS report, “*Applying the Sage-Grouse CEAP Conservation Insight Fence Collision Risk Tool to Reduce Bird Strikes*”<sup>57</sup> that deals with specific conservation measures that address bird strikes rather than “interpreted” buffer distances that will do nothing to reduce bird strikes.

### **13. Noise Impacts Overrated**

The discussion on activities without habitat loss primarily focuses on the effects of noise on GRSG. The authors of the Buffer Report rely on Blickley, *et al.* 2012 to delineate both the literary and interpreted minimum buffer distance but that study used substandard equipment and procedures. While it is obvious that GRSG can be disturbed by loud distorted noise, Blickley, *et al.* 2012 failed to demonstrate any effect on the population, particularly when the birds returned to use the lek the following year. Again, declines in lek attendance or lek persistence do not equate to a decline in population, but the Buffer Report implicitly assumes that they do.

Walker, *et al.* 2007 modeled GRSG response in lek attendance in terms of distance(s) from potential sources of disturbance but used only nine predictor variables with just nine years of data to compare 19 different models in an attempt to identify and potentially explain patterns in the data. For model selection to work properly, the number of predictor variables must be smaller in comparison to the number of observations, in this case, the number of years of data. Finally, the results of Walker, *et al.* 2007 were obviously confounded by the location of at least nine out of 35 inactive leks immediately adjacent to Highway 14, Highway 16, and Interstate 90.

### **N. Sage Grouse Management Should not be to the Detriment of Multiple Uses**

The Reports, if uncorrected, artificially decrease the relative value of the multiple use concept behind national forests. The Reports paint an inaccurate portrait of the activities that occur in harmony with leks, which amounts to the devaluation of these activities while delivering the impression that the relative value of leks is infinite. Such a relative accounting is not only dishonest and unwarranted, but also runs contrary to the laws that govern management of public lands.

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<sup>57</sup> Available at: [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb1049415.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1049415.pdf).



In short, the USFS may not overly-manage GRSG to the point where it ignores its mandate to encourage multiple uses of forest lands. The Reports, as outlined above, rely on faulty data to reach conclusions that would essentially prohibit the use of forest lands for any purpose other than GRSG protection. Moreover, the Reports' would not lead to a measurable increase in GRSG populations beyond what state and local agencies have been able to accomplish. By treating state and local efforts to manage leks with such scorn and ignoring the USFS's mandate to weigh the multiple uses of forest lands, the Reports miscalculate the immense value that Trades provide the nation. By purposely ignoring the value of the activities that take place in harmony with leks, the Reports neglected to weigh the relative values of legitimate multiple uses of forest lands to the Trades' substantial detriment.

## **O. Conclusion**

For all of the reasons discussed herein, the Reports fail to meet quality, objectivity, utility and integrity standards of the DQA, the Guidelines, and the additional authorities cited herein. The Reports are highly influential as DOI and the USFS propose to rely upon them for substantial land use decisions across nearly 60 million acres of public lands throughout 11 western states.<sup>58</sup> As such, USFS must adhere to the standards of quality, integrity, objectivity and utility under the Data Quality Act as well as administration standards of scientific integrity and transparency. Unfortunately, the Reports fail to meet these requirements.

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<sup>58</sup> Final Environmental Impact Statements were released for California, Colorado, Idaho, Montana, Nevada, North Dakota, Oregon, South Dakota, Utah and Wyoming. Available at: [http://www.blm.gov/wo/st/en/prog/more/sagegrouse/final\\_eiss.html](http://www.blm.gov/wo/st/en/prog/more/sagegrouse/final_eiss.html).