No. 14-35445

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

IDAHO WOOL GROWERS ASSOCIATION, et al.,
Plaintiffs-Appellants,

v.

TOM VILSACK, et al.,
Defendants-Appellees,

and

THE WILDERNESS SOCIETY, et al.,
Intervenor-Defendants-Appellees.

Appeal from the United States District Court for the District of Idaho
Case No. 1:12-cv-00469
Hon. A. Wallace Tashima, District Judge

INTERVENOR-DEFENDANTS-APPELLEES' ANSWERING BRIEF

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CORPORATE DISCLOSURE STATEMENT

Pursuant to Federal Rule of Appellate Procedure 26.1, Defendant-Intervenor-Appellees The Wilderness Society, Western Watersheds Project, and Hells Canyon Preservation Council represent that they have no parent corporations and that they do not issue stock and, accordingly, no publicly held corporation owns 10% or more of any stock.

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STATEMENT OF JURISDICTION

Intervenor-Defendants-Appellees The Wilderness Society *et al.* ("TWS") agree with the statement of jurisdiction provided by Plaintiffs-Appellants Idaho Wool Growers Association *et al.* ("IWGA").

STATEMENT OF THE ISSUES

1. Did the District Court correctly rule that the Forest Service complied with its duty under the National Environmental Policy Act ("NEPA") to obtain the special expertise of other federal agencies on the environmental impacts of management actions to protect bighorn sheep populations from disease transmitted by domestic sheep, given that the Forest Service considered the opinions of Dr. Knowles as well as a multitude of other experts that acknowledged the risk to bighorn sheep from domestic sheep despite uncertainties in the exact mechanism of disease transmission?

2. Did the District Court correctly rule that the Forest Service did not need to supplement its Final Supplemental Environmental Impact Statement ("Final SEIS") due to the Lawrence study when that study simply provided additional evidence confirming transmission of bacteria from domestic sheep to bighorn sheep, and the Forest Service considered comments on the study by Dr. Knowles, as well as comments by four other experts refuting Dr. Knowles' opinions, during the administrative appeal process for the Final SEIS?

3. Did the District Court correctly rule that the Forest Service complied with NEPA in its use of certain models because it properly considered relevant factors, adequately explained the models and their uncertainties, and reasonably relied on the premier experts in modeling disease transmission between domestic sheep and bighorn sheep when choosing this methodology for its analysis?

PERTINENT STATUTES AND REGULATIONS

All applicable statutes and regulations are contained in the Addendum attached to IWGA's opening brief.

STATEMENT OF THE CASE

The Payette National Forest and surrounding public lands have been contending for years with management concerns over conflicts between domestic sheep and bighorn sheep. Contact between the two species creates a high risk of domestic sheep transmitting disease to bighorn sheep that has led to die-offs within bighorn sheep populations across the western United States. Wildlife experts agree that the only way to protect bighorn sheep from disease transmitted by domestic sheep is to have complete physical separation of the species.

Due to concerns over viability of bighorn sheep populations, in 2005 the Chief of the Forest Service ordered the Payette National Forest to complete a supplemental analysis to address conflicts between domestic sheep and bighorn sheep. ER723. Over the course of five years, the agency consulted with numerous

scientists, wildlife managers, and tribal biologists, and incorporated in its analysis a large body of scientific literature as well as the largest telemetry dataset on bighorn sheep from anywhere in the United States. ER766-74, 787, 920-21 (Final SEIS); SER411 (Coggins Decl. ¶ 33).

The Forest Service issued a Draft SEIS in 2008 and accepted public comments on its proposal to close certain areas to domestic sheep to protect the bighorn populations on the forest. 73 Fed. Reg. 57619, 57620 (Oct. 3, 2008); SER1147. It then determined to conduct a more quantitative analysis using modeling to better assess the risk of contact and disease transmission between the species and compare alternative management actions, and contracted with experts at UC Davis for modeling this type of risk. ER1474. The Forest Service subsequently issued an Update to the Draft SEIS in January 2010 and again accepted public comment. ER1471.

In July 2010, the Forest Service issued its Final SEIS and Record of Decision, which closed all or part of 17 domestic sheep allotments on the Payette National Forest over the course of three years to manage for viability of bighorn sheep populations. ER684-85 (ROD); ER748 (FSEIS description of Alt 7O). Several groups, including IWGA, administratively appealed the decision, and the Regional Forester denied all appeals. ER576 (IWGA Appeal); ER559 (Denial of Appeals). The Forest Service has now fully implemented its decision for two

grazing seasons. ER684-85 (ROD).

IWGA filed this lawsuit in September 2012 challenging the Final SEIS and Record of Decision. ER529-56. IWGA asserted various NEPA violations as well as violations of the Federal Advisory Committee Act ("FACA"). *Id.* TWS moved to intervene in the case, and the District Court granted their motion. Docket Nos. 9 & 29.[1] The District Court also granted IWGA's motion to expand the administrative record with expert declarations. ER500-28. The parties then briefed summary judgment, which was accompanied by expert declarations from each party. ER358-495 (IWGA declarations); SER1-386 (Forest Service declarations); SER387-565 (TWS declarations).

A hearing was held on March 17, 2014 and eight days later, the District Court denied IWGA's summary judgment motion in full and issued judgment dismissing the action.[2] ER3-26. The District Court held that none of IWGA's NEPA or FACA claims had merit, and the Forest Service's decision was not arbitrary and capricious but, rather, was a rational decision that followed proper procedures. ER5-26. IWGA appealed the District Court's Order and Judgment on May 22, 2014. ER1-2.

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[1] Docket Nos. refers to the District Court Docket for documents not included in the excerpts of record.

[2] Ninth Circuit Court of Appeals Judge A. Wallace Tashima, sitting by designation, heard and ruled on IWGA's summary judgment motion.

STATEMENT OF FACTS

I. Disease Transmission Between Domestic Sheep and Bighorn Sheep.

A large body of scientific evidence supports the conclusion that domestic sheep pose a high risk to bighorn sheep by transmitting organisms to bighorn sheep that cause respiratory disease and death and lead to large-scale die-offs in bighorn populations. ER728-30, 766, 768-72 (Final SEIS); ER681, 686 (ROD); SER786-89, 933-34, 1104-11 (literature discussing disease transmission); SER28-37 (Jessup Decl. ¶¶ 10-23). A wide consensus exists among wildlife biologists and other scientists that because of the risk of disease transmission, the two species must be kept physically separated if protection of bighorn sheep populations is the goal. ER730, 774 (Final SEIS); SER743-44, 813-15, 1111, 1142-43, 1386-91, 1426-29, 1442-43, 1447-50, 1479-80, 1552-56 (discussing bighorn management). *See also* SER28-30, 41-44 (Jessup Decl. ¶¶ 10-12, 34-38); SER230 (Srikumaran Decl. ¶¶ 54-55); SER390-91, 395-97 (Schommer Decl. ¶¶ 13, 30-38); SER402-03, 413-14 (Coggins Decl. ¶¶ 10, 40-42); SER468-69 (Besser Decl. ¶¶ 34-36).

When a domestic sheep comes into contact with a bighorn sheep, the domestic sheep can transmit an organism, to which it is naturally immune, to the bighorn sheep, which causes respiratory disease in bighorn sheep. ER767-68, 771-72; SER813-14. This disease usually leads to pneumonia and is almost always fatal to the bighorn sheep, but not before the bighorn passes the disease to other

members of a bighorn herd, which continue to spread it, causing large scale die-offs within populations. ER767; SER813-14, 1083-84. These die-offs often decimate 75-100% of a bighorn population. ER767, 770-71; SER786, 788, 813. Furthermore, any female bighorns in the infected herd that do not die will pass the organism on to her lambs, causing high lamb mortality and low reproduction rates for years. ER767; SER788, 814, 1057-59, 1079.

While the exact mechanism of disease transmission is not known with certainty, a vast majority of biologists and wildlife managers agree that domestic sheep pose a high risk to bighorn sheep and should be kept widely separated. ER728-30, 771-74, 1009-10 (Final SEIS); SER743-44, 813-15, 1111, 1426-29, 1449-50, 1552-56 (literature and management recommendations); SER230 (Srikumaran Decl. ¶¶ 54-55); SER395-96 (Schommer Decl. ¶¶ 31-32); SER413-14 (Coggins Decl. ¶¶ 40-42); SER468-69 (Besser Decl. ¶¶ 34-36). The need for large distances between the species is due to the combination of: (1) long distance movements by bighorn sheep across all terrain, (2) propensity for domestic sheep to stray from their band and remain on allotments in places or at times not authorized, and (3) the attraction between domestic sheep and bighorn sheep due to the fact that the species are in the same genus and are both gregarious. ER765, 770, 871 (Final SEIS); SER983-84, 1387-88, 1429-30, 1555 (literature and biologist comments); SER40-44 (Jessup Decl. ¶¶ 30-31, 34-38); SER392-94, 396-

97 (Schommer Decl. ¶¶ 21-28, 33, 37); SER406-09 (Coggins Decl. ¶¶ 20, 24, 27).

These factors also are the reason bighorn biologists agree that using "best management practices" for livestock grazing is not sufficient to keep the species separate in remote, steep terrain such as the Payette National Forest. ER863, 1057, 1286-91 (Final SEIS); SER1387-88, 1426-29, 1555 (biologist comments); SER392-93, 396-97 (Schommer Decl. ¶¶ 21-22, 33, 37); SER407-09 (Coggins Decl. ¶¶ 24, 27); SER468-69 (Besser Decl. ¶ 36).

Scientists believe many bighorn die-offs that have occurred in Idaho and other parts of the West are due to contact with domestic sheep, significantly reducing bighorn populations from historic levels and leaving some areas extirpated of bighorn sheep. ER728, 766-68 (Final SEIS). The bighorn sheep populations on the Payette National Forest occur in the Hells Canyon and Salmon River areas, and each population has experienced disease related die-offs. ER774-75, 778 (Final SEIS); SER722-23, 1067-69 (reports); SER390-92, 395 (Schommer Decl. ¶¶ 13-20, 30); SER403-05, 410-11 (Coggins Decl. ¶¶ 11-17, 31-32). Because individual bighorns frequently travel between herds within these populations and can move many miles in a matter of days, an infected bighorn can spread the disease widely and quickly throughout the population. SER814; SER403-05 (Coggins Decl. ¶¶ 12-17).

II. Prior Litigation Over Domestic Sheep and Bighorn Sheep Conflicts in Central Idaho.

The issue of disease transmission between domestic sheep and bighorn sheep has been the subject of prior litigation in Idaho. The Forest Service began its supplemental environmental analysis assessing risk from domestic sheep to bighorn sheep viability on the Payette National Forest in 2005, but was still early in the process by 2007. TWS was concerned about danger to bighorn sheep from domestic sheep grazing certain allotments that posed a high risk to the bighorn populations while the Forest Service conducted its analysis, and initiated litigation to prohibit grazing on those allotments in the interim. *See W. Watersheds Project v. U.S. Forest Serv.,* 2007 WL 1430734, at *1, 2 (D. Idaho May 11, 2007). Recognizing the risk to bighorns that was substantiated by the scientific literature as well as TWS's experts, the Forest Service decided to close five high risk allotments on the Payette National Forest to protect bighorn sheep and avoid a preliminary injunction. *See id.* at *1; *see also W. Watersheds Project v. U.S. Forest Serv.,* 2007 WL 3407679, at *1 (D. Idaho Nov. 13, 2007).

One of the grazing permittees challenged the Forest Service's decision with respect to two allotments, but the District Court of Idaho upheld the decision. *W. Watersheds Project v. U.S. Forest Serv.,* 2007 WL 1729734 (D. Idaho June 13, 2007). The court noted that bighorn sheep were recently detected on and around the allotments, that "domestic sheep stand accused by the overwhelming majority

of experts" of causing bighorn die-offs, and attempts at using grazing restrictions to keep the species separate have not been effective due in part to domestic sheep straying from their band as well as the gregarious nature of—and attraction between—the two species. *Id.* at *2-3. Thus, the court denied the permittee's motion to overturn the Forest Service's decision. *Id.* at *4. The court relied in particular on the expertise of Oregon Department of Fish and Wildlife biologist Victor Coggins, who had been studying and managing the bighorns in Hells Canyon for 35 years. *Id.* at *2.

Across the Salmon River from the Payette National Forest is the Nez Perce National Forest, and it too contained a domestic sheep allotment that posed a high risk to bighorn sheep. TWS also brought action in 2007 to stop grazing of this allotment, and again the Forest Service decided to close the allotment, persuaded of the high risk by recent sightings of bighorn sheep on and near the allotment. *W. Watersheds Project,* 2007 WL 3407679, at *1. The grazing permittee for this allotment challenged the decision, but once again the District Court of Idaho upheld the Forest Service's closure order, holding that "[g]iven the precarious nature of the bighorn populations, and the wide-spread agreement among experts that sheep might transmit a deadly disease to bighorns, a substantial risk [of disease transmission] exists even without the specific proof demanded" by the permittee. *Id.* at *4. The court further noted that the bighorn sheep on the Salmon

River are a native species and loss of that herd "would be particularly devastating to the genetic diversity of bighorns." *Id.* at *3.

During the next two years, the Nez Perce Tribe collected data on the locations and movements of bighorn sheep along the Salmon River. This data showed bighorn sheep using habitat up and down the river, with animals traveling long distances and moving back and forth between herds. *W. Watersheds Project v. BLM,* 2009 WL 3335365, at *4 (D. Idaho Oct. 14, 2009). The data also showed bighorn sheep crossing the Salmon River and using habitat on the Bureau of Land Management's ("BLM") Partridge Creek allotment. *Id*. This allotment was located adjacent to the high risk allotments on the Payette National Forest and directly across the river from the Nez Perce National Forest allotment. *Id.* at *2.

TWS and the Nez Perce Tribe approached BLM about the risk to bighorn sheep from the Partridge Creek allotment, but BLM refused to close the allotment. TWS thus filed a new lawsuit in 2009 and sought an injunction to protect bighorn sheep from domestic sheep grazing this allotment. *Id.* at *1. Relying on the wealth of evidence that domestic sheep pose a risk to bighorn sheep, the new data showing bighorn sheep on the allotment and interacting with herds up and down the Salmon River, and the lack of any evidence that "best management practices" are effective at keeping domestic sheep and bighorn sheep separate, the District Court of Idaho ordered BLM to close the Partridge Creek allotment. *Id.* at *5-7.

The court noted in particular that bighorn experts from the Nez Perce Tribe and the Forest Service as well as expert Victor Coggins all agreed that best management practices are not effective at keeping the species separate in this terrain. *Id.*

The following year, the Forest Service issued its decision for the Payette National Forest. ER670. Fearing that the Forest Service would use a similar analysis to close grazing allotments on other forests, IWGA and other livestock interests implored U.S. Congressman Mike Simpson to put a rider into the 2012 appropriations bill that would prevent the Forest Service and BLM from closing any other domestic sheep allotments due to conflicts with bighorn sheep. *See W. Watersheds Project v. U.S. Forest Serv.,* 2012 WL 2254206, at *1, 2 (D. Idaho June 15, 2012).

The Forest Service interpreted the rider to mean that it could not further implement the decision for the Payette National Forest, but upon a preliminary injunction motion by TWS, the District Court of Idaho clarified that the plain language of the rider applied only to other forests and not the Payette. *Id.* at *1-2. The Court found that TWS had shown a likelihood of irreparable harm to bighorn sheep if the Forest Service did not implement the Payette allotment closures in 2012. *Id.* at *2. Thus, the Court enjoined grazing on the allotments scheduled to be closed in 2012 under the Payette decision. *Id.* at * 1, 3. The Forest Service complied and then completed implementation of its decision in 2013. ER684.

III. The Forest Service's Supplemental EIS Process to Ensure Viability of Bighorn Populations on the Payette National Forest.

As noted above, the Forest Service began its supplemental analysis of conflicts between domestic sheep and bighorn sheep on the Payette National Forest in 2005 and signed the Record of Decision in 2010. During this process, it conducted a thorough analysis of the science of disease transmission and consulted with numerous experts before making its decision on how best to manage to ensure viability of bighorn sheep populations.

A. Draft SEIS.

The Forest Service conducted a thorough review of the scientific literature on disease transmission between domestic sheep and bighorn sheep and analyzed telemetry data and other sightings of bighorn sheep in the Hells Canyon and Salmon River areas for its Draft SEIS. SER1161-64, 1174-76, 1189-1210. It also convened a group of six bighorn sheep experts from state and federal agencies to rate the risk of each domestic sheep allotment, and a separate panel of experts from multiple agencies and organizations to discuss disease transmission. SER1161-63, 1175.

The bighorn experts ranked the grazing allotments on the Payette National Forest as very high risk, high risk, moderate risk, and low risk to bighorn sheep. SER1175. The science panel discussed the evidence of disease transmission as well as the uncertainties, and concluded that although scientists have not yet

identified the exact strain of bacteria that cause bighorn sheep die-offs in the wild, it is clear that contact between domestic sheep and bighorn sheep increases risk of subsequent bighorn sheep mortality and reduced recruitment, primarily due to respiratory disease. SER1162-63. Based on the threat of disease transmission from domestic sheep to bighorn sheep, the Draft SEIS proposed to close certain allotments to domestic sheep grazing to protect the viability of the bighorn populations on the forest. SER1181.

About the same time the Forest Service released the Draft SEIS, IWGA sued the Forest Service under FACA, alleging that the team of experts that conducted the risk assessment and the panel of disease transmission experts each was a "committee" under FACA, and the Forest Service did not follow the proper procedures under FACA to use such committees. *See Idaho Wool Growers Ass'n v. Schafer,* 637 F. Supp. 2d 868 (D. Idaho 2009). The District Court of Idaho ruled that the Forest Service's use of these committees violated the procedural requirements of FACA and thus, the Forest Service could not rely on the reports from these committees in the future. *Id.* at 879-80. The court stated specifically, however, that its findings "should not be simultaneously interpreted as an endorsement of Plaintiffs' position on disease transmission between domestic sheep and bighorn sheep," and noted the Forest Service's position that other information was available to the agency to support its Draft SEIS. *Id.* at 880.

When asked by the Forest Service to clarify its Order, the court stated it did not intend to unwind prior decisions or to subvert "the progress already made toward addressing the risk of disease transmission from domestic sheep to bighorn sheep." *Idaho Wool Growers Ass'n v. Schafer,* 2009 WL 3806371, at *2 (D. Idaho Nov. 9, 2009). The Forest Service could not continue to rely on the portions of the Draft SEIS that relied solely or primarily on the committees' reports, nor could it cite to new studies that relied wholly or substantially on those reports, but it could continue to rely on other portions of the Draft SEIS and could certainly use the underlying science that supported the committees' reports. *Id.* at *2-4.

B. Update to the Draft SEIS.

Despite the District Court's clarification that the Forest Service could continue to rely on much of the Draft SEIS, the agency decided to perform a more thorough and quantitative risk assessment using modeling, and issue an update to the Draft SEIS. ER1471. It contracted with experts at the Center for Animal Disease Modeling and Surveillance at the University of California-Davis. ER1474; SER1740-41. These experts refined models they had created to assess risk of disease transmission from domestic sheep to Sierra Nevada bighorn sheep, which had been peer-reviewed and published in scientific journals, and used the extensive telemetry data set from the Hells Canyon bighorn sheep in the refined models. ER1474, 1484; SER875-921, 1120-30, 1446, 1452; SER123-24, 131-32

(J. O'Brien Decl. ¶¶ 9, 26-28). These refined models have also been published in peer-reviewed journals. SER526-27 (Carpenter Decl. ¶ 12).

After completion of the modeling, the Forest Service issued an Update to the Draft SEIS in January 2010. ER1471. The Forest Service noted that, in addition to the new modeling, the Update also included information that bighorn sheep had recently been designated a sensitive species in Region 4 due to population declines from disease and that it would analyze alternative actions in light of that new designation, and the economic analysis had been revised in response to public comment on the Draft SEIS. ER1474. The Update eliminated three alternative actions that had been considered in the Draft SEIS and included five new alternatives based on the modeling and updated analysis. ER1484.

The Update stated that the Forest Service used new scientific information as well as the new modeling to improve upon the analysis conducted in the Draft SEIS, and that the new quantitative analysis completely replaced the qualitative risk assessment relied upon in the Draft SEIS that had violated FACA procedures. ER1485. The Update included a description of the models used in the analysis and used the results of the models to compare nine alternative actions. ER1519-46, 1552-74. The Forest Service accepted public comment on the Update to the Draft SEIS. 75 Fed. Reg. 6026 (Feb. 5, 2010).

C. Final SEIS.

After reviewing public comments on the Update to the Draft SEIS, the Forest Service issued the Final SEIS in July 2010. ER707. The Final SEIS was the result of consultation with numerous experts, including its own experts, bighorn sheep biologists from Oregon, Washington, Idaho, and the Nez Perce Tribe, and modeling experts from UC Davis. ER921; SER1611-12. The agency received more than 25,000 public comments and responded to those comments in the Final SEIS. ER941-1274.

The Final SEIS discussed the history of bighorn sheep in the Hells Canyon and Salmon River Canyon areas, noting that both populations have experienced periodic die-offs. ER764. It explained that the Hells Canyon and Salmon River Canyon bighorn populations actually consist of numerous discrete local populations that form a larger metapopulation, with individual bighorns moving between local populations. ER765. Bighorn sheep can travel long distances, with individuals moving as much as 50 miles, and can cross valleys and major rivers during their travels. ER765. These movements allow for dispersal into new areas and exchange of genetic material, but also facilitate spread of disease. *Id.*

1. Disease Transmission Discussion.

The Final EIS contained an extensive discussion about disease transmission from domestic sheep to bighorn sheep, and disease outbreaks in the Hells Canyon

and Salmon River bighorn populations, citing to numerous published studies in support. ER766-78. The discussion began by explaining that:

> Although limited knowledge of transmission dynamics exists (Garde et al. 2005), extensive scientific literature supports a relationship between disease in bighorn sheep populations and contact with domestic sheep. The literature includes both circumstantial evidence linking bighorn die-offs in the wild to contact with domestic animals, and controlled experiments where healthy bighorn sheep exposed to domestic sheep displayed subsequently high mortality rates (Foreyt 1989, 1990, 1992 a,b; Foreyt et al. 1994; Onderka et al. 1988; Onderka and Wishart 1988; Garde et al. 2005). While much of the evidence for disease transmission from domestic sheep to free-ranging bighorn sheep is circumstantial, a large literature base has emerged that documents bighorn sheep die-offs near domestic sheep. These die-offs have prompted management decisions to eliminate shared use of ranges by bighorn and domestic sheep by Federal land management agencies and State wildlife departments (Goodson 1982).

ER766. It then went on to explain that domestic sheep have natural immunity to the bacteria and often carry it without showing any signs of disease, while bighorn sheep are particularly susceptible. ER767-68. Outbreaks of pneumonia can kill some, many, or all bighorn sheep in a herd and cause many years of low lamb survival. ER767.

The Final SEIS discussed evidence of disease transmission in the form of inoculation experiments, pen experiments, observations of disease outbreaks following contact between domestic and free-ranging bighorn sheep, and correlation between bighorn population performance and distance from domestic sheep. ER768-71. The Final SEIS stated that, "[t]he discussion notes the

limitations of each type of observation, and is structured to show how each one complements the others so that together they point towards a common conclusion that contact with domestic sheep does pose a risk to free-ranging bighorn sheep populations." ER768.

For instance, the inoculation experiments indicate that domestic sheep carry some strains of bacteria that are not pathogenic to them, but are highly lethal to bighorn sheep; but these experiments cannot show whether such bacteria can be transmitted by contact between domestic sheep and bighorn sheep. ER769. The pen experiments proved transmission of fatal pneumonia from domestic sheep to bighorn sheep, but could not prove whether transmission of fatal disease actually occurs in the wild. ER770. The discussion of pen experiments included the new Lawrence study, which used a bacteria tagged with a green fluorescent protein to "definitively demonstrate[] a case in which a deadly pathogen was transferred from domestic sheep to bighorn sheep" that resulted in pneumonia and death of the bighorn sheep. ER769-70.

Next, the Final SEIS discussed bighorn sheep outbreaks that occurred in the wild following contact with domestic sheep and a correlation showing that bighorn sheep populations that suffer pneumonia-induced die-offs were located significantly closer to domestic sheep allotments than other bighorn populations that did not suffer such die-offs. ER770-71. Again, these observations alone do

not prove transmission of disease in the wild but provide further evidence that disease spread by domestic sheep cause die-offs of bighorn sheep herds. *Id.*

The Forest Service summarized the disease evidence by noting that no one form of evidence conclusively demonstrates that contact with domestic sheep frequently leads to die-offs of bighorn sheep populations. ER771. However, "field observations suggest that bighorn sheep have a high probability of contracting fatal pneumonia following contact with domestic sheep, which has led to numerous independent experiments. These experiments provide strong corroboration that bighorn sheep have a high probability of contracting fatal pneumonia following contact with domestic sheep." ER771-72.

The Final SEIS further explained that the interaction of disease outbreaks with other stressors in bighorn sheep populations is poorly understood, noting in particular that "complex interactions of disease agents themselves increases uncertainty in diagnosis and may also predispose bighorn sheep to secondary disease events." ER772. For instance, a variety of pathogens may be involved in bighorn sheep mortality, some of which may not be known yet, and further research is needed on the interaction of pathogens. *Id.* "Although the exact mechanism for developing pneumonia and other diseases in bighorn sheep following association with domestic sheep is unknown, experimental and field data indicate the two species are not compatible on sympatric ranges." *Id.* The Final

SEIS also discussed other stressors to bighorn sheep that could reduce their ability to resist disease, such as weather, poor nutrition, predation, and human disturbance. *Id.*

The Final SEIS acknowledged opinions of scientists from agricultural disciplines, such as Dr. Knowles, who contend that disease transmission is not a relevant factor in bighorn sheep distribution and population declines. ER772-774. These opinions primarily focused on the uncertainty of the exact mechanism and causal agents of disease transmission, and lack of conclusive proof of transmission in the wild. ER773. The Forest Service noted that some contentions were accurate but all of the scientific evidence put together demonstrates a risk to bighorn sheep. ER773-74. It stated:

> The disease review sections of this document, consider a large body of peer reviewed and published literature, spanning several decades, that addresses the allegations. While there clearly are gaps in the knowledge base on the causal factors and mechanisms of bighorn sheep die-offs and disease transmission between these species, the vast majority of literature supports the potential for disease transmission between the species, documents bighorn sheep die-offs near domestic sheep, and supports the management option of keeping these species separate to prevent disease transmission. Further, there is no peer reviewed literature that suggests bighorn sheep can be grazed with domestic sheep without concern for disease transmission between the species. Scientists from both sides of the issue also recommend that the species be kept separate until the disease transmission science is better understood.
>
> The analysis conducted in this document recognizes these uncertainties but clearly focuses on the Forest Service's responsibility to provide habitats that support viable populations of bighorn sheep,

> particularly given the risks that the species currently faces relative to the devastating impacts of disease.

ER774.

Finally, the Final SEIS described the history of pneumonia outbreaks in the Hells Canyon and Salmon River bighorn metapopulations. ER774-787. At least seven bighorn die-offs have occurred in the Hells Canyon populations since 1971, and five have been circumstantially linked to domestic sheep. ER774. The effect of chronic, repeated pneumonia outbreaks in populations close to domestic sheep allotments has been the extirpation of one population and substantial mortality and population declines in other populations. ER775. Three of the Salmon River populations have also had significant recent declines from disease. ER778.

For its analysis, the Forest Service considered an extensive body of scientific literature and numerous public comments on the disease transmission issue, including comments and scientific articles by Dr. Knowles and others concerning disease transmission proof. ER1840 (notes of conversation with Dr. Knowles), ER1827-34, 1959-2012, 2015-27 (papers co-authored by Dr. Knowles); SER1656-60, 1661-738 (public comments and letters). The Forest Service addressed those concerns and responded to the comments in the Final SEIS. ER766-74, 1023, 1029-30, 1032-34, 1121, 1129, 1130-31, 1138-39.

2. Modeling Discussion.

The Final SEIS also included a lengthy discussion of the three models used

in the Forest Service's analysis: the bighorn sheep source habitat model, the risk of contact model, and the disease model. ER782. The body of the Final SEIS contains a thorough explanation of these models, and Appendix L to the Final SEIS provides an even more detailed description. ER782-810, 1351-1405.

The Final SEIS first described the source habitat model, which modeled the areas that provide key habitat elements needed by bighorn sheep in summer and winter. ER782-86, 1356-62. The analysis depicted summer and winter source habitat on and around the Payette National Forest. ER785-86.

The Forest Service next described the risk of contact model, which consisted of two components: core herd home range, and analysis of forays by bighorn sheep outside of their home range. ER787, 1363-90. These two components, combined with the habitat model, were used to estimate the probability that a bighorn ewe or ram from any of the herds would reach any of the open domestic sheep allotments in a given year. ER787. The risk of contact model used the telemetry data from the Hells Canyon bighorn sheep study as well as telemetry and observational data on the Salmon River populations. *Id.* The telemetry data was collected over twelve years from 400 individual bighorn sheep and included more than 54,000 telemetry points. *Id.*

The core herd home range analysis depicted the core home range of each bighorn sheep herd—the area where most animals in a herd spend most of their

time—and the overlap of those home ranges with the Payette National Forest. ER787, 794. The foray analysis accounted for the long-distance movements that bighorn sheep make outside of their home ranges. ER795. This analysis estimated the probability that a foray by a ram or ewe would occur, and the probability that a foray would intersect a domestic sheep allotment. ER796-800. The Final SEIS described in detail the methods used for the home range and foray analyses. ER792-800, 1363-90.

Finally, the Final SEIS described the disease model. ER800-09, 1390-1400. This model had three components: (1) the probability that a bighorn that is determined by the Foray Model to have reached an occupied allotment will subsequently contract respiratory disease and initiate an outbreak in its home herd; (2) population growth in a healthy bighorn herd; and (3) the magnitude and duration of impacts caused by an outbreak of respiratory disease in a bighorn herd. ER801. The Final EIS discussed the methods and assumptions used for each component. ER802-09, 1390-1400. Again, this model used information collected on the local bighorn populations in the Hells Canyon and Salmon River metapopulations. ER804-07.

In the Final SEIS, the Forest Service acknowledged limitations or uncertainties in the models. ER784 (discussing limitations of habitat model); ER792, 795-96 (discussing data limitations in risk of contact model); ER800-01,

802-03, 806-07 (discussing limitations and uncertainties in disease model). Because of the uncertainty inherent in the disease model, experts ran the model under a range of values for probability of a disease outbreak, from 5% up to 100%. ER803, 816. The Final SEIS noted several times that the purpose of the models was to compare alternative actions with respect to risk to bighorn sheep and not to produce an actual estimate of disease probability. ER687 (Record of Decision); ER782, 813, 816 (Final SEIS). Specifically, with regard to the disease model, the Final SEIS stated that:

> The complexity of the model and number of variables whose estimation was necessary to run it . . . imply a high degree of uncertainty of its results. Although the model does follow well-documented and logical processes, the results should be viewed as a means of comparing the relative impacts of alternatives, not as "hard and fast values."

ER816. The Forest Service used the results of the models to compare the effects of each management alternative and rank the alternatives from highest to lowest probability of bighorn sheep persistence. ER687, 813-841.

During the analysis process, the Forest Service discussed the models repeatedly with the experts at UC Davis, as well as with other scientists and wildlife managers who were part of the analysis process, to thoroughly vet the chosen methodologies. SER1483-84, 1489-91, 1507-11, 1523-24, 1526-29, 1539-41, 1608, 1617-19, 1621, 1629-30, 1636, 1637-38, 1652-55. The Final SEIS responded to public comments concerning limitations of the various models and

explained why it chose certain methods. ER1098-114, 1119-39.

D. Record of Decision and Administrative Appeals.

After completing its analysis, the Forest Service decided to implement Alternative 7O, which created the lowest risk of bighorn sheep extirpation outside of closing the entire forest to domestic sheep grazing, in order to manage for viable populations of bighorn sheep. ER684, 688, 840-41. However, the Forest Service chose to implement Alternative 7O over the course of three years "to allow some time for the grazing industry to find alternative grazing opportunities." ER684-85, 688. Thus, certain domestic sheep allotments were closed starting in 2011 and additional allotments were closed starting in 2012 and 2013. ER684-85.

The Record of Decision reiterated that, although the mechanisms of disease transmission are not fully understood, extensive scientific evidence shows that bighorn sheep have a high probability of contracting fatal pneumonia following contact with domestic sheep and therefore wildlife managers recommend eliminating shared use of ranges by bighorn and domestic sheep. ER681, 686. The Decision stated that the Forest Service considered contrary opinions about disease transmission from scientists in agricultural disciplines, but the overwhelming science shows a risk to bighorn sheep from contact with domestic sheep and the need to separate the species to support viable populations of bighorn sheep. ER686.

The Decision was subject to administrative appeal, and IWGA and others filed appeals. *See* ER576, 704. During the appeal period, Dr. Knowles sent a letter to the Forest Service, providing his interpretation of the results of the Lawrence study and its implication for "management of the domestic - bighorn sheep interface under range conditions." ER666-67. The Forest Service then received four letters from other leading bighorn sheep scientists that refuted Dr. Knowles' contentions and reaffirmed the grave risk that domestic sheep pose to bighorn sheep and the need to keep the species separate on the range. SER116-17, 284-88, 505-06, 566-70.

The Regional Forester denied the administrative appeals and the Chief of the Forest Service denied discretionary review of the appeals. ER557. IWGA filed this lawsuit 1½ years later, alleging NEPA and FACA claims. ER529-56.

IV. The District Court's Denial of IWGA's Claims.

The District Court first ruled on IWGA's motion to supplement the administrative record with expert declarations, granting this motion and explaining that IWGA could provide expert declarations for the limited purpose of allowing the court to ascertain whether the agency considered all the relevant factors and fully explained its decision. ER498-500. The District Court also stated that allowing expert declarations from IWGA "opens the door to rebuttal testimony from Forest Service and the intervenors." ER499.

In accordance with that Order, IWGA submitted two declarations with its opening summary judgment brief, one by Dr. Knowles and Dr. Highland discussing issues related to disease transmission between domestic sheep and bighorn sheep, and one by Dr. Thurmond related to the modeling used in the Final SEIS. ER401-62. The Forest Service filed four expert declarations with its summary judgment brief rebutting the IWGA declarations as to both the disease and modeling issues, and TWS filed four additional expert declarations likewise rebutting the IWGA declarations. SER1-565. The Forest Service's and TWS's declarants consisted of experts who had conducted the modeling for the Forest Service as well as experts who had extensive experience dealing with disease transmission between domestic sheep and bighorn sheep and management of the species, particularly in the Hells Canyon and Salmon River areas. *Id.* IWGA then filed six declarations by its same experts attempting to sur-rebut the declarations filed by the Forest Service and TWS. ER106-301.

The District Court held a hearing on March 17, 2014 and eight days later, on March 25, 2014, issued a decision denying IWGA's motion for summary judgment. ER5-26. IWGA raised numerous claims in its summary judgment brief, several of which it has not appealed, and the District Court denied each. *Id.*

First, the Court denied IWGA's claim that the Forest Service violated NEPA by failing to solicit and consider input from scientists at the Agricultural Research

Service ("ARS"), namely Drs. Knowles and Highland, regarding disease transmission from domestic sheep to bighorn sheep. ER8-12. The District Court held that the Forest Service considered an extensive body of scientific literature, its own experts' interpretation of that literature and opposing experts' opinions, and reasonably concluded that, despite uncertainty in the exact mechanism of disease transmission, contact of bighorn sheep with domestic sheep poses a risk to bighorn populations. *Id.* The Forest Service had satisfied its duty under NEPA to consider opposing viewpoints about disease transmission, such as those by Dr. Knowles, and reasonably explained why it was rejecting them, and thus it committed no clear error in judgment. ER10-12.

The court next held that the Forest Service properly addressed the uncertainty in disease transmission, and reasonably concluded that the majority of evidence pointed toward a risk to bighorn sheep viability from domestic sheep that was sufficient to warrant action. ER12-13. In a footnote, the court dismissed IWGA's claim that the Lawrence study demanded supplemental NEPA analysis because the study simply reinforced the risk of disease transmission and was not "significant" new information. ER13, n.6.[3]

Finally, the District Court held that the Forest Service used reliable models,

[3] The District Court also rejected IWGA's claim that the Forest Service did not take a hard look at other relevant factors, such as endemic disease within bighorn populations, the effect of wolves, and the effect of grazing on private lands. ER14-17. IWGA has not appealed this claim.

adequately explained those models as well as their shortcomings, and responded to comments about them; and IWGA's criticisms are simply methodological disagreements that deserve no deference. ER17-24. The court noted in particular that the models were based on prior well-accepted models that the Forest Service's experts updated for use here, and that publication of these new models further confirms their reliability. ER17 & n.12, 19, 20 & n.15. Because the Forest Service made reasoned choices about its models, and disclosed and addressed relevant shortcomings, it did not make a clear error in judgment or violate NEPA. ER24.[4]

In conclusion, the District Court denied IWGA's motion for summary judgment, granted the Forest Service's and TWS's motions for summary judgment, and issued judgment accordingly. ER3-4, 26.

SUMMARY OF THE ARGUMENT

IWGA's arguments in this case amount to a quintessential "battle of the experts," as demonstrated by the multiple expert declarations filed in the district court, which requires deference to the Government's decision. As the District Court repeatedly noted, IWGA's experts simply disagreed with the Forest Service's methods and conclusions but did not show that the agency acted unreasonably, failed to consider any important factors, or failed to disclose

[4] The District Court also denied IWGA's claim that the Forest Service violated FACA by relying on the findings and conclusions of the risk assessment panel and science panel. ER24-26. IWGA did not appeal that claim either.

important uncertainties or limitations in its methodology. In contrast, the record shows that the Forest Service consulted with many experts and thoroughly vetted the methods it used for its analysis, fully acknowledged the inherent uncertainties and shortcomings in its analysis, and adequately responded to comments about its methodology in the Final SEIS. As the District Court found, the record shows that the Forest Service acted reasonably and did not violate NEPA.

IWGA first argues that the Forest Service violated the requirement to obtain comments from other Federal agencies that have relevant special expertise. The record shows, however, that the Forest Service did obtain comments of Dr. Knowles regarding disease transmission during the SEIS process. Moreover, the Forest Service thoroughly understood and addressed in the Final SEIS the concerns raised by Dr. Knowles and others about uncertainty of disease transmission. Remanding the Final SEIS to allow the Forest Service to obtain comments from Dr. Knowles or ARS would be a useless exercise because the agency made its management decision with full awareness and disclosure of the uncertain aspects of disease transmission.

IWGA's second argument regarding the need to supplement the Final SEIS due to the Lawrence study and Dr. Knowles' comments on that study is similarly unavailing. The Forest Service included the Lawrence study in the Final SEIS in response to public comments. This study was not significant new information but

simply provided data reinforcing the evidence that domestic sheep pose a substantial risk to bighorn sheep, as the District Court noted. Dr. Knowles' comments on the Lawrence study also did not warrant supplemental NEPA analysis because they were simply his opinions about the study, which were soundly refuted in letters to the Forest Service by four other experts. Thus, the agency did not act unreasonably by not supplementing the Final SEIS.

Finally, IWGA's argument regarding the modeling fails because it is merely a disagreement over the Forest Service's methodology, and the record shows the Forest Service's choice of methods was reasonable. The Forest Service used the best modeling experts in the country, discussed the limitations and benefits of different models, and chose the models that it deemed best for the situation. The Final SEIS thoroughly described the models and how they were being used, acknowledged their limitations, and responded to comments and criticisms on them. NEPA requires nothing more. Accordingly, this Court should uphold the District Court's decision that the Forest Service complied with NEPA.

ARGUMENT

I. The Forest Service Obtained the Comments of ARS and Met NEPA's Twin Goals of Informed Decision-Making and Public Participation.

A. Standard of Review.

IWGA asserts that a "reasonableness" standard, rather than an "arbitrary and capricious standard," applies to the question of whether the Forest Service

complied with its duty under NEPA to obtain the comments of ARS. IWGA Opening Br. at 15-16. The Ninth Circuit has consistently noted, however, that there is little difference between the reasonableness standard and the arbitrary and capricious standard. *Cal ex rel. Lockyer v. U.S. Dept. of Agric*., 575 F.3d 999, 1012 (9th Cir. 2009) (citing *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 377 n. 23 (1989)); *Or. Natural Res. Council v. Lowe*, 109 F.3d 521, 528-29 (9th Cir. 1997)*; 'Ilio'ulaokalani Coal. v. Rumsfeld*, 464 F.3d 1083, 1094 (9th Cir. 2006).

At bottom, the court must make a "pragmatic judgment whether the [EIS's] form, content, and preparation foster both informed decision-making and informed public participation." *'Ilio'ulaokalani Coal.,* 464 F.3d at 1094 (citing *City of Carmel-By-The-Sea v. U.S. Dep't of Transp*., 123 F.3d 1142, 1150-51 (9th Cir. 1997)).

B. The Forest Service's Process Met the Intent of NEPA.

IWGA spends twenty pages of its opening brief solely on the argument that the Forest Service failed to comply with its duty under NEPA to obtain the comments of a single agency—ARS—prior to the Final SEIS. IWGA Opening Br. at 14-34. NEPA and its implementing regulations state that the Forest Service must "obtain" the comments of any Federal agency which has special expertise with respect to any environmental impact involved before issuing a Final EIS. 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1503.1(a)(1). The Forest Service has explained

in its brief that it satisfied this NEPA requirement, and TWS supports that argument. Forest Service Br., Argument Part I. Even assuming, however, the Forest Service did not comply with this procedure with respect to ARS, the record shows the Forest Service fully considered and discussed the uncertainties surrounding the disease transmission issue and thus no relief is warranted here.

"[W]here there is a violation of NEPA's procedural requirements, relief will not be granted if the decision-maker was otherwise fully informed as to the environmental consequences and NEPA's goals were met." *Laguna Greenbelt, Inc. v. U.S. Dep't of Transp.,* 42 F.3d 517, 527 (9th Cir. 1994). The Ninth Circuit has consistently stated that it will not strike down an analysis because of minor deficiencies that did not frustrate NEPA's goals. *Id.*; *Drakes Bay Oyster Co. v. Jewell,* 747 F.3d 1073, 1090-91 (9th Cir. 2014) (citing other cases); *Tongass Conservation Soc'y v. U.S. Forest Serv.,* 455 Fed.Appx. 774, 777 (9th Cir. 2011); *Or. Natural Res. Council v. Marsh,* 52 F.3d 1485, 1494-95 (9th Cir. 1995) (in dissent); *Tribal Village of Akutan v. Hodel,* 869 F.2d 1185, 1191 (9th Cir. 1988); *Warm Springs Dam Task Force v. Gribble,* 621 F.2d 1017, 1022 (9th Cir. 1980) (per curiam). Where a party challenging an agency action under NEPA has not shown prejudice resulting from a "technical" agency violation, no relief is warranted. *Drakes Bay,* 747 F.3d at 1090-91 (stating that relief is available under the APA only for "prejudicial error" and finding harmless error for NEPA

violations); *Tongass Conservation Soc'y,* 455 Fed.Appx. at 777 (same).

In fact, in a case involving the very same NEPA provision at issue here, the Ninth Circuit held that a single violation of that provision did not warrant reversing the district court and issuing an injunction. *Warm Springs,* 621 F.2d at 1022. The court noted that "[r]elief under NEPA should be remedial rather than punitive." *Id.* It found that the Army Corps of Engineers had made a good faith effort to comply with NEPA, and that no prejudice resulted from its failure to obtain USGS's written comments. *Id.* Thus, because it would be "fruitless" to order the Corps to now obtain comments from USGS, no relief was warranted. *Id.* at 1023.

The same reasoning applies here. The Forest Service made a good faith effort to comply with NEPA, conducted a thorough analysis that considered numerous comments about uncertainty of disease transmission, including comments by Dr. Knowles, and made an informed decision based on the consensus of experts that domestic sheep pose a substantial risk to bighorn sheep. IWGA has not proven that any prejudice resulted from the alleged procedural violation or why obtaining further comments from ARS would not be fruitless.

The record shows that the Forest Service made a good faith effort to comply with the public comment procedures of NEPA by distributing the Draft SEIS to many agencies, organizations, and individuals, completing a second Draft SEIS and also distributing that widely for public comment, holding numerous public

hearings, and considering and responding to thousands of comments on both Draft SEIS's. ER953 (14,089 comments on Draft SEIS, 11,867 comments on Update to the Draft SEIS), ER941-1274 (response to public comments); SER1302-10, 1405-15 (SEIS distribution lists, list of public hearings). It worked with many outside experts, agencies, cooperators, and Tribal officials and regularly considered their input during the NEPA process. ER920-21 (list of preparers and cooperators); SER1483-84, 1489-91, 1507-11, 1523-24, 1526-29, 1539-41, 1608, 1617-19, 1621, 1629-30, 1636, 1637-38, 1652-55 (meetings with ID Team and Cooperators).

Moreover, the Forest Service was aware of, and carefully considered, the disease transmission issue in its analysis. As discussed above, the Final SEIS contained a lengthy discussion about disease transmission between domestic sheep and bighorn sheep, including various forms of evidence, uncertainties about the exact organisms and mechanism of disease transmission, and other stressors that might contribute to onset of disease. *See supra* pp. 16-21; ER766-72. It specifically discussed alternative views, particularly from scientists and others in agricultural disciplines—such as Dr. Knowles from the *Agricultural* Research Service. ER772-74.

The Final SEIS listed the following alternative contentions:

- The mechanisms and causal agents leading to epizootic disease events in bighorn sheep are not completely understood.
- The hypothesis that bighorn sheep have a high likelihood of contracting fatal respiratory disease following contact with

domestic sheep has not been scientifically demonstrated in wildland conditions.

- Bighorn sheep die-offs have occurred in the absence of domestic sheep.
- Evidence that domestic sheep contact with bighorn sheep will result in disease transmission does not exist.
- Sources of error or omission do not support the contention that disease transmission occurs between the species.
- Research evaluating disease transmission between the species lacks proper experimental design that is not accounted for in the results.
- Current, ambient levels of pathogens occur in bighorn sheep, regardless of how those pathogens were introduced, making separation from domestic sheep irrelevant.
- Given the probabilities of contact from off-forest private land sources, excluding domestic sheep in Federal lands is futile.

ER773. The Forest Service acknowledged that some of these contentions are accurate, but then explained why it still believed the evidence showed a substantial risk to bighorn sheep from domestic sheep. ER773-74.

It concluded the disease discussion by stating:

> While there clearly are gaps in the knowledge base on the causal factors and mechanisms of bighorn sheep die-offs and disease transmission between these species, the vast majority of literature supports the potential for disease transmission between the species, documents bighorn sheep die-offs near domestic sheep, and supports the management option of keeping these species separate to prevent disease transmission. . . . The analysis conducted in this document recognized these uncertainties but clearly focuses on the Forest Service's responsibility to provide habitats that support viable populations of bighorn sheep, particularly given the risks that the species currently faces relative to the devastating impacts of disease.

ER774. The Forest Service also separately addressed contentions concerning

disease transmission in the Final SEIS response to public comments. ER1023, 1029-30, 1032-34, 1121, 1129, 1130-31, 1138-39.

In fact, the Forest Service specifically considered comments Dr. Knowles made to the Forest Supervisor during the NEPA process and a letter he wrote during the administrative appeal period, papers authored by Dr. Knowles, as well as papers, comments, and presentations made by other scientists concerning uncertainties in disease transmission. ER666-67, 1827-34, 1840, 1959-2012, 2015-27 (Knowles comments and papers); SER711-20, 1311-78 (presentations); SER1656-60, 1681-98 (Bulgin comments).

The opinions expressed in Dr. Knowles' district court declaration pertain to the same uncertainties about mechanism of disease transmission between domestic sheep and bighorn sheep and its link to bighorn sheep die-offs. ER401-22. The Forest Service had already thoroughly considered and disclosed in the Final SEIS such uncertainties, and made its management decision with full awareness of them. ER766-74, 1023, 1029-30, 1032-34, 1121, 1129, 1130-31, 1138-39. It specifically stated in the Record of Decision that, "[s]ome scientists and others, primarily from agricultural disciplines, contend that disease transmission between bighorn sheep and domestic sheep is not a relevant factor in bighorn sheep distribution and population declines in the wildland environment. I have taken these arguments into consideration while making my decision." ER686.

The multiple declarations filed in response to Dr. Knowles' declaration confirmed that the uncertainties he raised were not compelling and did not negate the overwhelming evidence and consensus among scientists and wildlife managers that domestic sheep pose a substantial risk to bighorn sheep, requiring that the two species be kept separate on the range. SER28-48 (Jessup Decl. ¶¶ 10-46); SER222-30 (Srikumaran Decl. ¶¶ 31-55); SER394-98 (Schommer Decl. ¶¶ 29-39); SER402-11, 413-14 (Coggins Decl. ¶¶ 10-32, 41-42); SER460-69 (Besser Decl. ¶¶ 13-36). *See also supra* pp. 5-7 (citing numerous documents in the record discussing disease transmission and the consensus that domestic sheep should be kept separated from bighorn sheep); SER116-17, 284-88, 505-06, 566-70 (four letters refuting Dr. Knowles' letter).

In light of the Forest Service's extensive evaluation of the disease transmission issue and its uncertainties, and the agency's determination that it nevertheless needed to keep the species separate in order to provide for viable bighorn sheep populations, any further comments by ARS or Dr. Knowles would be "fruitless." *Warm Springs,* 621 F.2d at 1023. The Forest Service took a hard look at all relevant factors and provided a full and fair discussion of environmental impacts in the Final SEIS, and thus its analysis met NEPA's goals. Accordingly, no relief is warranted for any technical violation that might have occurred from not obtaining official comments from ARS. *Id.; Laguna Greenbelt,* 42 F.3d at 527;

Drakes Bay, 747 F.3d at 1090-91.

II. The District Court Properly Held that the Forest Service Did Not Need to Supplement Its NEPA Analysis.

A. Standard of Review.

The Forest Service's decision that the Lawrence study did not warrant supplemental NEPA analysis should not be set aside unless it was arbitrary or capricious. *Friends of the Clearwater v. Dombeck,* 222 F.3d 552, 556 (9th Cir. 2000). This Court "must consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment." *Id.* (citing *Marsh,* 490 U.S. at 377). The Court is not to substitute its judgment for that of the agency, especially where the challenged decision implicates substantial agency expertise. *Id.* (citing *Mt. Graham Red Squirrel v. Espy,* 986 F.2d 1568, 1571 (9th Cir. 1993)).

B. The Lawrence Study was not Significant New Information that Warranted Supplementation of the Final SEIS.

Supplementation of an EIS is required when there are "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(c)(1)(ii). "When new information emerges after the circulation and public comment period of the DEIS, it may be validly included in the FEIS without recirculation. An agency 'need not supplement an EIS every time new information comes to light after the EIS is

finalized.'" *Westlands Water Dist. v. U.S. Dep't of Interior,* 376 F.3d 853, 873 (9th Cir. 2004) (quoting *Marsh,* 490 U.S. at 373). The Forest Service did not act arbitrarily or capriciously by agreeing with the majority of experts that the Lawrence study simply provided additional evidence that disease transmission can occur between domestic sheep and bighorn sheep, and therefore was not significant new information bearing on the proposed action or its impacts.

IWGA first asserts that the Lawrence study was "significant" new information on which the Forest Service depended for its conclusion about disease transmission. *See* IWGA Opening Br. at 38-39. This argument is unavailing because the study was simply one of numerous studies the Forest Service considered that confirmed the risk domestic sheep pose to bighorn sheep. ER766-74. The Forest Service added the Lawrence study to its Final SEIS in direct response to public comments asking the agency to incorporate the findings of this and another study. ER1032-33.

The Forest Service described the Lawrence study as one of many pen experiments that "test the hypothesis that contact can lead to transmission of disease from domestic sheep to bighorn sheep." ER769. It noted that "[i]n six independent pen studies since 1982, 44 of 46 bighorn sheep have died of pneumonia or become so sick that they were euthanized [citing six studies, including the Lawrence study]." *Id.* The Lawrence study "definitively

demonstrated a case in which a deadly pathogen was transferred from domestic sheep to bighorn sheep" when bacteria tagged with green fluorescent protein were transmitted from domestic sheep to bighorn sheep during a pen experiment, and all of the bighorn sheep contracted pneumonia and died. ER769-70. Thus, the Lawrence study simply confirmed the results of other pen studies.

Notably, the Final SEIS also stated that:

> Commingling of domestic and bighorn sheep under experimental conditions clearly results in transmission of fatal pneumonia to bighorn sheep. However, pen experiments cannot by themselves shed light on whether transmission of fatal disease between domestic sheep and bighorn sheep actually occurs in the wild.

Id. The Final SEIS then went on to discuss other evidence of disease transmission from field observations and distance correlations, and concluded:

> No one form of evidence can or does conclusively demonstrate that contact with domestic sheep frequently leads to die-offs off [sic] bighorn sheep populations. Taken together, however, the experiments and observations from the lab and the field do indicate that contact of wild bighorn populations with domestic sheep does pose a risk of disease transmission and die-offs in the free-ranging bighorn populations.

ER770-71. Thus, the Forest Service did not rely on just the Lawrence study for its conclusion about disease transmission.

The Final SEIS further recognized that complex interactions of disease agents increases uncertainty in diagnosis, citing the Lawrence study and two other recent studies. ER772. The Forest Service admitted that the exact

mechanism of disease transmission and development of pneumonia in bighorns is unknown, but "experimental and field data indicate the two species are not compatible on sympatric ranges." ER772.

The Forest Service acknowledged arguments by critics, such as Dr. Knowles, regarding the disease transmission issue. ER773. The agency stated that it had considered a large body of peer reviewed and published literature that addressed these criticisms and, while there are gaps in the knowledge of disease transmission, "the vast majority of literature supports the potential for disease transmission between the species, documents bighorn sheep die-offs near domestic sheep, and supports the management option of keeping these species separate to prevent disease transmission." ER774.

The record shows that the Lawrence study was just one piece of this literature that provided evidence of the risk domestic sheep pose to bighorn sheep. As the District Court correctly stated, "[t]he Lawrence study provided data reinforcing the plausibility of this risk. It did not alter Defendants' proposal; it merely made Defendants' choice of alternatives stronger. The study is not 'significant' new information within the meaning of 40 C.F.R. § 1502.9(c), demanding supplementation or recirculation of the Draft SEIS." (citing *Westlands Water Dist.,* 376 F.3d at 873). ER13, n.6.

IWGA also argues that the Forest Service's portrayal of the Lawrence

study was wrong or incomplete because the study (1) did not prove that transmission of the bacteria from the domestic sheep to the bighorn sheep caused the pneumonia and death of the bighorns, and (2) failed to determine when and at what distance transmission occurred between the species. IWGA Opening Br. at 39-41. Yet, the Forest Service simply described the Lawrence study in the same terms as the study's authors, and acknowledged it did not address how much contact is necessary for disease transmission.

The Forest Service stated that the Lawrence study documented transmission of pathogens from domestic sheep to bighorn sheep that resulted in bighorn sheep mortality. ER773, 774. This description of the study matched the Abstract that the study's authors wrote. The Abstract explained that:

> Previous studies demonstrated that bighorn sheep (*Ovis Canadensis*) died of pneumonia when commingled with domestic sheep (*Ovis aries*) but did not conclusively prove that the responsible pathogens were transmitted from domestic to bighorn sheep. The objective of this study was to determine, unambiguously, whether *Mannheimia haemolytica* can be transmitted from domestic to bighorn sheep when they commingle.

ER1459. After summarizing the methods, the Abstract stated the authors' conclusion about the results:

> These results unequivocally demonstrate transmission of *M. haemolytica* from domestic to bighorn sheep, resulting in pneumonia and death of bighorn sheep.

Id. It was not arbitrary or capricious for the Forest Service to describe the Lawrence study in the same way that the study's authors portrayed it.

Moreover, the Forest Service never used the Lawrence study to determine when and at what distance transmission of bacteria could occur. In its response to comments, the Forest Service quoted the conclusion from the Lawrence study, but also stated that "the study was not primarily designed to address the question of what degree of physical contact is necessary for transmission of disease from domestic sheep to bighorn sheep." ER1032. Thus, the Forest Service acknowledged that the Lawrence study did *not* address at what distance transmission can occur. IWGA's argument that the Forest Service misportrayed the study is not supported by the record.

Finally, IWGA seems to argue that the Forest Service needed to supplement its analysis to address Dr. Knowles' opinion about the Lawrence study. IWGA Opening Br. at 40-44. Like the study itself, however, Dr. Knowles' opinion about the Lawrence study was not "significant new information" that warranted NEPA supplementation. Instead, it was simply the opinion of one researcher, which was soundly refuted by several other experts. The Forest Service was not unreasonable in deciding that Dr. Knowles' opinion did not require supplementation of the Final SEIS.

Dr. Knowles sent a letter to the Forest Service in response to the

Payette Record of Decision, which was also attached to IWGA's administrative appeal. ER666-67. It discussed his interpretation of the results of the Lawrence study, specifically with regard to the question of how much contact between the species is necessary for disease to develop in bighorn sheep and its implication for management of the species on the range. *Id.* Dr. Knowles' letter was followed by letters from four other experts that disagreed with Dr. Knowles' opinions.

Two letters were from other disease transmission researchers at Washington State University. SER284-88, 505-06. Dr. Srikumaran, the senior author of the Lawrence study, disagreed with Dr. Knowles' interpretation of the data from the study and refuted each of the points Dr. Knowles raised in his letter. SER284-88.

Dr. Besser, another bighorn sheep infectious disease researcher at Washington State, explained that the key finding of the study was the definite transmission of pathogens from domestic sheep to bighorn sheep. SER505-06. He stated that the comments by Dr. Knowles regarding timing of transmission and disease onset were not supported by the data in the study. SER506. Dr. Besser concluded his letter by stating:

> Regardless of the time course, the most important common findings of the ten previous studies as well as the Lawrence study is 1) that nearly all bighorn sheep die after contact with domestic sheep (88 of 90 within 100 days, 97.8%), and 2) that fatal bighorn sheep

> pneumonia can occur as soon as the first week following contact. It is possible that as our understanding of this infectious disease process improves with further research it may be able to more specifically assess the risk posed by specific domestic sheep flocks. But until that point, in my opinion, policies that reduce the chances of any contacts between bighorn and domestic sheep remain a very important part of a management program to prevent disease transmission.

Id.

The Forest Service also received two letters from wildlife experts rebutting Dr. Knowles' opinion. SER116-17, 566-70. Dr. Ben Gonzalez, a senior wildlife veterinarian specialist from California Department of Fish and Game, discussed why each of Dr. Knowles' points interpreting the data from the Lawrence study was incorrect. SER566-67. Dr. Gonzalez stated that the study provided no evidence to support Dr. Knowles' conclusions and in fact demonstrated the opposite conclusion. SER568. Dr. Gonzalez explained that:

> Although research to understand the details of the transmission of pathogens from healthy domestic sheep to bighorn sheep is valuable and necessary, there is already a large body of evidence proving that contact with domestic sheep presents grave risks of fatal pneumonias to bighorn sheep. We know enough now to take the necessary action: that is to provide geographic separation between domestic sheep grazing and bighorn habitat.

Id.

Finally, a letter from Dr. David Jessup, also a senior wildlife veterinarian from California Department of Fish and Game, likewise took issue with the opinions of Dr. Knowles about the study results and their

management implications. SER116-17. Like the other experts, Dr. Jessup stated that "[a]t the present time, only substantial spatial and geographic barriers that reduce risk of fence line contact to very near zero, and prevent co-mingling, are the most reasonable safeguards to deter bighorn and domestic sheep contact, and the unfortunate transmission of diseases that result." SER117. These four experts not only disagreed with Dr. Knowles' interpretation of the Lawrence study results, but also reinforced the conclusion that domestic sheep pose a substantial risk to bighorn sheep and the species must be separated on the range to prevent disease transmission.

After receiving these letters, the Forest Service denied IWGA's administrative appeal, which included the claim that the Forest Service should have supplemented the Final SEIS to address the findings of the Lawrence study. ER614-618 (IWGA administrative appeal); ER575 (Forest Service denial of IWGA appeal). The decision denying IWGA's appeal noted again that the agency considered a large body of literature and, while there are gaps in the knowledge of the causal factors and mechanisms of bighorn sheep die-offs and disease transmission between the species, the vast majority of literature supports the potential for disease transmission between the species, documents bighorn die-offs near domestic sheep, and supports the management option of keeping these species separate to prevent disease

transmission. ER569, 573-74. The Forest Service made a reasoned choice when it relied on the opinions of the vast majority of bighorn experts rather than the opinion of Dr. Knowles.

Any additional opinions Dr. Knowles raised in his declaration to the district court were again rebutted by the Forest Service's and TWS's experts and amount to nothing more than a disagreement among experts. SER44-48 (Jessup Decl. ¶¶ 39-46); SER213-21 (Srikumaran Decl. ¶¶ 14-30); SER405-11 (Coggins Decl. ¶¶ 18-32); SER464-69 (Besser Decl. ¶¶ 25-36). This Court must defer to the Forest Service's reasonable choice of experts and science on which to rely. *Native Ecosystems Council v. Weldon,* 697 F.3d 1043, 1051 (9th Cir. 2012); *Lands Council v. McNair,* 537 F.3d 981, 1000 (9th Cir. 2008) (en banc), *rev'd on other grounds by Winter v. Natural Res. Def. Council,* 555 U.S. 7 (2008). In sum, it was not arbitrary and capricious for the Forest Service to decide that the Lawrence study and Dr. Knowles' opinion about that study was not "significant new information" that warranted supplemental NEPA analysis.

III. The District Court Properly Deferred to the Forest Service's Choice of Models and Found it Disclosed Relevant Information.

A. Standard of Review

In deciding whether the Forest Service's use of models in the Final SEIS was arbitrary and capricious, this Court must defer to the agency if its

choice of experts and methodology was reasonable. *Weldon,* 697 F.3d at 1051-52; *Lands Council,* 537 F.3d at 993; *N. Plains Res. Council, Inc. v. Surface Transp. Bd.,* 668 F.3d 1067, 1075 (9th Cir. 2011); *Tri-Valley CAREs v. U.S.D.O.E.,* 671 F.3d 1113, 1124 (9th Cir. 2012). "The mere fact that [a plaintiff] disagrees with [a defendant's] methodology does not constitute a NEPA violation. . . [W]e are required to apply the highest level of deference in our review of the Forest Service's scientific judgments in selecting [a given] methodology." *Weldon,* 697 F.3d at 1053.

An agency may use models to assist with its analysis of environmental effects under NEPA as long as the agency explains its methods and discloses shortcomings in the data or models. *Lands Council v. Powell,* 395 F.3d 1019, 1032 (9th Cir. 2005); *McNair,* 537 F.3d at 993-94. However, the Forest Service need not address every uncertainty alleged by opponents. "[T]o require the Forest Service to affirmatively present every uncertainty in its EIS would be an onerous requirement, given that experts in every scientific field routinely disagree." *McNair,* 537 F.3d at 1001. NEPA requires only that an agency respond to "significant" and "reasonably support[ed]" uncertainties. *Id.* at 1001-02.

B. The Forest Service Chose Reliable Models and Explained the Methodology and Limitations in the Final SEIS.

The District Court recognized IWGA's challenge to the Forest

Service's use of models for what it truly is—a mere disagreement about the agency's choice of methodology. IWGA tries to portray this disagreement as a NEPA violation by alleging that the Forest Service swept serious problems and concerns under the rug. IWGA Opening Br. at 46-50. As shown in the Administrative Record, however, the Forest Service worked with highly qualified experts, repeatedly discussed the models with the whole analysis team, acknowledged pros and cons of various methods, chose models it believed were best for the situation, and thoroughly explained the models as well as their shortcomings in the Final SEIS. Based on this record, the District Court correctly held that the Forest Service chose reasonably reliable data and models, and adequately explained the models and responded to criticisms, in compliance with NEPA. ER17-24.

Before addressing the three "serious problems" on which IWGA focuses its appeal, TWS points this Court to parts of the record that exemplify the Forest Service's thorough consideration and discussion of the three models it used in its analysis and their reliability.

First, the Final SEIS and Appendix L contain a lengthy explanation of the three models. ER782-810, 1351-1405. This explanation included discussion about the limitations and uncertainties within each model. *See e.g.* ER784 (discussing limitations of habitat model); ER792, 795-96 (discussing

data limitations in risk of contact model); ER800-01, 802-03, 806-07 (discussing limitations and uncertainties in disease model). The Final SEIS explained that, because of the uncertainty inherent in the disease model, experts ran the model under a range of values for probability of a disease outbreak, from 5% up to 100%. ER803, 816. The results of the models were not intended to produce an actual estimate of probability of disease but, rather, to compare alternative actions with respect to their risk to bighorn sheep. ER687 (ROD); ER782, 813, 816 (Final SEIS).

The Final SEIS also provided detailed responses to public comments concerning the various models and explained why it chose certain methods, again acknowledging uncertainties and limitations in the data and models. ER1098-114, 1119-39. The Forest Service satisfied NEPA by adequately explaining the models, disclosing their significant uncertainties, and responding to relevant comments.

The record also shows that the Forest Service was reasonable in deeming the models reliable. *McNair,* 537 F.3d at 994. The models were based on prior, well-respected models that were updated to include more accurate data and conditions. For instance, the habitat model was based on a model developed for the Hells Canyon Initiative bighorn restoration project and was updated with more accurate habitat data and tested with actual

telemetry data. ER1356-58. The risk of contact and disease models were based on a peer-reviewed, published model by Clifford *et al*. that was improved upon and incorporated data on the local bighorn populations. ER760, 787, 804-05, 1363, 1380-82, 1392, 1394; SER875, 1120.

The Forest Service contracted with the Center for Animal Disease Modeling and Surveillance at UC Davis, the premier experts in this country for modeling disease transmission between domestic and bighorn sheep. SER1740-41. Furthermore, the Forest Service considered a large body of scientific literature and consulted extensively with its experts and other members of the analysis team about the models during the NEPA process. ER1401-05 (Appendix L Reference List); SER1483-84, 1489-91, 1507-11, 1523-24, 1526-29, 1539-41, 1608, 1617-19, 1621, 1629-30, 1636, 1637-38, 1652-55 (meetings with analysis team); SER19-20 (C. O'Brien Decl. ¶ 31). The risk of contact and disease models developed for this analysis have been peer-reviewed and published, further indicating their reliability. ER17, n.12, 20, n.15; SER526-27 (Carpenter Decl. ¶ 12). As the District Court stated, "[i]t is clear from the record that Defendants developed their methodology reasonably and with care." ER16, n.11.

With respect to IGWA's specific criticisms of the model, they are merely disagreements with the Forest Service's chosen methods and do not

reflect significant omissions or uncertainties that the agency failed to consider. First, IWGA argues that the Forest Service's risk of contact model failed to account for topography and natural barriers that might impede bighorn sheep forays. IWGA Opening Br. at 50-53. IWGA's argument demonstrates a misunderstanding of bighorn sheep behavior as well as the Forest Service's models.

IWGA's expert Dr. Thurmond asserted that the Forest Service should have considered natural barriers, "(*i.e.,* cliffs, rivers, etc.)," in its foray analysis. ER441 (Thurmon Decl. ¶¶ 84-85). Yet, cliffs and rivers are rarely barriers to bighorn sheep movement. Indeed, bighorn sheep live in steep, mountainous terrain and often are found on cliffs where they can avoid predators. ER782, 1357 (noting that escape terrain includes slopes up to 85 degrees, which is almost vertical); SER12-13 (C. O'Brien Decl. ¶ 21). In addition, they will cross large rivers, as documented by bighorn sheep regularly swimming across the Snake and Salmon Rivers. ER765; *W. Watersheds Project,* 2007 WL 1729734, at *2 & n.1; *W. Watersheds Project,* 2009 WL 3335365, at *4.

Hells Canyon bighorn sheep expert Victor Coggins confirmed that there are no natural barriers that would prevent movement of bighorn sheep in this terrain as bighorn sheep readily cross rivers and scale rugged terrain. SER412

(Coggins Decl. ¶ 36). The Forest Service's modeling expert likewise explained that cliffs and rivers have not been identified as barriers to these bighorn sheep, and furthermore no data exists to quantify how any such barriers would affect bighorn foray movement. SER148-49 (J. O'Brien Decl. ¶¶ 55-56). Accordingly, it was not unreasonable for the Forest Service to not include specific natural barriers in its foray analysis.

Moreover, the Forest Service's analysis was based on telemetry data, which showed the areas that bighorn sheep actually use. ER1363; SER21 (C. O'Brien Decl. ¶ 34); SER131 (J. O'Brien Decl. ¶ 26). To the extent that bighorn sheep prefer some areas and avoid other areas, the telemetry data would show that. ER1099, 1101, 1386-87; SER14-16, 19-21 (C. O'Brien Decl. ¶¶ 23-24, 30-34); SER131 (J. O'Brien ¶ 26). As stated by one Forest Service expert, "[t]he telemetry data used in the foray analysis are representative of bighorn sheep movements and behaviors." SER21 (C. O'Brien Dec. ¶ 34).

Contrary to IWGA's argument that the Forest Service's use of data for the habitat and foray analyses differed, IWGA Opening Br. at 51-53, the Forest Service used the telemetry data for both analyses, which reflected actual bighorn movements and behaviors but did not account for any

particular barriers.[5] In sum, the Forest Service reasonably used the data available to it to model the areas that bighorn sheep would more likely use and travel through during forays but it did not have information or data on specific barriers to movement to include in its analysis.

IWGA's second argument is that the disease model improperly ignored the location and timing of domestic sheep grazing when determining the probability of contact with a bighorn sheep. IWGA Opening Br. at 53-58. As the District Court stated, IWGA's claim amounts to mere disagreement with the Forest Service's methodology, and the Forest Service reasonably explained its methods and responded to comments to comply with NEPA. ER22-24.

As described in the Final SEIS and by the Forest Service's experts, the foray analysis calculated the probability that a bighorn sheep would foray onto an allotment during the domestic sheep season of use (spring and summer). ER1382-85; SER20-21 (C. O'Brien Decl. ¶¶ 32-34); SER150-52 (J. O'Brien Decl. ¶¶ 58, 62); SER530 (Carpenter Decl. ¶ 23). In other words, based on the distance traveled by bighorn sheep during summer forays (determined using telemetry data from May-October), combined with habitat quality, the

[5] The District Court correctly recognized that the habitat model and risk of contact model both used the telemetry data, which reflected actual bighorn sheep behavior, including behavior in relation to barriers, predators, and other factors. ER18, 20.

Forest Service estimated the probability that a bighorn sheep would overlap with a domestic sheep allotment during summer, which is when domestic sheep would be on the allotment. ER1382-89. This overlap was referred to as cohabitation. ER1392.

However, this overlap did *not* estimate whether the bighorn sheep would (1) actually come in contact with a domestic sheep, (2) contract disease from the domestic sheep, (3) return to its herd and (4) transmit disease to other members of the herd. *Id.* The Forest Service admitted that assumptions governing the probability that a bighorn sheep that reaches an allotment occupied by domestic sheep will contract disease from the domestic sheep are problematic. *Id.* The Clifford *et al.* model assumed that any overlap of bighorn sheep with an occupied domestic sheep allotment would result in contact between the two species due to the attraction of the species to each other and observations of stray domestic sheep associating with bighorns. *Id.* Clifford *et al.* estimated the probability that such contact would result in disease transmission as between 50% and 100%. *Id.*

Because of so much uncertainty involved in each of the four necessary steps for a disease outbreak, and essentially no research that would estimate the probability of each step, the Forest Service ran the disease model here with a range of probabilities from 5% to 100% that a disease outbreak would occur

if a bighorn sheep overlapped a domestic sheep allotment during the summer. *Id.* Thus, the Forest Service did not assume that contact between a bighorn sheep and domestic sheep would occur anytime a bighorn crossed onto an allotment in summer, as the Clifford *et al.* model did and as IWGA asserts. IWGA Opening Br. at 56. Rather, it realized the uncertainty of that event occurring, and the lack of data to estimate how often it might occur, and accordingly ran the disease model with probabilities as low as 5%. ER1392; *see also* SER158-60, 163-64 (J. O'Brien Decl. ¶¶ 73-76, 82).

IWGA's argument that the Forest Service should have incorporated information about exactly where and when domestic sheep are permitted to graze is also flawed. IWGA Opening Br. at 56-58. As explained by the Forest Service's expert, it is impossible to model where and when every domestic sheep would be found every year and what route a bighorn sheep would take through an allotment. SER162-63 (J. O'Brien Decl. ¶ 81).

Moreover, simply using *permitted* grazing dates and locations does not take into account stray domestic sheep and the attraction between the species. It is common for domestic sheep to stray from their band and graze unauthorized areas or remain on allotments beyond the authorized period for weeks or months. *See* ER1392; SER1145, 1453, 1464, 1468, 1470, 1534 (documenting stray sheep in 2009); SER40 (Jessup Decl. ¶ 30); SER392-94

(Schommer Decl. ¶¶ 21-28); SER407 (Coggins Decl. ¶ 24;); *W. Watersheds Project,* 2007 WL 1729734, at *3; *W. Watersheds Project,* 2009 WL 3335365, at *5. There is also a strong attraction between the species, increasing the chance that a bighorn sheep and domestic sheep will seek each other out and make contact. ER770; SER1387, 1429; SER40 (Jessup Decl. ¶ 31); SER407-09 (Coggins Decl. ¶¶ 24, 27); *W. Watersheds Project,* 2007 WL 1729734, at *3. For these reasons, permitted grazing dates and locations would not accurately reflect the probability of the two species coming into contact.

Finally, IWGA argues that the Forest Service ignored critical elements of the disease transmission process in its disease model. IWGA Opening Br. at 58-61. The Forest Service did not ignore these elements; it simply had no reliable data on them to plug into the model. The Forest Service's experts could not use "appropriate probabilities" to model "each phase of infectious agent transmission," IWGA Opening Br. at 59, because they did not have data to determine what the appropriate probability would be for each of those phases. SER167-70 (J. O'Brien Decl. ¶¶ 88-89, 92). The Forest Service admitted in the Final SEIS and its response to comments that there was much uncertainty about the elements of disease transmission and no research to estimate the probability of each step in the process occurring. ER816, 1103, 1392.

To account for this uncertainty, the Forest Service used a range of probabilities from 5% to 100% to model the probability of a disease outbreak occurring in a bighorn herd. *Id.* Notably, the Forest Service did not use the model to develop an accurate prediction of a bighorn sheep die-off. Instead, it used the model to "explore the consequences of each alternative" action. ER1103. As stated in the Final SEIS:

> The complexity of the model and number of variables whose estimation was necessary to run it (e.g., demographic characteristics of bighorn sheep herds, disease transmission rates resulting from contact between domestic sheep and bighorn sheep, disease transmission rates resulting from infected bighorn sheep contacting uninfected bighorn sheep, lethality of the diseases, time of recovery in infected bighorn sheep herds) imply a high degree of uncertainty of its results. Although the model does follow well-documented and logical processes, the results should be viewed as a means of comparing the relative impacts of alternatives, not as "hard and fast values."

ER816. The Forest Service then used this comparison to select the alternative that it believed would best achieve viable bighorn sheep populations on the forest. Rather than ignoring disease transmission elements or sweeping them under the rug, the Forest Service openly acknowledged the uncertainties in modeling disease transmission and explained its methods to address those uncertainties, which is all that NEPA requires.

IWGA and its experts disagree with the Forest Service's decision, but disagreeing with an agency is not a NEPA violation. *Weldon,* 697 F.3d at

1053. The agency's decision was in line with the majority of scientific literature and experts who agree that, despite not knowing the exact mechanism of disease transmission, domestic sheep pose a significant risk to bighorn sheep and must be kept separated on the range. ER728-30, 771-74, 1009-10 (Final SEIS); SER230 (Srikumaran Decl. ¶¶ 54-55); SER395-96 (Schommer Decl. ¶¶ 31-32); SER405, 413-14 (Coggins Decl. ¶¶ 18, 40-42); SER468-69 (Besser Decl. ¶¶ 34-36); SER116-17, 505-06, 566-70, 743-44, 1111, 1426-29, 1449-50 (biologist letters and literature).

The record here shows that the Forest Service thoroughly considered the best available science, "meaningfully addressed" uncertainties about disease transmission and the modeling, and consulted with experts to develop reliable methods for its decision-making process given the information available. *McNair,* 537 F.3d at 994, 1000-02; *Weldon,* 697 F.3d at 1051, 1053. The Final SEIS, including Appendix L and responses to comments, fully satisfies NEPA's goals of informed decision-making and informed public participation.

CONCLUSION

For the foregoing reasons, this Court should affirm the District Court's Order and Judgment.

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Respectfully submitted,

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STATEMENT OF RELATED CASES

Defendant-Intervenors-Appellees are not aware of any related cases currently pending before this Court.

CERTIFICATE OF COMPLIANCE

Pursuant to Federal Rule of Appellate Procedure 32(a)(7)(C) and Ninth Circuit Rule 32-1, I certify that this opening brief is proportionally spaced, has a typeface of 14 points or more using Times New Roman, and contains 13,728 words.

/s/ Lauren M. Rule
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CERTIFICATE OF SERVICE

I hereby certify that on November 21, 2014, I electronically filed the foregoing Answering Brief with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit using the appellate CM/ECF system. I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the appellate CM/ECF system.

/s/ Lauren M. Rule
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