No. 2:17-cv-202-NDF

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF WYOMING

WESTERN WATERSHEDS PROJECT, et al.,
Petitioners,

v.

VICKI CHRISTIANSEN, Chief, U.S. Forest Service, et al.,
Respondents,

and

STATE OF WYOMING,
Intervenor-Respondent.

BRIEF OF *AMICI CURIAE* SCIENTISTS IN SUPPORT OF PETITIONERS

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TABLE OF CONTENTS

TABLE OF AUTHORITIES

STATEMENT OF INTEREST OF AMICI CURIAE[1]

Pursuant to Federal Rule of Appellate Procedure 29(b) and Local Rule 83.6(d), *Amici Curiae* ("*Amici*") file this brief in support of the relief sought by Petitioners. *Amici* are nationally recognized scientists who are experts in wildlife biology, ecology, population dynamics, veterinary medicine, and related issues, including Chronic Wasting Disease ("CWD").

Amici join this case because of the serious threat of CWD and related ecological impacts posed by the U.S. Forest Service's ("Forest Service") ill-informed and risky continuation of supplemental feeding[2] of the Jackson elk herd in Wyoming. *Amici* seek to protect the health and well-being of this elk herd, as well as other wildlife populations in the Greater Yellowstone Ecosystem that

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[1] No counsel for a party authored this brief in whole or in part, and no counsel or party made a monetary contribution to fund the preparation or submission of this brief. No persons made a monetary contribution to its preparation or submission.

[2] *Amici* use the term "supplemental" feeding in this brief, whereas the Petitioners refer to the practice as "artificial" feeding. Both terms are used in the documents in the administrative record of this case and in the scientific literature. Both refer to the practice of providing feed to elk at times of the year when their natural food is not readily available. The purpose of the practice is to prevent malnutrition and to divert elk away from areas grazed by livestock. The feeding is considered to be artificial by those who use the term because of the timing of the activity and because the feed itself is generally alfalfa hay, which is not a natural food source for elk. In addition, even if animals are fed natural food, such as forage plants, the spatial distribution of the food source does not mimic natural conditions. Rather, it is concentrated at a few locations (feedgrounds). As discussed in this brief, it is this concentration that leads to unnaturally high densities of elk and greatly increases the likelihood of the spread of disease.

interact with it. The *Amici's* many years of research and studies document that the supplemental feeding of the Jackson elk herd is causing severe adverse impacts on the wildlife populations of the Greater Yellowstone Ecosystem that will only worsen with time. The *Amici* strongly recommend that the Forest Service undertake further analysis of the consequences of its long-term approval of the practice through at least 2028. The scientific evidence clearly shows that the supplemental feeding of elk can be eliminated, or at least phased out over a reasonable period of time, in a manner that will benefit regional wildlife populations without causing any long-term harm to the Jackson elk herd or other wildlife species.

The specific identities, expertise, and interests of *Amici* are as follows:

Dr. Bruce Smith is a leading wildlife biologist and science writer who spent the majority of his career as a federal government scientist overseeing wildlife population management. He worked in this capacity on the Wind River Indian Reservation and as the chief biologist for the United States Fish and Wildlife Service at the National Elk Refuge ("NER") in Wyoming. The author of more than forty technical papers and book chapters, Dr. Smith has two decades of experience researching population regulation and ecology of elk in Wyoming and continues to work and write in the interest of wildlife conservation.

Dr. Tom Hobbs was formerly a research scientist for the Colorado Division of Wildlife and the Natural Resource Ecology Laboratory at Colorado State University. He is currently the University's senior research scientist and professor in the Natural Resource Ecology Laboratory, Department of Ecosystem Science and Sustainability, and professor in the Graduate Degree Program in Ecology. Dr. Hobbs has earned numerous awards for his work in ecology, served on several editorial boards, received many grants to further his research efforts, and authored more than one hundred journal articles, many of which focus on elk, CWD, and proper wildlife management.

Dr. Thomas Roffe, a wildlife ecologist and veterinarian, is the former Chief of Wildlife Health for the U.S. Fish and Wildlife Service, and former leader of the field epidemiology branch and Laboratory Diagnostician for the National Wildlife Health Center. In 1999, he received the Department of the Interior's Superior Service award for his contributions to wildlife health and natural resource management in the Greater Yellowstone Area. His establishment and leadership of the Department's brucellosis research program led to the implementation of a dedicated effort to solve the problem of brucellosis in the area's bison and other wildlife populations. Dr. Roffe has authored more than eighty articles on wildlife management, health, and ecology. He continues to consult with organizations and agencies on a number of wildlife health issues.

Dr. Thomas Pringle is a molecular bio-geneticist and long-respected expert on CWD. He was a professor of biology for several years, and later established the Sperling Foundation, an organization dedicated to environmental issues. After developing an interest in the prion gene family and its role in disease transmission, he began collecting information on transmissible spongiform encephalopathies, including CWD. His many scientific articles have been cited nearly 7,000 times by other scientists and researchers.

Dr. Barry Noon has researched the effects of land management practices on wildlife populations for more than forty years, primarily focusing on those in forest ecosystems. Dr. Noon has authored more than one hundred scientific papers and has co-authored extensive reports for the federal government concerning the sustainable management of public lands. He previously served as Director of a Forest Service research lab in the Pacific Northwest and as Chief Scientist of the National Biological Survey of the Department of the Interior. He has provided recommendations on the management of Forest Service lands to promote biological diversity and urged changes to protect imperiled species on private lands. Dr. Noon is the recipient of numerous academic awards and is currently a professor in the Department of Fish, Wildlife, and Conservation Biology at Colorado State University.

Dr. Perry Barboza joins this brief individually and on behalf of the Conservation Committee of the American Society of Mammalogists. Dr. Barboza's extensive research has analyzed the ways in which wildlife acquire adequate food and water to survive. His focus is on wild ungulates, including elk, and his work seeks to improve policy options for managing wildlife populations and their habitats, including the Jackson elk herd that feeds at Alkali Creek. Dr. Barboza has published more than eighty journal articles as well as an award-winning book on wildlife nutrition. He is a professor of Wildlife Conservation and Policy in the Department of Wildlife and Fisheries Sciences at Texas A&M University and is a member of The American Society of Mammalogists (ASM). The ASM was established in 1919 to promote the study of mammals. The organization has more than 2,500 members, many of whom are professional scientists involved in providing information for public policy development, resource management, conservation, and education. The ASM's interest in this litigation stems from this involvement and its members' longstanding interest in furthering the public good.

SUMMARY OF THE DISCUSSION

The Forest Service failed to adequately evaluate the serious environmental impacts of its decision to approve the Wyoming Game and Fish Commission's special use permit allowing the continuation of supplemental feeding of elk on the

Alkali Creek Feedground until at least 2028. The best available scientific information indicates that the unnatural concentration and supplemental feeding of the Jackson elk herd at Alkali Creek creates a significant risk of a widespread epidemic of CWD—an epidemic that could seriously harm other elk herds and the Greater Yellowstone Ecosystem. The Forest Service should be required to conduct a new environmental review that takes an objective, hard look at the risks of continued operation of the Alkali Creek Feedground, on both elk herds and the surrounding environment, and carefully considers all reasonable alternatives, including, at minimum, the obvious alternative of phasing out the practice of supplemental feeding on National Forest lands in Wyoming within a reasonable time frame.

DISCUSSION

I. WHILE SUPPLEMENTAL FEEDING BEGAN AS A WELL-INTENTIONED RESPONSE TO HIGH WINTER MORTALITY OF ELK, ITS CONTINUATION POSES SERIOUS RISKS

Supplemental feeding of elk began in 1909 at the future site of the NER, AR 022144, which was formally established in 1912. AR 017883. The severe winters of 1909, 1910, and 1911 had resulted in the deaths of thousands of elk. Contemporaneously, human settlement and the conversion of historic elk winter range into domestic ranchland compromised elk habitat and migration routes. AR 017883. In response, to sustain elk populations, federal wildlife managers

developed the practice of supplemental feeding to augment natural food supplies during winter. *See* AR 022144.

Supplemental feeding began with a similar purpose at the state level. To prevent large scale die-offs of elk during severe winters, the Wyoming Game and Fish Department ("WGFD") initiated the practice on state feedgrounds in 1929. *See* AR 017885. The 1939 enactment of a state damage law that imposed liability for damage caused to crops by large game animals further incentivized WGFD to establish and maintain supplemental feedgrounds. *Id*.

Although the practice was initiated with good intentions, the research carried out by several of the *Amici* and other scientists now demonstrates that the continuation of supplemental feeding has significant health consequences for elk. The practice contributes to "[t]runcated migrations, habitat degradation, loss of biodiversity, the de-wilding of wildlife, and the perception that hay can be substituted for habitat." *Id*. Most concerning today—and the primary reason the National Park Service (NPS) and the Fish and Wildlife Service (FWS) jointly decided in 2007 to phase out supplemental feeding on the NER—is the serious threat it presents for a widespread epidemic of CWD and other diseases.

II. CHRONIC WASTING DISEASE COULD DEVASTATE ELK HERDS AND DAMAGE THE GREATER YELLOWSTONE ECOSYSTEM.

CWD is a complex and dangerous disease that is difficult to control. The disease is 100% fatal, with no known cure or vaccine to prevent or mitigate its

effects. *See* AR 026277. CWD attacks the central nervous system of elk and other cervid species, including moose and both mule and white-tailed deer. *Id.* Abnormal proteins, called prions, create sponge-like brain damage and cause lesions in the central nervous system of infected animals, producing behavioral and physiological changes with characteristic physical wasting and dementia in the final months before certain death. *Id.*

CWD is spreading across North America. Initially discovered at Colorado and Wyoming state wildlife research facilities in the 1960s, and in nearby wild cervids in 1981, AR 022147, CWD has been detected in twenty-five states and two Canadian provinces as of 2018. NATIONAL WILDLIFE HEALTH CTR., U.S. GEOLOGICAL SURVEY, UPDATE TO THE ASSOCIATION OF FISH AND WILDLIFE AGENCIES: CHRONIC WASTING DISEASE 1 (2018) (Exhibit A).

CWD is prone to significant outbreaks, which have proved virtually impossible to eradicate for three principal reasons: (1) CWD is highly transmissible, both directly and indirectly; (2) infectious prions that cause CWD can persist in the environment for several years; and (3) CWD has a relatively long incubation period, allowing infected animals to spread the disease for months before they show any noticeable symptoms.

First, CWD is highly transmissible via multiple direct and indirect pathways, both among elk and between elk and other cervid species. Infected animals can

directly infect other animals through nasal or oral secretions. *See* AR 026277. CWD is indirectly transmitted through contact with soil, plants, and feed contaminated with saliva, urine, feces, milk, or even carcass tissue of infected animals. *See* AR 026278.

Second, the prions that cause CWD remain infectious in the environment for several years in contaminated carcasses. *See* AR 026280. The threat of infection of healthy animals from carcass tissue is as great as that posed by living infected animals. Estimates show that the number of CWD prions shed during the progression of the disease and the number contained in the carcass of an animal that died from CWD are similar. *Id.* Decomposing carcasses often induce vegetative growth which can attract other cervids for grazing, resulting in CWD transmission. *Id.* Research also demonstrates a substantial possibility that CWD remains infectious after passage through avian digestive systems. *See* AR 026280–81. If so, CWD could be transmitted by birds that feed on an infected carcass and later shed CWD prions through their feces, either in or around that site or elsewhere on their migratory path.

Third, CWD has an incubation period ranging from one to three years, during which an infected animal appears behaviorally and physiologically normal. This incubation period has two parts. During the disease's latency period, the infected animal does not shed CWD prions and does not spread the disease. *See*

AR 026278. However, typically six months prior to the appearance of any behavioral or physiological symptoms, the infected animal begins to shed CWD prions in saliva, nasal mucous, urine, feces, or milk. *Id.* These prions can infect nearby animals immediately, and can also infect the environment for several years. *Id.* As a result, a significant portion of a highly concentrated elk population may become infected, and an expanding geographic area may become contaminated, before any visible signs of the disease are detected. In a densely populated environment, like that of a supplemental feedground where elk congregate in large numbers that would not occur naturally in the environment, CWD could conceivably infect many animals and contaminate much of the feedground before its presence is detected. This insidious nature of CWD, with its long incubation period, environmental persistence, and resistance to degradation, demands the timely implementation of preventative management strategies before the disease arrives on a feedground.

Because CWD is transmitted both by infected animals and through contaminated environments, it can become established even in moderate-density populations and endemic in higher-density populations. In one free-ranging deer population, 30% of tested animals were infected with CWD. AR 027174. In captive elk herds, where population densities more closely resemble those of a

supplemental feedground, disease prevalence rates have reached 90%. AR 018429.

If CWD arrives at Alkali Creek or other supplemental feedgrounds in Wyoming, the disease could devastate elk herds and damage the Greater Yellowstone Ecosystem. The feedgrounds could become continuous sources of CWD transmission from animal to environment and back to animal, quickly making it extremely difficult, if not impossible, to remove the disease from infected herds and contaminated environments.

III. SUPPLEMENTAL FEEDING HEIGHTENS THE RISK OF MAJOR DISEASE OUTBREAK

A. Supplemental Feeding Creates Unnaturally Dense Concentrations of Elk, Making Them More Susceptible to Disease

The population densities of feedgrounds in Wyoming, including the Alkali Creek Feedground, are extraordinarily high. A "high-density" elk population, as defined by a Rocky Mountain National Park study, is one that ranges from 10-100 elk per square kilometer. AR 027771. The NER falls in the middle of this high-density range, with an estimated average of 59.3 elk per square kilometer. AR 026284.

Average population densities at Wyoming state feedgrounds are exponentially higher, at nearly 2,000 elk per square kilometer. *Id*. Higher still is the estimated population density at the Alkali Creek Feedground. The Greater

Yellowstone Coalition, a conservation organization whose mission is to protect the Greater Yellowstone Ecosystem, estimates that, on the low end, population densities at Alkali Creek are 2,470 elk per square kilometer. AR 027771. The Coalition's upper estimate puts Alkali Creek population densities at 8,600 elk per square kilometer. *Id*. Both the low and high estimates of population density at the Alkali Creek Feedground pose significant concerns for disease transmission and spread.

Unnaturally high population densities cause behavioral changes in elk that make them more susceptible to disease. Several studies have evaluated how elk behaviors change as population density escalates. *See* AR 026281. Generally, as population densities grow, contact between elk increases in frequency and duration. *Id*. Both frequency and duration of contact between elk are twice as high at supplemental feedgrounds as they are in free-ranging herds. AR 026282. And as these factors increase, so does the risk of disease transmission, both directly between animals and indirectly through the environment. AR 026284; AR 024695.

Supplemental feedgrounds can become breeding grounds for disease. Many heavily used feedgrounds contain build-up of old hay, feces, urine, and blood. AR 018243. These areas may serve as reservoirs for pathogens and prions that may infect elk populations. *Id*. As the infected animals contaminate material within the

feedground and associate with other susceptible individuals, population health will decline and mortality will increase. *See* AR 018243.

A recent study evaluated the physiology of elk on nineteen Wyoming feedgrounds and 11 unfed free-ranging populations in the Montana and Wyoming areas. AR 022146. Between these populations, levels of glucocorticoid (steroidal hormones that increase in response to inflammation and stress) were 31–43% higher in feces samples from elk on feedgrounds than from free-range populations. *Id.* Chronically elevated levels of glucocorticoids significantly suppress immune response of mammals and, as a result, may increase susceptibility of elk to other diseases, such as brucellosis. *See* AR 022146. Because supplemental feedgrounds promote disease transmission, they pose a significant risk of exacerbating diseases that reach them. Endemic brucellosis in elk is a case in point, with deeply concerning implications for CWD.

B. Diseases That Reach Supplemental Feedgrounds Are Very Difficult to Manage, and May be Impossible to Eradicate

The history of brucellosis in Wyoming's elk feedgrounds raises significant concerns about the potential for the spread and amplification of CWD, both at Alkali Creek and on a regional level. Brucellosis is an infectious bacterial disease primarily affecting cattle, marked by the spontaneous abortion of first pregnancies. AR 022146. It is transmissible to cattle, bison, and elk through oral contact with bacteria, and can significantly harm herds of these animals. *Id.*

To protect livestock, state and federal authorities launched the Cooperative Brucellosis Eradication Program in 1934. *Id.* The program sought to eliminate brucellosis from cattle and swine and was largely successful—the number of infected cattle dropped from more than 100,000 in the 1950s to just a handful by 2013. *Id.*

Concurrent with this program's emerging success, state and federal officials sought to eradicate brucellosis in elk to curb reinfection of livestock. This effort has proved far more difficult, primarily because of the way in which supplemental feedgrounds can perpetuate disease.

Brucellosis was first discovered in elk in 1930 at the NER and was later found in 22 Wyoming state elk feedgrounds and 3 adjacent Idaho state elk feedgrounds. *Id.* Disease prevalence rates were significant: by the 1990s, approximately 37% of female elk across Wyoming's 23 feedgrounds tested positive for brucellosis. *Id.* In response, the Yellowstone Interagency Brucellosis Committee was formed in 1994 to combat the growing number of brucellosis-infected elk and bison herds throughout the Greater Yellowstone Ecosystem, which includes northwest Wyoming and adjacent areas of Idaho and Montana. AR 022146–47.

Shortly after its formation, the Committee issued a position statement confirming the role of supplemental feedgrounds in spreading disease:

> The evidence is overwhelming that winter feeding of elk has proven to perpetuate and enhance the spread of diseases, especially brucellosis. Once certain contagious diseases become endemic within a population of elk, bison, or other wildlife, they become very difficult, if not impossible, to eradicate. (Greater Yellowstone Brucellosis Committee, *General Position Statement on Winter Feeding of Elk and Other Wild Ungulates*, 1994, cited at AR 022147).

Subsequently, Idaho reduced winter feeding of elk by more than 90%. AR 022147. Wyoming, meanwhile, embarked on a decades-long program to contain and eradicate brucellosis by vaccinating feedground elk. *Id.* Brucellosis infection rates nevertheless remain stubbornly high in elk that frequently visit feedgrounds. At twelve Wyoming feedgrounds where elk have been vaccinated, the average rate of infection was 24% in 2004, and reached 30% at some feedgrounds. AR 017891. In stark contrast, the average rate of infection in elk that did not frequent feedgrounds was only 2.3%. *Id.* As the WGFD concluded, "[t]hese data support the contention that feedgrounds *increase* the probability of disease transmission." *Id.* (emphasis added).

In 2006, the WGFD expanded its efforts to contain brucellosis at elk feedgrounds, initiating a test-and-slaughter program at the Muddy Creek Feedground near Pinedale. AR 022147. The high costs and low success rates compelled WGFD to end that program in 2011. *Id.* And despite well-intentioned efforts to control brucellosis in Wyoming, cattle herds in the vicinity of infected elk herds experienced outbreaks of the disease in 2004, 2008, and 2010. *Id.*

This history of brucellosis contagion in elk demonstrates the ways in which supplemental feeding perpetuates disease transmission. Further, Wyoming's struggle to control brucellosis among elk shows the difficulty of managing, much less eradicating, diseases in free-ranging elk that receive supplemental feed. Although brucellosis has been costly and harmful, the consequences of CWD reaching the Alkali Creek Feedground could be far worse. As a highly transmissible, 100% fatal disease caused by a pathogen that can persist in the environment for years, an outbreak of CWD could be much more devastating to elk herds and thereby create cascading impacts to the Greater Yellowstone Ecosystem.

IV. SUPPLEMENTAL FEEDING HAS CREATED INCREASINGLY URGENT ECOLOGICAL CONCERNS THAT THE FOREST SERVICE HAS FAILED TO CONSIDER

The Forest Service must act to address the risk of an outbreak and establishment of a major disease, such as CWD, at the Alkali Creek Feedground. As noted, CWD is spreading across North America. Three years ago, CWD was detected in deer within 62 miles of the Alkali Creek Feedground, and it has only moved closer since that time. *See* AR 019272.

With no vaccines or therapeutic remedies to treat CWD, restrictions on the transport of potentially infected animals or their products and proactive population

management measures are the primary approaches currently relied upon to slow the spread and limit the amplification of the disease in wild herds. *See* AR 022148.

Migration models suggest that shortening the amount of time elk spend on supplemental feedgrounds would reduce the risk of intraspecific disease transmission. *See* AR 025335. Other studies maintain that simply modifying the supplemental feeding program would not do enough to substantially reduce disease transmission. *See* AR 022149. The approach adopted by the FWS in the NER of halting supplemental feeding and balancing elk numbers with available winter habitat appears to be the more effective way to address the issue of CWD transmission. AR 022149. Michigan chose to take this approach when it first discovered CWD-infected white-tailed deer. *Id*. The State banned the baiting and feeding of deer and elk in affected areas of the Lower Peninsula, a decision that survived the scrutiny of judicial review. *Id*. Generally, reducing population densities early and aggressively is one of the most promising and effective methods of preventing new CWD outbreaks. *See* AR 024679.

The Forest Service's approval of WGFD's special use permit allowing the State to continue the practice of supplemental feeding conflicts with the 2007 joint decision of the FWS and the NPS to begin phasing out the practice at the NER. *See* AR 017850, AR 017852. The potential for transmission and amplification of CWD, among other dangerous non-endemic diseases, was one factor the Forest

Service's sister agencies considered in that decision-making process before ultimately concluding that phasing out supplemental feeding in the NER was necessary to protect elk and other regional wildlife populations. AR 017849. The FWS and NPS rejected alternative approaches that permitted the continuation of supplemental feeding because of the increased likelihood of CWD-like diseases plaguing the Jackson elk herd. AR 017852; AR 017854.

Forest Service officials have recognized that supplemental feeding can amplify the harmful effects of CWD by aiding its transmission. In the final Record of Decision regarding WGFD's permit, the Forest Service recommended that WGFD "transition away from the need for supplemental feed for elk" on the Alkali Creek Feedground because of the impending threat of CWD. AR 030637. The Forest Service stated that it "clearly understand[s] and acknowledge[s] that the [WGFD]'s action of feeding results in artificially high concentrations of elk . . . which increases risk of disease transmission." AR 030638.

In 2014, more than 70% of the Jackson elk herd spent the winter at the NER. *See* U.S. FISH & WILDLIFE SERVICE, COMPREHENSIVE CONSERVATION PLAN: NATIONAL ELK REFUGE 53–54 (2015) (Exhibit B). A portion of the same Jackson elk herd also feeds at Alkali Creek. AR 017887. Officials detected brucellosis in elk at the NER in 1930, and after that it was detected at twenty-two of Wyoming's state elk feedgrounds, including Alkali Creek. AR 022146. Given the manner in

which CWD spreads, and that elk travel between Alkali Creek and the NER and share summer ranges, AR 028852, it is reasonable to predict that CWD at Alkali Creek could be transmitted to the NER within a short period of time. This transmission would not only permanently harm the herd, but would also undermine the joint decision of the NPS and FWS to begin phasing out supplemental feeding at the NER.

Although the Forest Service acknowledged the grave threat of CWD spread and transmission posed by supplemental feeding at the Alkali Creek Feedground, it did not seriously analyze the specific harms that its decision would cause to the Jackson elk herd and other regional wildlife populations. The Forest Service also failed to consider reasonable alternatives, such as phasing out supplemental feeding in the near future to avoid the worst consequences of CWD infection in the Jackson elk herd. Accordingly, based on the best available scientific evidence and the crucial importance of the long-term health and viability of the Greater Yellowstone Ecosystem, it is imperative that, at minimum, the Court vacate the Forest Service's Record of Decision and remand this matter to the agency for an environmental review that considers and applies sound scientific principles concerning CWD spread and transmission at the Alkali Creek Feedground.

CONCLUSION

Although supplemental feeding began with good intentions, it has become a dangerous practice that threatens the health of elk and other wildlife populations, and the ecosystem that sustains them. Scientific studies conclude that feedgrounds promote unnaturally dense concentrations of elk, increasing the potential for transmission of diseases, such as CWD. CWD's unique combination of characteristics—ease of transmission, long incubation period, persistence in the environment, and lack of any effective prevention or treatment methods—pose a particular risk to the highly dense Jackson elk herd that feeds at Alkali Creek. The proximity of this feedground to the NER is also very troubling, given that elk move freely between those locations.

In the professional opinion of the *Amici*, based on their decades of relevant study and experience, the Forest Service failed to consider the best available scientific information on the impacts of supplemental feeding when it approved the special use permit allowing WGFD to continue this practice at Alkali Creek. The agency's decision ignores the very real risk of an outbreak and establishment of CWD that could be devastating to elk and other wildlife populations across Wyoming that depend upon a healthy elk herd. The Forest Service must be required to prepare a new environmental review that remedies the deficiencies in its analysis and considers phasing out supplemental feeding of elk in Wyoming's national forests.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

The undersigned counsel certifies that this brief complies with the type and volume limitations of Federal Rules of Appellate Procedure 29(a)(5) and 32(a)(7)(A). The brief contains 4,497 words.

DATED: May 7, 2018

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CERTIFICATE OF SERVICE

I, Reed Zars, hereby certify that on May 7, 2018 I served copies of this *Amicus Curiae* Brief on all counsel of record in this case by way of electronic mail (ECF filing) and I further certify that all parties to this case are registered to receive ECF filings in this matter.

DATED: May 7, 2018

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