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UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF IDAHO

WESTERN WATERSHEDS PROJECT, WILDEARTH GUARDIANS, CENTER FOR BIOLOGICAL DIVERSITY, and PRAIRIE HILLS AUDUBON SOCIETY,

Plaintiffs,

v.

DAVID BERNHARDT, Secretary of Interior; JOSEPH R. BALASH*, Assistant Secretary of Interior; BUREAU OF LAND MANAGEMENT; and U.S. FOREST SERVICE,

Defendants.

* *Official Defendant automatically substituted per Fed. R. Civ. P. 25(d)*

Case No. 1:16-cv-00083-BLW

DECLARATION OF DR. CLAIT E. BRAUN

I, Clait E. Braun, declare:

INTRODUCTION

1. My name is Clait E. Braun, and I reside in Tucson, Arizona. The statements and professional judgments below are based on my scientific training, knowledge, and experience,

including my 40+ years of professional experience researching, studying, and managing greater sage-grouse.

2. I am providing this declaration to address several of the significant ways the Bureau of Land Management (BLM) has reduced or weakened land management plan protections for greater sage-grouse through its recent 2019 Plan Amendments, which are contrary to the best available science and will allow significant adverse impacts to sage-grouse populations and habitats that BLM has failed to acknowledge, and has misrepresented in its decision documents.

3. I previously testified before this Court in 2012 about sage-grouse habitat needs and conservation requirements regarding the Pinedale and Craters of the Moon BLM Resource Management Plans, and at that time I cited the 2011 National Technical Team Report (NTT Report) as the "gold standard" for sage-grouse conservation recommendations based on the best available science. Subsequent scientific research and studies, and experiences on the ground, reinforce my conclusion that the NTT Report provided management recommendations most consistent with sage-grouse conservation needs.

4. The 2015 Sage-Grouse Plans adopted by BLM and the Forest Service followed the NTT Report recommendations in designating priority sage-grouse habitats for enhanced management protections; but in my judgment the 2015 Plans did not go far enough to ensure sage-grouse populations and their essential habitats would be conserved into the future from the many threats facing sage-grouse. Problematic aspects of the 2015 Plans included their failure to address and protect connectivity between sage-grouse populations, which requires analysis of range-wide sage-grouse populations and habitats that the agencies never undertook; failure to identify and protect winter concentration areas, which are particularly important for sage-grouse

populations in Wyoming and other states with substantial oil and gas development threats; inadequate designations of priority sage-grouse habitats that failed to encompass all the life cycle habitat needs of sage-grouse or habitats actually used by sage-grouse; and allowing too many variations, waivers, and exceptions in management protections for priority sage-grouse habitats to ensure against further fragmentation and degradation from oil and gas development, livestock grazing, and other threats.

5. However, the 2015 Plans were substantially more protective of sage-grouse habitats and populations than the 2019 BLM Sage-Grouse Plan Amendments. As I explain below, the 2019 Plan Amendments eliminate or substantially weaken important aspects of the 2015 Plans in contradiction of the best available science, and would allow BLM to approve extensive new oil and gas and other energy and industrial developments, as well as unscientific and damaging livestock grazing and vegetation management projects, that threaten irreparable harm to remaining sage-grouse populations and habitats. I thus recommend the Court prohibit BLM from implementing the 2019 Plan Amendments and require BLM to continue adhering to the 2015 Plans while this case proceeds.

EDUCATION AND EXPERIENCE

6. A Biographical Sketch describing my profession education and experience is attached as Exhibit 1.

7. My education includes a B.S. in Technical Agronomy from Kansas State University (1962), an M.S. in Wildlife Management from the University of Montana (1965), and a Ph.D. in Wildlife Biology from Colorado State University (1969). In addition, I have attended numerous short courses, workshops, technical sessions, etc., to remain current in my professional work and am a Certified Wildlife Biologist.

8. I spent much of my professional career with the Colorado Division of Wildlife, where I was a Research Wildlife Scientist, Wildlife Research Leader, and Avian Program Manager for a thirty-year period (1969-99). In addition, I taught as an Instructor at the University of Montana (1963-65) and Colorado State University (1966-69), and have been an invited lecturer at more than 20 U.S. and Canadian universities. I also worked as a Soil Scientist in Kansas (1961) and Montana (1964) for the U.S.D.A., Soil Conservation Service and as a Research Technician with the Montana Department of Fish and Game (1965).

9. My field research was primarily on different species of birds especially grouse (1965-2018). I specifically conducted and directed research on sage-grouse throughout Colorado from 1973 through June 1999. My research on sage-grouse has caused me to review sagebrush steppe ecosystems (plants and animals) throughout all western states and adjacent provinces. This research has led to more than 300 scientific publications, mostly in peer-reviewed journals. I am lead author or co-author on more than 65 articles on sage-grouse (including greater sage-grouse and Gunnison sage-grouse) and more than 50 technical abstracts on sage-grouse in scientific publications. Attached as Exhibit 2 is a list of scientific publications that I authored or co-authored through 2018.

10. I have closely followed many research projects and reviewed publications regarding sage-grouse and their habitats. Relevant here, I served as Technical Editor for the "Monograph" on greater sage-grouse, which was published in book form in 2011. *See* S. T. Knick and J. W. Connelly, Editors, C. E. Braun, Technical Editor, *Greater sage-grouse: Ecology and conservation of a landscape species and its habitats*, Studies in Avian Biology No. 38 (2011).

11. I also served for many years as Editor of *The Wilson Journal of Ornithology*, a leading international ornithology journal; and I am a principal in Grouse Inc., a consulting firm.

12. I have been retained through my consulting firm by Advocates for the West to provide my professional views in this declaration, based on my scientific expertise and knowledge, as discussed below.

BASIS FOR TESTIMONY

13. I am closely familiar with research and scientific literature that addresses the habitat needs and biological requirements of sage-grouse, and on the factors that cause or contribute to sage-grouse population losses or declines (including from habitat loss). I have also spent innumerable hours in the field studying sage-grouse populations and habitats over the last four decades, which I have used in my own publications addressing the relationships between sage-grouse and their habitats, as well as the management implications of these relationships (including from energy development). In addition, I have supervised many graduate students conducting field research on sage-grouse.

14. I have reviewed the BLM's December 2018 Final Environmental Impact Statements (Final EISs) and March 2019 Records of Decision (RODs) that are referenced here as the 2019 BLM Sage-Grouse Plan Amendments. I have also reviewed portions of the prior 2015 Sage-Grouse Plans adopted by BLM and Forest Service, the 2011 NTT Report, the U.S. Fish and Wildlife Service's 2010 and 2015 findings regarding greater sage-grouse listing under the Endangered Species Act (ESA), comments and correspondence that I and other sage-grouse experts submitted in connection with the recent plan amendments, as well as other recent scientific documents and literature.

15. In preparing this declaration, I have relied on my scientific publications as well as the extensive body of other sage-grouse research and studies with which I am familiar, and my personal knowledge of greater sage-grouse populations and habitats.

SUMMARY OF 2019 PLAN AMENDMENTS

17. My testimony here is focused on the following notable ways in which the 2019 BLM Plan Amendments changed the sage-grouse conservation measures adopted in the 2015 Plans. I recognize the 2015 Plans were not uniformly consistent and implemented across all states they covered, and the 2019 BLM Plan Amendments are also variable in specific measures or changes adopted in the states they cover (Idaho, Wyoming, Utah, Colorado, Oregon, and Nevada/NE California).

18. However, I find the December 2018 Final EISs generally refuse or fail to acknowledge that changes made to the sage-grouse conservation measures in the respective states are generally negative for sage-grouse; are completely inconsistent with the best available science; and failed to address any alternative(s) except the proposed actions of weakening the various plans.

19. The 2019 Plan Amendments made changes that rescind or weaken sage-grouse protections and conservation requirements from the 2015 Plans, including the following:

A. Elimination of Sagebrush Focal Areas (SFAs) in Idaho, Wyoming, Utah, Colorado, Nevada, and California which removed the non-waivable No Surface Occupancy (NSO) prohibition of surface disturbance for fluid mineral leasing (in Idaho, Utah, Nevada, and California), and prioritization of SFAs for habitat restoration, monitoring and evaluation, and grazing permit reviews.

B. Elimination/Weakening of General Habitat Management Areas (GHMA) in Utah, and weakened protective measures for GHMAs in Idaho, Wyoming, and other states.

C. Reductions in Protective Lek Buffers in Idaho, Colorado, and Utah.

D. Relaxed Protections for Fluid Mineral (Oil and Gas) Development, including requirements to prioritize oil and gas leasing and development outside of designated sage-grouse habitat, opening new areas to fluid mineral leasing, expanding the criteria for BLM to issue exceptions, modification, and waivers to reduce the certainty the NSO stipulation will be applied in Priority Habitat Management Areas (PHMAs) in multiple states, and eliminating the requirement that BLM obtain consent from the U.S. Fish and Wildlife Service when granting such exceptions, modification, and waivers.

E. Weakened Disturbance and Density Caps in Idaho, Utah, Nevada, and Wyoming;

F. Removal or weakening of Required Design Features for all projects in greater sage-grouse habitat to help avoid, minimize or mitigate adverse impacts on sage-grouse.

G. Changes to the Hard and Soft Triger Adaptive Management including in Nevada/NE California and Utah.

H. Relaxed Protections Against Adverse Impacts of Livestock Grazing including by eliminating or weakening the requirement that BLM impose terms and conditions for achieving sage-grouse "habitat objectives" into allotment management plans or grazing permits, as they are renewed; removing requirements that allotments in SFAs and PHMAs be "prioritized" for field checks to ensure compliance with the terms and conditions of grazing permits; walking back required conformance with the 7-inch grass height objectives, reducing or eliminating requirements for the impacts of grazing-related infrastructure to be evaluated and modified; and removing prohibitions on livestock grazing within 13 Oregon Research Natural Areas.

I. Removal of Compensatory Mitigation and Net Conservation Standard. The 2019 plans now prohibit BLM from requiring compensatory mitigation (States can require but State plans vary) for off-site compensation of unavoidable impacts to sage-grouse or their habitats with some deviations in Idaho and Wyoming based on possible speculation.

21. The BLM has misrepresented its 2019 plan changes as being equally environmentally preferable to the 2015 Plans and consistent with sage-grouse conservation. I found no support for this allegation as the 2015 Plans, if implemented as planned, were intended to benefit conservation of sage-grouse. It is also important to understand the 2015 Plans were not universally started at the same time, were not fully implemented in 2015, and any results represent only 2-3 years (2015-2017). Further, the BLM has not provided an analysis of the

results of the 2015 plans as promised, as they seemed to have scrapped the 5-year analysis period (2015-2020).

22. The 2019 BLM Sage-Grouse Plan Amendments are deeply concerning because they avoid addressing major adverse impacts from human actions, and will allow much more damaging activities to occur in sage-grouse habitats moving forward. Some of the changes in the 2019 plans allow reduction of width of buffer zones around leks, no compensatory mitigation for unavoidable impacts to sage-grouse or their habitat off site, reduction or elimination of disturbance density caps, elimination of thresholds/responses based on sage-grouse habitat objectives during livestock permit renewals, reduction in other livestock grazing restrictions, use of voluntary 'Best Management Practices', reduced public involvement, BLM State Directors have exception provision, reduction in noise restrictions, etc.

23. In the sections below, I discuss in some detail the science relevant to sage-grouse that underscores how the 2019 plan changes will have significant adverse impacts for sage-grouse conservation which BLM has refused to address or acknowledge, and allow damaging new activities – energy development, infrastructure, livestock grazing, and others – to destroy, degrade or fragment sage-grouse habitats, harm sage-grouse populations, and contribute to the species' slide toward extinction, or at best only surviving in small scattered refugia and not at all in some States.

SAGE-GROUSE DECLINES ARE CONTINUING

24. The scientific literature underscores that greater sage-grouse as a species continues to experience habitat loss and fragmentation which are contributing to population declines. To avoid further losses and irreparable harm both to the species, and to individual sage-grouse populations, it is essential to manage all remaining sage-grouse habitats to preserve

the ecosystem functions and features needed for successful sage-grouse survival and reproduction. This includes not only conserving the remaining "core" or major population centers, but also isolated or peripheral populations across the sage-grouse range.

25. Connectivity of sagebrush steppe will be critical and the 2019 Plans focus more on larger populations as it seems obvious, even to those who prepared the 2019 Plans, that smaller populations will be lost especially those outside of core areas. Those populations in North and South Dakota, California, Idaho, Utah, and Washington are most at risk. But all States presently have some small populations which the 2019 Plans essentially dismiss.

26. The scientific literature demonstrates sage-grouse historically occurred in at least 16 states and three Canadian provinces; but have been extirpated in five states and one Canadian province, and their overall distribution has become discontinuous. The changes in sage-grouse distribution have been attributed to loss, fragmentation, and degradation of habitats; and it is probable that at least one-half of the original occupied area can no longer support sage-grouse. At least 50% of their originally occupied habitat has been lost and there is no evidence sage-grouse have reoccupied any of their original distribution. Because of the reduced amount of available habitat, sage-grouse abundance has also markedly decreased, as much as 45 to 82 percent since 1980. There are no data to demonstrate that overall numbers of sage-grouse have had sustained increases anywhere in modern times.

27. The known decreases in distribution and abundance have led to concern about the stability of sage-grouse populations and the health of sagebrush ecosystems on which they depend. *See* Braun 1998. These factors were cited by the U.S. Fish and Wildlife Service in its March 2010 determination that sage-grouse "warrant" protection through listing under the Endangered Species Act (ESA). *Endangered and Threatened Wildlife and Plants; 12-Month*

Findings for Petitions to List the Greater Sage-Grouse (Centrocercus urophasianus) as Threatened or Endangered, 75 Fed. Reg. 13,910 (U.S. Fish and Wildlife Service, March 23, 2010). Notable among the Service's determinations were that further habitat deterioration, degradation, and losses will continue to depress and isolate sage-grouse populations; and that existing regulatory mechanisms were inadequate to redress these threats.

27. In response to the 2010 finding, the BLM and Forest Service undertook the National Greater Sage-grouse Planning Strategy as a multi-year planning process to amend federal land use plans across the range of greater sage-grouse, which culminated with issuance of the 2015 Sage-Grouse Plans amending 98 federal land use plans in ten states, including Idaho, across the sage-grouse range (remnant populations in Washington were not included). Based on those 2015 Plans, the Service issued a "not warranted" ESA listing determination in October 2015. 80 Fed. Reg. 59,858 (Oct. 2, 2015).

28. The conservation measures in the 2015 Sage-Grouse Plans were unevenly instituted and monitored. Data from 169 peer-reviewed articles published since January 2015 (many were not directly part of the efforts identified in the 2015 Sage-Grouse Plans) were reviewed by Hanser et al. (2018). The important findings related to the importance of grass height, and some strategies to limit site disturbance were helpful, but none of the conservation measures was expected to reduce the declines, particularly where oil and gas operations were present. Type of treatment was important but sage-grouse did not benefit or were negatively affected by prescribed fire and mechanical sagebrush removal treatments. It was clear the 2015 Sage-Grouse Plans did not go far enough in establishing conservation and management measures to reduce or prevent such threats.

29. Despite adoption of the 2015 Sage-Grouse Plans, available evidence indicates that sage-grouse populations in many states have continued to decline. Assessing trends in sage-grouse populations is complicated by numerous factors, including changes in how monitoring is conducted and types of monitoring (which varies between states), and factors including weather conditions (sage-grouse populations tend to increase after wet versus dry years, for instance).

30. It is difficult to obtain data from States or the USFWS which could be used to demonstrate recent patterns in sage-grouse abundance. It would appear to be clear that no State or Federal agency wants to confirm the magnitude of presumed declines. However, sage-grouse hunting is no longer allowed in California, North Dakota, and Washington. Hunting season length has been greatly reduced (1-3 days) in most states as has been amount of area open to hunting and bag/possession limits. This pattern suggests the trend in sage-grouse abundance has markedly declined.

31. I have reviewed the recent Geographic Information System (GIS) analysis by Amy Haak and included with her declaration filed in this matter. That analysis shows that sage-grouse habitats have suffered extensive losses and fragmentation in just the three years since the 2015 Plans were adopted. According to Table 5 in Dr. Haak's declaration, over 1.9 million hectares (about 4,694,900 acres) have burned in occupied sage-grouse habitat over the past three fire seasons, including nearly 1.2 million hectares (over 2,965,200 acres) in the PACs. More than 1 million acres of sage-grouse habitats have been sold for oil and gas leasing during the same period, including 428,000 hectares (over 1,057,588 acres) in PACs.

32. I have reviewed the BLM's December 2018 Final EISs and March 2019 RODs to evaluate how they have addressed these recent trends showing continued losses and fragmentation of sage-grouse habitats and population declines. I am extremely concerned that

BLM seems to have wholly avoided addressing these recent trends, and completely failed to evaluate what they reveal for the future of sage-grouse under the 2019 BLM Plan Amendments. This is an extremely serious omission in the Final EISs, and certainly does not meet any standard of scientific legitimacy or professional integrity.

33. These recent trends add urgency, in my professional view, to ensure that remaining sage-grouse populations and their habitats are protected from further degradation and fragmentation, to the maximum extent possible. Natural events – including drought and wildfires – are largely beyond federal land managers' control, but will continue and likely be exacerbated by climate change into the foreseeable future. It is thus essential that human actions – over which we do have control – not be allowed to contribute further to sage-grouse declines.

SAGE-GROUSE HABITAT FRAGMENTATION

34. Greater sage-grouse are a landscape scale species, requiring large expanses of sagebrush to meet all seasonal habitat requirements. The loss of habitat from fragmentation and conversion decreases the connectivity between seasonal habitats potentially resulting in the loss of populations. Fragmentation of sagebrush habitats has been documented as a primary cause of the decline of sage-grouse populations because the species requires large expanses of contiguous sagebrush.

35. There are many factors that can fragment sage-grouse habitats, from conversion of habitat type (e.g., agricultural conversion of sagebrush steppe) to fences, powerlines and other tall structures, roads, reservoirs, wild fire, and prescribed burns. Essentially, any land use that subdivides blocks of intact sagebrush habitat causes fragmentation. The U.S. Fish and Wildlife Service, in the March 2010 Listing Determination, defined habitat fragmentation as: the separation or splitting apart of previously contiguous, functional habitat components of a species.

Fragmentation can result from direct habitat losses that leave the remaining habitat in noncontiguous patches, or from alteration of habitat areas that render the altered patches unusable to a species (i.e., functional habitat loss). Functional habitat losses include disturbances that change a habitat's successional state or remove one or more habitat functions; physical barriers that preclude use of otherwise suitable areas; and activities that prevent animals from using suitable habitat patches due to behavioral avoidance. See USFWS 2010, at 13927. I concur in this definition.

36. The 2011 Studies in Avian Biology Monograph includes analysis of connectivity of greater sage-grouse across the sagebrush landscape (Knick and Hanser 2011). They found the average movement between population centers (leks) of sage-grouse rangewide was 16.6 km (10.3 mi) with a standard deviation of 7.3 km (4.5 mi). Leks within 18 km (11.2 mi) of each other had common features when compared to leks further than this distance. Therefore, they used a distance of 18 km (11.2 mi) between leks to assess connectivity (movement between populations), but cautioned this distance may not accurately reflect genetic flow, or lack thereof, between populations. *Id.*

37. Analysis of historical population data further revealed that historic leks with low connectivity have been lost, indicating that isolation of leks by distance (including habitat fragmentation) will likely result in their future loss (Knick and Hanser 2011). Small decreases in lek connectivity resulted in large increases in probability of lek abandonment. *Id.*

38. Recent studies have documented negative effects of habitat fragmentation upon sage-grouse due to energy development and associated infrastructure, including on lek persistence, lek attendance, winter habitat use, recruitment, yearling annual survival rate, and female nest site choice (USFWS 2010, p. 13928; citing Holloran 2005, p. 49; Aldridge and

Boyce 2007, pp. 517-523; Walker *et al*. 2007a, pp. 2651-2652; Doherty *et al*. 2008, p. 194; Crist et al. 2017). The best available science suggests that impacts reach much farther. For example, a 2012 study commissioned by the BLM estimates that drilling activity can affect sage-grouse more than 12 miles away. *See* Rebecca L. Taylor, David E. Naugle, and L. Scott Mills, *Viability analyses for conservation of sage-grouse populations: Buffalo Field Office, Wyoming* (Feb. 2012).

39. Nesting habitat typically occurs within about 2 miles of leks, but it has been well documented that nesting can occur as far as 12 miles away. *See, e.g.*, R. E. Autenrieth, *Sage grouse management in Idaho*, Idaho Department of Fish and Game, Wildlife Bulletin Number 9 (1981); W. L. Wakkinen, *Nest site characteristics and spring-summer movements of migratory sage grouse in southeastern Idaho*, Thesis, University of Idaho, Moscow, USA (1990); A. G. Lyon, *The potential effects of natural gas development on sage grouse (Centrocercus urophasianus) near Pinedale, WY*, Thesis, University of Wyoming, Laramie, USA (2000). Brood-rearing habitats may be even further away. A recent, long-term study of Utah greater sage-grouse tracked movements of over 16 miles from leks to seasonal habitat; females moved up to 36 miles from nest to summer habitat. Dahlgren *et al*., *Seasonal Movements of Greater Sage-grouse Populations in Utah: Implications for Species Conservation*, Wildlife Society Bulletin 40:288–299 (2016) (converted from km to miles using data in Tables 6 and 7). Thus, even a 5.0 mile distance will not protect all potential nesting and brood-rearing habitat.

40. Sage-grouse typically move between seasonal habitats through the year. The attributes of sage-grouse seasonal habitats have been widely studied and reported in the literature, including articles which I have authored or co-authored (e.g., Braun *et al*. 1977; Connelly *et al* 2000; Braun *et al.* 2005).

41. Sage-grouse breeding habitats, known as "leks," are open areas or areas of low sage used for male breeding displays and mating. Once impregnated, sage-grouse hens move to nesting habitat, which is generally areas of taller sagebrush cover and good quality understory of native grasses and forbs. Once chicks are hatched, hens and chicks move to brood-rearing habitat, which is typically wetland or more mesic areas offering forbs and insects required for chicks' rapid growth. Winter habitats are determined largely by snow depth and vegetation height, as the birds seek sagebrush exposed above snow for forage.

42. Considerable variation exists between populations with respect to the configuration of seasonal ranges and distances between leks, nesting, brood-rearing, and winter habitats. While nesting habitat may occur within about 2 miles of leks, it has been abundantly documented in the literature that nesting can occur much further—even 10-12 miles—from leks. *See* A. G. Lyon, *The potential effects of natural gas development on sage grouse (Centrocercus urophasianus) near Pinedale, WY*. Thesis, University of Wyoming, Laramie, USA (2000). Brood-rearing and winter habitats may be even further away. *See* Dahlgren et al., *Seasonal Movements of Greater Sage-grouse Populations in Utah: Implications for Species Conservation*, Wildlife Society Bulletin 40: 288–299 (2016).

43. Surveying leks is an important tool for monitoring population trends, but focusing exclusively on lek locations is inadequate to provide a meaningful forecast of impacts to greater sage-grouse populations from human activity. Disturbances to nesting, brood-rearing, winter habitats, and associated migration and connectivity corridors, can significantly impact sage-grouse reproduction and recruitment.

44. The Service's October 2015 and March 2010 determinations for ESA listing of greater sage-grouse, federal and state sage-grouse planning efforts, and scientific literature all

underscore the importance of surveying and identifying seasonal sage-grouse habitats. Agency scientists regularly map and analyze seasonal habitat locations and quality through GIS mapping as well as field inspections.

45. I have reviewed the BLM's 2019 Plan Amendments to evaluate how they address potential impacts on sage-grouse from the changes to habitat designations and management prescriptions. Unlike the USFWS and others, BLM essentially ignored analyzing either current habitat conditions and fragmentation, or how plan changes may impact sage-grouse habitats. The failure of BLM to undertake such analysis in the 2019 Plan Amendments is wholly inconsistent with standard practices and the best available science.

FAILURE TO ASSESS RANGEWIDE IMPACTS

46. Given the decline of sage-grouse on a range-wide basis and threats to remaining sage-grouse populations and habitats, as documented in the scientific literature, it was essential for BLM to assess the potential impacts of its 2019 Sage-Grouse Plan Amendments upon sage-grouse habitats and populations on a range-wide basis, but I find no evidence that BLM did so in its December 2018 Final EISs or March 2019 RODs. The Final EISs were prepared separately for the respective individual states, *i.e.*, Idaho, Wyoming, Utah, Colorado, Oregon, and Nevada/NE California.

47. The Final EISs purport to address cumulative impacts of the proposed plan changes, but I find no comprehensive discussion of how the proposed plan changes may impact sage-grouse at any comprehensive scale, and certainly they have no range-wide analysis. The Final EISs are actually false and misleading, in my view, because they do not acknowledge that weakening land management protections for sage-grouse from the 2015 Plans will, in fact, allow

substantial more habitat loss, degradation, and fragmentation, thus undoubtedly contributing to further population declines.

REDUCED PROTECTONS FOR PRIORITY HABITAT AREAS

48. The NTT Report underscored the importance of protecting remaining sage-grouse habitats to prevent further losses and population declines, and the Service's 2013 Conservation Objectives Team Report (COT Report) identified "Priority Areas for Conservation" (PACs) as "key habitats necessary for sage-grouse conservation." COT Report, at 36. "PACs do not represent individual populations, but rather key areas that states have identified as crucial to ensure adequate representation, redundancy, and resilience for conservation of its associated population or populations." *Id.* The PACs were identified using the best available information and designed to maintain sage-grouse representation, redundancy, and resiliency across the landscape. *Id*. The COT Report further states that "maintenance of the integrity of PACs . . . is the essential foundation for sage-grouse conservation." COT Report, *supra*, at 36. I agree with these analyses and recommendations.

49. I have serious concerns that the BLM and Forest Service 2015 Sage-Grouse Plans did not fully identify and protect all sage-grouse habitats needed for conservation of the species and, as indicated above, that includes their failure to identify and protect winter concentration areas – which are vital to sage-grouse survival – and connectivity between populations. In addition, important sage-grouse populations and habitats were omitted from the priority habitat designations in the 2015 Plans, particularly in Wyoming and Utah where compromises were made in designating "core" areas that excluded areas with oil and gas or other mineral leases and developments from the priority habitat designations.

50. The designation of priority habitats in the 2015 Sage-Grouse Plans included approximately 10.2 million acres of "Sagebrush Focal Areas" (SFAs), based on the Service's October 2015 identification of sage-grouse "strongholds," in which No Surface Occupancy (NSO) protections were implemented and withdrawal from hard rock mining was proposed. The SFAs were identified as a subset of the "Priority Habitat Management Areas" (PHMAs) that were derived from the Service's COT Report designation of PACs. *See* Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region at I-20 (U.S. Dep't of Interior, 2015) (stating that PHMAs "largely coincide with areas identified as PACs in the COT Report").

51. The 2015 Plans also identified large areas of sage-grouse habitat as "General Habitat Management Areas" (GHMAs), in which reduced restrictions on human activities were adopted, but still offered some level of protections for sage-grouse.

52. The 2019 BLM Plan Amendments completely eliminate SFAs in all states except Montana and the Dakotas, meaning that NSO protections are now removed from millions of acres where oil and gas and other energy development is likely to occur. Protections in PHMA and GHMA are also rescinded or weakened, including in ways described below; and GHMA areas are now eliminated in Utah.

53. I have reviewed the Declaration of Dr. Amy Haak, who has prepared a "conservation portfolio" analysis concerning greater sage-grouse (Haak 2019), which I also reviewed. I concur with Dr. Haak's explanation of the importance of habitat biodiversity to the long-term viability and stability of species. Communities that occupy wide and varying landscapes—i.e., those with diverse "conservation portfolios"—are better able to withstand disturbance events and swings in environmental conditions that would destabilize with a less

diverse portfolio. I also note the principles of Resilience, Redundancy, and Representations (the "Three Rs") (but primarily Representation and Redundancy), used as guiding concepts in her analysis, are fully consistent with the Fish and Wildlife Service's October 2015 "not warranted" finding, which underscore the importance of the "Three Rs" from a conservation biology perspective. *See* USFWS 2015, 80 Fed. Reg. at 59,872.

54. I concur with Dr. Haak's analysis, in her paper and declaration, that the designation of priority habitats in the 2015 Plans did not encompass nearly enough of the sage-grouse habitats required for conservation of the species, including by not implementing all of the PACs as highest priority habitats for protection and not including other habitats needed to ensure the "3-Rs" are met and satisfied for species persistence.

55. I also agree with Dr. Haak's analysis that the 2019 BLM Plan Amendments result in further weakening of priority habitat protections that will allow even further losses and fragmentation of sage-grouse habitats, probably resulting in loss of peripheral or isolated populations that are vital to preserve for the survival of the species. By failing to even consider well-established biological principles, such as the 3-Rs, much less evaluate how the 2019 Amendments may impact sage-grouse under those principles, BLM's 2019 Plan Amendments are certainly not consistent with the best available science and willfully ignore the adverse impacts that are likely to result.

56. The current Administration has placed an emphasis on "energy dominance" for public lands management, and is acting to promote oil and gas and other energy development on public lands. The 2019 BLM Plan Amendments will foreseeably be implemented by BLM to authorize extensive new oil and gas and other energy development in sage-grouse habitats, particularly in Wyoming, Utah, and Colorado. Major new oil/gas developments are expected to

be approved under the 2019 Plan Amendments, and will lack the protections that the 2015 Plans adopted, including by removing the SFA designations in most states and thereby eliminating the requirement of No Surface Occupancy (NSO) in SFAs.

57. Reducing the scope of priority habitat designations for sage-grouse and weakening or eliminating protections against energy development and other human impacts in those vital habitats is completely contrary to all the available science and understanding of sage-grouse habitat needs and population dynamics. Yet in my review of the BLM documents for the 2019 Plan Amendments, including the December 2018 Final EISs and March 2019 RODs, I found no acknowledgement that these steps will have significant adverse ramifications for sage-grouse.

HARMFUL IMPACTS OF ENERGY DEVELOPMENT ON SAGE-GROUSE

58. Greater sage-grouse are negatively impacted by activities associated with mining and oil/gas exploration and development, including construction and operation of well pads and associated drilling and production facilities. Beyond the actual physical disturbance caused to the landscape by mining and oil/gas development activities, the impacts of roads are also negative for sage-grouse (Connelly *et al.* 2004). There are numerous examples of active leks being abandoned once road use associated with mining and oil/gas development increased in close proximity (<1 km) to leks and nesting habitat.

59. "Buffers" around sage-grouse lek areas and their surrounding nesting habitats have been used to define areas of potential adverse impacts from human activities, particularly energy and infrastructure development. Manier *et al.* (2014) reviewed existing studies concerning lek buffers, and recommended an "interpreted range" of lek buffers of 3.1 to 5 miles for surface disturbance and energy facilities. *See* Manier *et al.*, *Conservation Buffer Distance*

Estimates for Greater Sage-Grouse - A Review, USGS Open-File Report 2014–1239 (2014). However, that study also cautioned that "for some populations, the minimum distance inferred here (5 km [3.1 mi]) from leks may be insufficient to protect nesting and other seasonal habitats." *Id*. at 2. Manier *et al.* (2014) thus recommended that, in the absence of other information, the larger 5-mile buffer should be used:

> Without population-specific information regarding the location of habitats and movement of birds, which may be utilized when available (for an example see, Colorado Greater Sage-grouse Steering Committee, 2008), this generalized protection area (circular buffer around active leks with radius of 8 km [5mi]) offers a practical tool for determining important habitat areas.

Id. at 4. Manier *et al.* (2014) further explained that even the larger 5-mile buffer does not eliminate all industrial impacts, because "the cumulative effect of development may extend across the landscape many kilometers (>10 km [6 mi]) beyond the immediately affected areas." *Id.* at 5.

60. Sage-grouse are known to select display sites (leks) that are highly visible and have good acoustic properties. Studies report that lek activity by sage-grouse decreased downwind of energy drilling activities, and that sage-grouse numbers on leks were consistently lower within 1.6 km (1 mi) of compressor stations in Wyoming, suggesting that noise has measurable negative impacts on sage-grouse (Braun *et al.* 2002, Holloran and Anderson 2005, Blickley *et al.* 2012).

61. Clearly, the amount and likely frequency of noise associated with energy development has major negative effects on greater sage-grouse. Consequently, all drilling activities for oil and gas development should be prohibited within a minimum of 5.5 km (3.3 mi) of active leks and their associated nesting areas (Holloran 2005, Braun 2006); note this means that nesting areas must be identified and protected, not just lek areas themselves.

62. Noise and physical presence of energy exploration should be avoided in sage-grouse winter habitats, particularly known winter concentration areas where sage-grouse may be disturbed and abandon necessary habitat to survive winter conditions.

63. Studies also indicate there is a typically a time lag, of perhaps 2-10 years, in sage-grouse response to infrastructure development or other habitat changes. This time lag occurs because sage-grouse are relatively long-lived birds that will continue to return to altered breeding areas (i.e., leks, nesting, and early brood-rearing habitats), due to strong site fidelity, even despite nesting or productivity failures (lack of recruitment) caused by habitat disturbance or fragmentation associated with energy development activities. USFWS 2010 at 13928; Garton *et al.* 2011.

64. Without having fully implementing the 2015 Plans, and without having even attempting to assess how effective the 2015 Plans might have been in protecting sage-grouse from adverse impacts of energy development, there is no sound basis for BLM to now contend that its 2019 Plan Amendments are "equally environmentally preferable" as the 2015 Plans or that the 2019 Plans will be adequate to prevent further sage-grouse habitat losses and population declines as a result of energy development across the sage-grouse range.

65. Upcoming oil and gas leases and developments threaten irreparable harms to sage-grouse, in my professional view, if they are allowed to be approved under the relaxed or eliminated restrictions of the 2019 Plans.

66. As just one example, the Normally Pressured Lance (NPL) project involves 3,500 new oil and gas wells in western Wyoming, adjacent to the Jonah Infill Project in the Pinedale Field Office, which I addressed in my 2012 testimony to the Court. *See, WWP v. Salazar*, No. 4:08-cv-516-BLW (D. Idaho, April 9, 2012), ECF No. 216. The NPL project includes sage-

grouse winter concentration areas that are vital for survival of sage-grouse in that part of the state, but which may be irreparably lost or damaged as viable sage-grouse habitats if they are not adequately protected—which BLM's management under the 2019 Plans certainly will not do.

ADVERSE IMPACTS OF GRAZING

67. Livestock grazing is the most ubiquitous land use across the sage-grouse range, and excessive or poorly managed livestock grazing may cause adverse direct, indirect and cumulative impacts to sage-grouse, including through degradation and changes in vegetative communities necessary for seasonal sage-grouse habitats as described above. The overall goal of land managers regarding grazing should be to maintain and enhance the population viability of sage-grouse by encouraging desirable plant communities, increasing native plant diversity, and promoting residual vegetative cover.

68. Moreover, domestic livestock grazing that reduces herbaceous cover in the sagebrush steppe can negatively impact nest success of sage-grouse. Even "moderate use" by livestock of grasses and forbs – described as the removal of 30-40% of the primary forage species – can result in rangeland deterioration in semi-arid grasslands. Thus, if livestock grazing is permitted on public rangelands at all, use of herbaceous forage should be limited to 25-30% of annual production to improve rangeland vegetation to meet the habitat needs of sage-grouse. Care must be used in calculating stocking rates to ensure that forage use by livestock does not exceed 25-30%.

69. Furthermore, if grazing can be permitted within these guidelines, livestock turnout should not be allowed until after 20 June and all livestock should be removed by 1 August to allow for herbaceous regrowth to provide cover to benefit sage-grouse the following spring. To

protect sage-grouse winter habitat, winter grazing should not be permitted until plant growth has ceased for the year, and should generally occur between 15 November and 1 March.

70. Larger pastures with fewer fences are better than smaller pastures, as fences are generally negative for sage-grouse. Fences fragment sage-grouse habitat, and potentially increase mortality of sage-grouse by increasing the number of perches for raptors, which prey on sage-grouse year-round. Fences should not be allowed within 2 km of active leks and areas known to be used in winter by sage-grouse; unnecessary fences should be removed, or, at a minimum, marked with flagging to prevent collisions.

71. Another consequence of grazing that must be addressed is the widespread and increasing invasion of cheatgrass, which displaces native understory species, and leads to increased risk of wildfires that eliminate sagebrush overstory. While certain herbicides can reduce germination of cheatgrass, the reseeding of cheatgrass-dominated areas with dry land alfalfa and native bunchgrasses may be as effective and more economical than use of herbicides.

72. Protection (and restoration) of sage-grouse production areas (nesting and early brood-rearing habitats) is crucial as populations cannot be maintained without nest success and chick survival to fall (and the following spring) recruitment. Livestock grazing during and immediately after nesting removes vegetation needed for cover to help protect nesting females and to provide access to insects and new forb growth to sustain chicks after hatching.

73. Ongoing energy development activities have negatively impacted sage-grouse nest success and chick survival as they fragment and reduce the number and size of areas used by broods immediately after hatching. Similar impacts occur following fires (wild and controlled) and livestock grazing which can lead to establishment of undesirable plants (including

cheatgrass). Providing quality habitats useful to nesting hens and their chicks is of utmost importance in maintaining and enhancing sage-grouse populations.

74. Connelly et al. (2000) summarized the scientific literature on sage-grouse habitat needs and indicated the most pressing issue to successful reproduction is adequate residual herbaceous cover during the nesting period (April-May). Grazing utilization of 40-60% of the herbaceous vegetation will not provide adequate herbaceous cover during the nesting and early brood periods sufficient to maintain or enhance sage-grouse habitats or populations.

75. The 2015 Sage-Grouse Plans were far from adequate in addressing livestock grazing management and related range infrastructure and other impacts upon sage-grouse. But at least the 2015 Plans promised that BLM and Forest Service would prioritize the renewal of grazing permits in the highest priority sage-grouse habitats and take actions to bring grazing management into conformance with sage-grouse habitat needs, including residual forage heights in nesting and brood-rearing habitats, and eliminating or reducing fragmentation from grazing infrastructure.

76. The 2019 Plan Amendments essentially abandon any commitment by BLM to ensure that grazing practices are brought into conformance with sage-grouse habitat needs. Elimination of SFAs and BLM's commitment to prioritize grazing permit renewals there to meet sage-grouse needs means that ongoing grazing damage – which is extensive across the sage-grouse range in Idaho and other states – will continue unabated. Adverse direct, indirect and cumulative impacts will continue to occur and diminish sage-grouse reproductive success and contribute to long-term degradation and loss of sage-grouse habitats.

77. I recommend that the Court require BLM to continue following the 2015 Plans, despite their inadequacies on grazing, because further weakening protections from grazing impacts under the 2019 Plans will only contribute to sage-grouse declines and losses.

I declare under penalty of perjury pursuant to the laws of the United States that the foregoing is true and correct to the best of my knowledge. Executed this 17th day of April 2019, at Tucson, Arizona.

/s/ Clait E. Braun
Clait E. Braun

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BIOGRAPHICAL SKETCH

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Born: 4 October 1939, Kansas City, Missouri, USA

Academic Training

B.S. 1962. Technical Agronomy, Kansas State University, Manhattan
M.S. 1965. Wildlife Management, University of Montana, Missoula
Ph.D. 1969. Wildlife Biology, Colorado State University, Fort Collins

Experience (50+ years of study of species of grouse, including Sage-Grouse)

Director, Grouse Inc., Tucson, AZ (2000-Present)
Avian Research Program Manager, Colorado Division of Wildlife
Wildlife Research Leader-Avian, Colorado Division of Wildlife
Soil Scientist, Soil Conservation Service, USDA, Kansas and Montana

Memberships

The Wildlife Society
- Editor (*Journal of Wildlife Management*) (1981-83)
- Vice President, President, Past President
- Charter and Founding Member of Colorado and Montana Chapters
- Editor, Sixth Edition, *The 'Techniques Manual'* (2005)
- Fellow

The Wilson Ornithological Society
- Elected Board Member, Vice President, President
- Life Member
- Editor (*Wilson Journal of Ornithology*) (2007-2012)

Colorado-Wyoming Academy of Science
- Elected Board Member, Treasurer, President, Life Member

American Ornithologist's Union
- Elected Member, Elected Fellow, Life Member

Cooper Ornithological Society: Life Member
American Society of Mammalogists: Life Member
Great Plains Natural Science Society: Life Member
American Association for the Advancement of Science (1969-2018) (Life Member)
American Men and Women of Science
Who's Who in the West
Personalities of the West and Midwest

Dictionary of International Biography

Professional Achievement Awards

Colorado State University
Colorado-Wyoming Academy of Science
Defenders of Wildlife, Science Award, 2015
Gunnison Sage-Grouse Stewardship Award
The Wildlife Society (Chapter, Section, National, Group Achievement [1986])
U.S. Department of Agriculture (SCS)
Western Agencies Sage & Columbian Sharp-tailed Grouse Technical Committee
---Robert L. Patterson Award
Wilson Ornithological Society---Klamm Award

Publications

Over 300 Technical Articles (especially on grouse) published in Peer-reviewed and Non Peer-reviewed Journals, Symposia, Proceedings (List Available upon Request)

Referee

Peer Reviewer for 20+ National/International Journals

Technical Editor or Editor

Multiple Books and Proceedings, and Professional International Journals
Most Recent
Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. 2011. Studies in Avian Biology, Number 38. 645 pp.
Quail VII: Proceedings of the Seventh National Quail Symposium: 2012: 386 pp.

Consultant

County (Gunnison, Colorado), State (Nevada, New Mexico, Oregon, Utah, Wyoming), Federal (USFWS), and Provincial (Alberta) governments, and Private Entities (NGO's, Private Ranchers)

Professional Interests

Birds (especially Grouse and Columbids), Habitat Management, Alpine Ecology, Sagebrush-steppe, Population Dynamics

National Advisory Committee, Wildlife Services (USDA, APHIS)

1999-2005 Vice Chair and Chair
2008-2009 Chair

Publications of Clait E. Braun
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<u>In Preparation</u>

1. **Braun, Taylor, and Ebbert. Rock Ptarmigan Survey Protocols, CFN Accepted**
2. **Braun, Schroeder, and Kautz. Band-tailed Pigeon Flock Areas. CPW Spec Rpt. Accepted**
3. **Braun. Ruffed Grouse History in Colorado. Accepted**
4. **Wann et al. Ovulation of Greater Sage-Grouse (NP)**
5. **Braun et al. Ovulation of Greater Sage-Grouse (MC)**
6. **Braun et al. Seasonal Changes in Body Mass/Primary Molt of Greater Sage-Grouse. Revised. Sent to Coauthors, 1 Feb 2019**
7. **Braun et al. Movements of Greater Sage-Grouse (NP)**
8. **Braun et al. Body Mass/Primary Molt Schedules of Band-tailed Pigeons**
9. **Braun et al. Survival Rates of Mourning Doves**
10. **Braun et al. Survival Rates of White-winged Doves**
11. **Braun et al. Flight Feather Characteristics of Mourning Doves**

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