UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

DESERT SURVIVORS, et al.,

Plaintiffs,

v.

UNITED STATES DEPARTMENT OF THE INTERIOR, et al.,

Defendants.

Case No. 20-cv-06787-JSC

ORDER RE: CROSS-MOTIONS FOR SUMMARY JUDGMENT

Re: Dkt. Nos. 33, 36

This lawsuit challenges the federal government's withdrawal of its proposal to list the bi-state sage grouse as "threatened" under the Endangered Species Act ("ESA"). (*See* Dkt. No. 1.)[1] Before the Court are the parties' cross-motions for summary judgment. (Dkt. Nos. 33, 36.) Having carefully considered the briefing, and having had the benefit of oral argument on April 21, 2022, the Court GRANTS Plaintiffs' motion, DENIES Defendants' motion, and REMANDS for a new final listing decision, as explained below.

BACKGROUND

The bi-state sage grouse, a bird, is a type of greater sage grouse that lives around parts of the California-Nevada border. (*See* Administrative Record ("AR") 35,283 (map)); *see also* 85 Fed. Reg. 18,057 (Mar. 31, 2020) (map). The clearing areas where bi-state sage grouse court and breed are known as leks. 85 Fed. Reg. 18,056–57. The U.S. Fish and Wildlife Service ("the Service") monitors bi-state sage grouse using six "population management units" ("PMUs"), "delineated based on aggregations of leks, known seasonal habitats, and telemetry data." *Id.* at 18,057. Proceeding from north to south, the PMUs are Pine Nut, Desert Creek-Fales, Bodie,

[1] Record citations are to material in the Electronic Case File ("ECF"); pinpoint citations are to the ECF-generated page numbers at the top of the documents.

Mount Grant, South Mono, and White Mountains. *Id.*; (*see* AR 16,805–08 (explaining that some PMUs contain more than one subpopulation or grouping of bi-state sage grouse)). Bi-state sage grouse in some PMUs "appear to be isolated to varying degrees from one another." 85 Fed. Reg. 18,059. The bi-state sage grouse's population and habitat have each declined by about 50% since 1850. (AR 16,805.) Based on data from 2018, the Service estimates a current population of 3,305. 85 Fed. Reg. 18,080; (*see* AR 35,304).

In 2013, the Service published a proposal to list the bi-state sage grouse as threatened under the ESA. 78 Fed. Reg. 64,358 (Oct. 28, 2013). Two years later, the Service withdrew its proposal. 80 Fed. Reg. 22,828 (Apr. 23, 2015). After Plaintiffs filed suit, a court of this district vacated the 2015 Withdrawal and reinstated the 2013 Proposal. *See Desert Survivors v. U.S. Dep't of Interior* ("*Desert Survivors I*"), 321 F. Supp. 3d 1011 (N.D. Cal. 2018); *see also Desert Survivors v. U.S. Dep't of the Interior*, 336 F. Supp. 3d 1131 (N.D. Cal. 2018) (remedy order).

The *Desert Survivors I* court held that the 2015 Withdrawal was arbitrary and capricious in violation of the Administrative Procedure Act ("APA") and the ESA, because: (1) a study on which the Service relied, Coates 2014, did not provide a rational basis to conclude that the bi-state sage grouse population was stable, *Desert Survivors I*, 321 F. Supp. 3d at 1040–45; (2) the Service erroneously concluded that conservation measures were sufficiently certain to be effective, *id.* at 1052–66; (3) the Service used a facially impermissible interpretation of "significant," *id.* at 1070–74; and (4) the Service's conclusion regarding the "significant portion of its range" ("SPR") policy was not rationally supported, *id.* at 1074–76. The court rejected Plaintiffs' other arguments, including that: (1) the Service drew unsupported conclusions about the resiliency of the bi-state sage grouse from the Oyler-McCance 2014 and Tebbenkamp 2014 studies, *id.* at 1045–48; (2) the Service did not adequately consider the impact of cumulative threats, *id.* at 1048–50; (3) the Service considered not only existing conservation measures but also merely proposed measures, *id.* at 1050–52; (4) the Service erroneously concluded that conservation measures were sufficiently certain to be implemented, *id.* at 1059–60; and (5) the Service used a facially impermissible interpretation of "range," *id.* at 1066–68.

On remand, the Service reopened public comment on the 2013 Proposal. 84 Fed. Reg.

52,058 (Oct. 1, 2019); *see Desert Survivors*, 336 F. Supp. 3d at 1133 (remedy order). In 2020, the Service again withdrew the proposal. 85 Fed. Reg. 18,054. Plaintiffs filed this lawsuit challenging the 2020 Withdrawal.

DISCUSSION

The ESA charges the Secretary of the Interior with determining whether particular species should be listed as "threatened" or "endangered." 16 U.S.C. § 1533(a)(1). The Secretary has delegated authority to the Service. *See* 50 C.F.R. § 402.01(b). An endangered species is "any species which is in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. § 1532(6). A threatened species is "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." *Id.* § 1532(20). Listing is a key mechanism because the ESA makes it unlawful for any person to "take" a species listed as endangered or threatened. *See Babbitt v. Sweet Home Chapter of Cmtys. for a Great Or.*, 515 U.S. 687, 690, 692 n.5 (1995).

Courts review the Service's decision not to list a species or DPS under the APA. *See Ctr. for Biological Diversity v. Zinke* ("*Zinke*"), 900 F.3d 1053, 1067 (9th Cir. 2018). A court "'shall' set aside agency actions, findings, or conclusions under the APA that are 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.'" *Id.* (quoting 5 U.S.C. § 706(2)(A)). Under this standard of review, a court "ensure[s] that the agency considered the relevant factors and articulated a rational connection between the facts found and the choices made." *Greater Yellowstone Coal., Inc. v. Servheen*, 665 F.3d 1015, 1023 (9th Cir. 2011) (cleaned up). A decision is arbitrary and capricious "if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Id.* (cleaned up). Agency decisions deserve the highest deference when "the agency is making predictions[] within its area of special expertise." *Lands Council v. McNair*, 537 F.3d 981, 993 (9th Cir. 2008) (en banc) (cleaned up). But a court "need not defer to the agency when the agency's decision is without substantial basis in fact." *Ariz. Cattle Growers'*

Ass'n v. Salazar, 606 F.3d 1160, 1163 (9th Cir. 2010).

I. BEST SCIENTIFIC AND COMMERCIAL DATA AVAILABLE

The Service must base its listing decision on "the best scientific and commercial data available," 16 U.S.C. § 1533(b)(1)(A); failure to do so violates the APA. The Service must consider five factors: "(a) the present or threatened destruction, modification, or curtailment of [a species'] habitat or range; (b) overutilization for commercial, recreational, scientific, or educational purposes; (c) disease or predation; (d) the inadequacy of existing regulatory mechanisms; or (e) other natural or manmade factors affecting [the species'] continued existence." *Id.* § 1533(a)(1). The Service must also "tak[e] into account those efforts, if any, being made by any State or foreign nation . . . to protect such species, whether by predator control, protection of habitat and food supply, or other conservation practices." *Id.* § 1533(b)(1)(A). "Species" includes "any distinct population segment" ("DPS") of a species, *id.* § 1532(16), and a DPS may be listed as endangered or threatened. *See Zinke*, 900 F.3d at 1060. The bi-state sage grouse is a DPS. 85 Fed. Reg. 18,054.

"An agency complies with the best available science standard so long as it does not ignore available studies, even if it disagrees with or discredits them." *San Luis & Delta-Mendota Water Auth. v. Locke*, 776 F.3d 971, 995 (9th Cir. 2014); *see Zinke*, 900 F.3d at 1060. Additionally, "[e]ven where there is no better science available," *Desert Survivors I*, 321 F. Supp. 3d at 1044, an agency action may be arbitrary and capricious if it lacks "a rational connection between the facts found and the determinations made." *Ariz. Cattle Growers*, 606 F.3d at 1163.

Plaintiffs contend that the Service violated this standard by: (1) cherry-picking data from the Coates 2020 study to conclude that the bi-state sage grouse population is stable; (2) ignoring evidence that extirpation of smaller PMUs will increase the risk of extirpation for the entire population; and (3) ignoring evidence that the PMU populations are below the threshold for long-term viability. (Dkt. No. 33 at 14–20.) Defendants counter that the Service (1) appropriately concluded that the population is stable; (2) adequately considered the risks of extirpation; and (3) reviewed all the best available science. (Dkt. No. 36 at 14–21.)

A. Coates 2020

1. Background

In *Desert Survivors I*, the court held that a study on which the Service relied, Coates 2014, did not provide a rational basis to conclude that the bi-state sage grouse population was stable. 321 F. Supp. 3d at 1040–45. Coates 2014 analyzed population trends from 2003 to 2012, using data from bi-state sage grouse in the Pine Nut, Desert Creek-Fales, Bodie, and South Mono PMUs, although not the Mount Grant and White Mountains PMUs. *See* 85 Fed. Reg. 18,059–61. The 2020 Withdrawal relied in part on an update to Coates 2014, Coates 2020, along with seven other studies representing four different methodologies. *Id.* In the 2020 Withdrawal, the Service concluded that the bi-state sage grouse population has "fluctuated over the past 40 years (both increased and decreased), but over the entire timeframe has remained relatively stable." *Id.* at 18,060.

Coates 2020 analyzed population trends from 1995 to 2018, using data from all six PMUs and a new approach "that segmented the trends into three time intervals." *Id.* The new approach was meant "to account for population cycling in sage-grouse; that is, regular periods of growth and decline naturally experienced by sage-grouse rangewide," *id.*, with each cycle lasting about six to 10 years. (AR 35,279; *see* AR 35,286–87 (diagrams).) It had "bec[ome] apparent" that earlier analyses "were being biased low due to an overrepresentation of down cycle years." 85 Fed. Reg. 18,060. Thus, Coates 2020 analyzed the intervals 2008-2018, 2001-2018, and 1995-2018 to "represent[] one (11 years), two (18 years), and three (24 years) complete population cycles." (AR 35,279.)

Coates 2020 found "a general pattern of population cycling within an otherwise stable population," with considerable variation among the PMUs. 85 Fed. Reg. 18,060. For the entire bi-state sage grouse population, the study reported a 9.6% decrease from 2008-2018, a 15.7% decrease from 2001-2018, and a 57.7% increase from 1995-2018. (AR 35,279.) These results mean that "the 2018 estimate[] was greater than the estimate at the nadir of 1995, and slightly less than estimates during nadirs of 2001 and 2008." (AR 35,303 (cleaned up).) When broken out by PMU, the study reported that two PMUs increased overall from 1995-2018, 85 Fed. Reg. 18,060;

for example, the Bodie Hills PMU population increased fourfold overall from 1995-2018. (AR 35,279; *see* AR 35,309 (diagrams).) But four PMUs decreased overall from 1995-2018. (AR 35,279; *see* AR 35,309 (diagrams).) The study estimated that the bi-state sage grouse overall has a 1.1% chance of extirpation in the next 10 years. (AR 35,304.) The PMUs each have the following 10-year extirpation probabilities: Pine Nut, 69.7%; Desert Creek-Fales, 9%; Bodie Hills, 2.4%; Mount Grant, 24.6%; South Mono, 3.8%; and White Mountains, 75.1%. (AR 35,304; *see* AR 35,280.)

2. Discussion

Plaintiffs contend that, because the 2008-2018 and 2001-2018 analyses used data from more PMUs and more subpopulations than the 1995-2018 analysis, the study's findings of population decrease from 2008-2018 and 2001-2018 are more significant than its finding of population increase from 1995-2018. (*See* AR 35,280 ("Owing to differences among available datasets, the long-term analysis primarily reflected spatial shifts among subpopulations comprising the majority of the Bi-State DPS (that is, Bodie Hills and Long Valley) while the short-term analysis also quantified changes among subpopulations along the periphery."), 35,305 (chart indicating unavailable data).)

The Court finds it is beyond the scope of arbitrary and capricious review to assess whether it was appropriate to compare the 2008-2018 and 2001-2018 analyses to the 1995-2018 analysis, given the different underlying data. Each analysis used data from every PMU that had data available; the study did not exclude any available relevant data. (*See* AR 35,280, 35,287.) It was not manifestly irrational to conduct the 1995-2018 analysis, and use it for comparison, despite having less comprehensive data available. The Coates 2020 authors determined that the available data were adequate and the Service found that conclusion to be reasonable. *See Greater Yellowstone Coal.*, 665 F.3d at 1028 ("We recognize that scientific uncertainty generally calls for deference to agency expertise."); *Desert Survivors I*, 321 F. Supp. 3d at 1045 ("[I]t is beyond the scope of [] arbitrary and capricious review to determine whether [Coates 2014] could . . . make predictions about the overall population of the Bi-State DPS without data from the Mount Grant and White Mountains PMUs. The authors of the study opined that the subpopulations that they

did study provided a 'reliable representation of demography' for the entire DPS and the Service found that conclusion to be reasonable. The Court defers to the expertise of the Service on this issue . . . ."). Moreover, in addition to Coates 2020, other studies informed the Service's conclusion that the bi-state sage grouse population has "fluctuated over the past 40 years (both increased and decreased), but over the entire timeframe has remained relatively stable." 85 Fed. Reg. 18,060; *see id.* at 18,059–61; *cf. Tucson Herpetological Soc'y v. Salazar*, 566 F.3d 870, 879 (9th Cir. 2009) (finding the Service's conclusion arbitrary and capricious where it agreed that older studies were discredited, relied on one newer study showing that there was no large population decline in two discrete sections of lizard's habitat over two years, and made the "sweeping conclusion that viable lizard populations persist throughout most of the species' current range").

Accordingly, Coates 2020 provided a rational basis for the Service's conclusion that the population has been fluctuating cyclically but has been generally stable over the past several decades.

B. Extirpation of Smaller PMUs

1. Background

The bi-state sage grouse population is unevenly distributed across the six PMUs. From smallest to largest subpopulation, Coates 2020 estimated: Pine Nut (33), White Mountains (45), Mount Grant (374), Desert Creek-Fales (447), South Mono (885), and Bodie Hills (1,521). (AR 35,304; *see* AR 16,805 (identifying the two largest subpopulations as located in Bodie and South Mono).) Bodie and South Mono are towards the geographical center of the six PMUs, (*see* AR 35,283), and "represent the core populations" of the bi-state sage grouse. 85 Fed. Reg. 18,063. Coates 2020 reported "long-term patterns in redistribution" whereby "subpopulations at the periphery are declining while the largest population at the core is increasing." (AR 35,280; *see* AR 16,806 ("Historical extirpations outside the existing boundaries of the six PMUs present a similar pattern of lost peripheral populations. . . . [L]oss of the sage-grouse population in [the Pine Nut PMU] (i.e., the northern-most population within the range of the Bi-State DPS) appears likely.").) "We found substantial evidence of range contraction. All peripheral populations and

one core population (that is, Long Valley) have declined substantially in distributional area and volume, while Bodie Hills has increased substantially over time." (AR 35,345.)

"Connectivity within and among PMUs is variable" and "slowly deteriorating." (AR 16,663.) Subpopulations in the PMUs are "isolated to varying degrees from one another," with bi-state sage grouse in the South Mono and White Mountains PMUs "largely isolated" from the rest of the population. 85 Fed. Reg. 18,059. Isolation "increases the risk of loss of individual PMUs via stochastic events." (AR 16,663; *see* AR 16,808 (identifying "wildfire, drought, and disease" as examples of stochastic events)); *see* 85 Fed. Reg. 18,079 ("[S]maller populations are more challenged by environmental and demographic stochasticity."), 18,081 (identifying "disease epidemics, prey population crashes, [and] environmental catastrophes" as examples of stochastic events). Coates 2020 reported:

> [T]he Bi-State can be characterized by fragmented subpopulations, largely as a result of conifer expansion into sagebrush ecosystems. Although declines in smaller peripheral populations may have minor contributions to overall population rate of change, extirpation of these populations may impact sage-grouse distribution and connectivity. That is, extirpation of small periphery subpopulations appear to have disproportionate impacts on overall occupied habitat, when compared to their influence on overall population growth trends for the Bi-State DPS.

(AR 35,345.) As noted above, Coates 2020 reported that while the bi-state sage grouse overall has a 1.1% probability of 10-year extirpation, every PMU has a higher probability. (AR 35,304; *see* AR 35,280.) The two PMUs with the smallest subpopulations have the highest probabilities of 10-year extirpation: Pine Nut (69.7%) and White Mountains (75.1%). (AR 35,304.)

As part of the listing decision process, the Service completed a species report that "provide[s] the scientific basis that informs our regulatory decisions." 85 Fed. Reg. 18,064. The 2020 Species Report on the bi-state sage grouse stated:

> Declining population trends are generally apparent for the Pine Nut [PMU] and Desert Creek-Fales PMU. These trends are of concern at the DPS level because fluctuations in these small, less secure populations are likely to result in extirpations and loss of population redundancy across the DPS.

(AR 16,806.)

> The populations and habitat in the northern extent of the Bi-State area

> including the Pine Nut and Desert Creek-Fales PMUs are now and will likely continue to be most at risk. We anticipate loss of some populations and contractions in the range of others in these two PMUs, which will leave them susceptible to extirpation from stochastic events such as wildfire, drought, and disease (each of which is currently acting upon certain populations within the Bi-State DPS). We expect the two largely isolated core populations in the Bodie and South Mono PMUs . . . will remain in 30 years.

(AR 16,808.)

> The Bi-State DPS is experiencing multiple, identifiable interacting impacts . . . . Individually, each of these impacts is unlikely to affect persistence across the entire Bi-State DPS, but each may act independently to affect persistence of individual populations. The scope, severity, and timing of these impacts vary at the individual PMU level. . . . [W]here impacts are occurring in sage-grouse habitat, the risk they pose to the DPS may be exacerbated and magnified due to the small number, size, and isolation of populations within the DPS. . . . Due to the scope of the impacts, current habitat degradation, fragmentation and loss, and isolation of small populations, presents [sic] challenges to the entire Bi-State DPS.

(AR 16,808–09.)

In the 2020 Withdrawal, after reviewing Coates 2020 and two other reports on extirpation probabilities among the PMUs, the Service concluded:

> [E]ven though some populations in this most recent model have high probabilities of extirpation over the next ten years, the DPS as a whole is likely to persist over this time period. These extinction probabilities are created from continuing and forecasting past trends into the future, and thus likely do not reflect the effects of conservation measures started or completed in recent years.

85 Fed. Reg. 18,061.

2. Discussion

Plaintiffs contend that the Service's conclusion that the bi-state sage grouse population is stable failed to account for the risk that extirpation of smaller PMUs will disproportionately increase the whole population's probability of extirpation. Plaintiffs argue that due to current isolation, if one PMU is extirpated, it may increase the degree of isolation among the remaining PMUs. Moreover, they contend, as long-term redistribution towards the core continues, the entire population becomes more vulnerable to extirpation by a stochastic event occurring near that core.

The Court finds that the 2020 Withdrawal did not address the Service's earlier determinations in the species report that declining populations in the smaller, isolated PMUs "are

of concern at the DPS level" and that isolation "presents challenges to the entire Bi-State DPS." (AR 16,806, 16,809); *see also* 85 Fed. Reg. 18,096 (noting that effects of "threats from wildfire, invasive species, urbanization," "infrastructure effects," and "recreation" "may be exacerbated by population isolation and discontinuous population structure"); 80 Fed. Reg. 22,839 (2015 Withdrawal) ("Multiple, interacting populations across a broad geographic area provide insurance against the risk of extinction caused by catastrophic events . . . . If a [PMU] population is permanently lost, the DPS' population redundancy would be lowered, thereby decreasing the DPS' chance of survival in the face of potential environmental, demographic, and genetic stochastic factors and catastrophic events."). The Service accepted the findings from Coates 2020 and other studies that there is a low risk of 10-year extirpation of the bi-state sage grouse generally. However, the Service did not explain how it or Coates 2020 squared those findings with the fairly high extirpation risks of individual PMUs and the Service's assessment that extirpation of individual PMUs may negatively impact the bi-state sage grouse's overall population and range. *Cf. Desert Survivors I*, 321 F. Supp. 3d at 1045 ("In light of the Service's own recognition of the questionable validity of the model . . . , the Service erred in relying on that study in support of its finding."); *Rocky Mountain Wild v. Walsh*, 216 F. Supp. 3d 1234, 1253–54 (D. Colo. 2016) (holding that Service's "fail[ure] to explain why the beardtongues would not be threatened in the foreseeable future" was arbitrary and capricious where its 15-year conservation agreement left unprotected 36% and 24%, respectively, of two subpopulations).

The 2020 Withdrawal did not grapple with the interplay between the high probabilities of 10-year extirpation of individual PMUs and the isolation of PMUs that persist. As such, it "failed to consider an important aspect of the problem," *Greater Yellowstone Coal.*, 665 F.3d at 1023 (cleaned up): that 10-year extirpation of one or more PMUs, which the Service assesses as more likely than not, may have a more severe impact than the mere loss of that PMU's subpopulation. The Service's acceptance of Coates 2020's estimate lacked a "rational connection" to the Service's own assessment of the negative consequences of PMU isolation. *Ariz. Cattle Growers*, 606 F.3d at 1163.

C. Effective Population Size

1. Background

"One way to address population health and viability is through analysis of effective population size," "defined as the size of the idealized population of breeding adults." 85 Fed. Reg. 18,080. Effective population size relies on two concepts. First, what percentage of the species' population are breeding adults? Second, applying that percentage to the species' estimated actual population size, is the estimated number of breeding adults large enough to preserve genetic diversity that the species needs to survive? *See Zinke*, 900 F.3d at 1073 (describing effective population size as "a sufficient number of breeding adults to minimize th[e] threat" of "loss of genetic diversity" and explaining that "scientific literature debat[es] the effective population size adequate to conserve genetic diversity over the long term"). "The effective population size of a wildlife population is often much less than its actual size." 85 Fed. Reg. 18,080.

> As effective population size decreases, the rate of loss of genetic diversity increases. The consequences of this loss of genetic diversity, reduced fitness through inbreeding depression and reduced adaptive (evolutionary) potential, are thought to elevate extinction risk[.]

Id. The bi-state sage grouse's polygamous mating systems, asymmetrical mate selection, variation in female reproductive success, unequal sex ratios, and other traits mean that "population sizes in sage-grouse must be greater than in non-lekking bird species to maintain long-term genetic diversity." *Id.*

With respect to what percentage of bi-state sage grouse are breeding adults, the 2020 Withdrawal cited, in part: (1) a study on greater sage grouse, Aldridge 2003, that determined there must be an actual population of 5,000 to maintain an effective population size of 500 (a 10% ratio); (2) a study on "a wide array of species," Traill 2010, that determined the same; and (3) a study on Gunnison sage grouse that determined a 20% ratio. *Id.*

With respect to whether that percentage produces a number large enough to preserve genetic diversity, the 2020 Withdrawal cited two species-generic studies. *Id.* One suggested that a species needs an effective population size of at least 50–100 "to avoid short-term extinction risk caused by inbreeding," and the other suggesting at least 500 "to retain evolutionary potential and

avoid long-term extinction risk." *Id.*

The Service estimated the actual population of bi-state sage grouse is 3,305. *Id.* The Service also determined that the effective population size for the bi-state sage grouse is 10–20% of the actual population. *Id.* Accordingly, the Service estimated that the effective population size is 330–661 overall. *Id.* "[H]owever, . . . some sage-grouse populations in the Bi-State area are isolated, suggesting that the effective population size is actually less": 3–6 for the Pine Nut PMU; 234–468 for Desert Creek-Fales, Mount Grant, and Bodie combined; 81–163 for Long Valley; and 4.5–9 for White Mountains. *Id.* The Service concluded:

> We are unaware of any other published estimates of minimal population sizes necessary to maintain genetic diversity and long-term population sustainability in sage-grouse and specifically for the Bi-State DPS, and whether the described effective population sizes above are of concern. Most populations of the Bi-State DPS have been below the possible minimum population sizes as described above, in large part due to the natural cycling of sage-grouse populations, yet continue to persist. . . . Because we expect conservation implementation to continue under the [Bi-State Action Plan], the risks associated with small population size will be reduced.

Id. at 18,080–81.

2. Discussion

Plaintiffs argue that the Service's analysis of effective population size ignored the best available evidence.

The Court finds that the cited studies provide a rational basis for the Service's conclusion that 10–20% of the bi-state sage grouse population are breeding adults. Accordingly, the Service had adequate support to estimate an effective population size of 330–661.

However, the data did not provide a rational basis for the Service's other conclusions. The Service did not "disagree[] with or discredit[]" Aldridge 2003, which required a minimum effective population size of 500 and a minimum actual population size of 5,000, or Traill 2010, which required a minimum actual population size of 5,000. *San Luis & Delta-Mendota*, 776 F.3d at 995; *see* 85 Fed. Reg. 18,080. Yet, the Service estimated that the bi-state sage grouse has an effective population size of 330–661; the low end of that range is below Aldridge 2003's threshold of 500, meaning that the effective population size may be too small to preserve genetic diversity

that the bi-state sage grouse needs to survive. The Service did not address that issue or the other side of the coin: that the estimated actual population of 3,305 is below Aldridge 2003 and Traill 2010's thresholds of 5,000.

Moreover, the Service did not meaningfully address the issue that "isolated" subpopulations have very small estimated effective population sizes: 3–6, 4.5–9, 81–163, and 234–468. 85 Fed. Reg. 18,080. Some of these ranges are below the lowest cited threshold of 50–100 "to avoid short-term extinction risk," and all are below Aldridge 2003's threshold of 500. *Id.* Thus, by the Service's own analysis these PMUs are at risk of short- or long-term extinction. The Service stated that the isolation of PMU subpopulations "suggest[] that the effective population size is actually less" than the overall figure of 330–661. *Id.* Nevertheless, the Service stated it was not aware of research that would indicate the very small effective population sizes in the PMUs were "of concern." *Id.* at 18,080–81. The Service's key reasoning was that the subpopulations "continue to persist," *id.* at 18,081, essentially discounting the data on effective population size without adequate explanation or support in the record. The persistence of bi-state sage grouse subpopulations, alone, is not a rational basis to reject the best available data indicating that an effective population size of 50 is the minimum threshold for short-term viability of the species. *Cf. Greater Yellowstone Coal.*, 665 F.3d at 1030 ("The Rule presents no data indicating that whitebark pine declines will not threaten the Yellowstone grizzly population, and considerable data . . . pointing in the opposite direction.); *Tucson Herpetological Soc'y*, 566 F.3d at 877 ("It is insufficient . . . to point to one area or class of areas where lizard populations persist to support a finding that threats to the species elsewhere are not significant; the ESA requires a more thorough explanation.").

By simply dismissing the relevant data, rather than "disagree[ing] with or discredit[ing]" it, the Service "ignored" the best available data. *San Luis & Delta-Mendota*, 747 F.3d at 602. Accordingly, the Service's unsupported determination that the bi-state sage grouse's effective population size is above the minimum threshold for viability undermines its broader conclusion that the population is stable.

* * *

Coates 2020 provided a rational basis for the Service to conclude that the bi-state sage grouse population has been cyclical, but overall stable, over the past several decades, and the Service did not ignore other available data on that point. However, the Service erred in adopting Coates 2020's low estimate of bi-state sage grouse extirpation without explaining how that estimate fit with Coates 2020's high estimates of PMU extirpation and the Service's own assessment that PMU isolation is a significant concern for the population as a whole. Finally, the Service did not have a rational basis to conclude that the estimated actual population (3,305) and effective population size (330–661) are above the minimum threshold for viability and a "stable" population, in light of the effective population sizes of isolated PMUs (3–6, 4.5–9, 81–163, 234–468). Thus, the Service's determination that the bi-state sage grouse population is stable lacked "a rational connection [to] the facts found," *Ariz. Cattle Growers*, 606 F.3d at 1163, was not based on "the best scientific and commercial data available," 16 U.S.C. § 1536(a)(2), and was arbitrary and capricious.

II. SIGNIFICANT PORTION OF ITS RANGE

An endangered species is "any species which is in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. § 1532(6). A threatened species is "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." *Id.* § 1532(20). As the Ninth Circuit has noted, "Standing alone, the phrase 'in danger of extinction throughout . . . a significant portion of its range' is puzzling[,] . . . since 'extinction' suggests total rather than partial disappearance." *Defs. of Wildlife v. Norton* ("*Norton*"), 258 F.3d 1136, 1141 (9th Cir. 2001). Accordingly, "[t]he Secretary necessarily has a wide degree of discretion in delineating 'a significant portion of its range,' since the term is not defined in the statute." *Id.* at 1145.

The 2015 Withdrawal applied the following interpretation:

> [A] portion of the range of a species is "significant" if the species is not currently endangered or threatened throughout all of its range, but the portion's contribution to the viability of the species is so important that, without the members in that portion, the species would be in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range.

79 Fed. Reg. 37,578; *see* 80 Fed. Reg. 22,852. *Desert Survivors I* found that interpretation impermissible, 321 F. Supp. 3d at 1066–74, because it "result[ed] in a threshold under the 'significant portion of its range' definition that [was] functionally equivalent to the threshold under the 'throughout all' definition," *id.* at 1070–71. *See Norton*, 258 F.3d at 1141–42 (holding that interpretation of ESA must give independent meaning to phrase "significant portion of its range").

The 2020 Withdrawal laid out a different analysis ("2020 SPR Analysis"). *See* 85 Fed. Reg. 18,097–99. The Service first determined the bi-state sage grouse "is not in danger of extinction or likely to become so in the foreseeable future throughout *all* of its range." *Id.* at 18,097 (emphasis added). Turning to "significant portion of its range," the Service identified two "prongs," "significance" and "status": "(1) The portion is significant and (2) the species is, in that portion, either in danger of extinction or likely to become so in the foreseeable future." *Id.* With respect to "significant," the Service wrote:

> As an initial note, the Service's most recent definition of "significant" within agency policy guidance has been invalidated by court order (see [*Desert Survivors I*]). Therefore, for purposes of this analysis the Service is screening for significant portions of the range by applying any reasonable definition of "significant." Biological importance/significance is often considered in terms of resiliency, redundancy, or representation.

Id. at 18,098. Elsewhere in the 2020 Withdrawal, the Service defined the "3Rs":

> Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years), redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, large pollution events), and representation supports the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes). In general, the more resilient and redundant a species is and the more representation it has, the more likely it is to sustain populations over time, even under changing environmental conditions.

Id. at 18,065. The Service described a "screening" in which it would consider, for "potential portions of the species' range," whether "substantial information" indicates that each prong—significance and status—"may be" met. *Id.* at 18,098. The Service would then do "a more thorough analysis to determine whether the portion does indeed meet both . . . prongs." *Id.* at

18,097. At both the screening and "more detailed analysis" stages, the Service might address "the 'significance' question or the 'status' question first"; if the first question were answered in the negative, "we [would] not need to evaluate the second question for that portion of the species' range." *Id.*

Applying the 2020 SPR Analysis to the bi-state sage grouse, the Service began by screening the "status" prong, "i.e., identifying portions where the Bi-State DPS may be in danger of extinction or likely to become so in the foreseeable future." *Id.* The Service examined whether a variety of identified threats to the bi-state sage grouse population overall are "geographically concentrated in any portion of the range at a biologically meaningful scale." *Id.* It identified two such portions: the Pine Nut and White Mountains PMUs. *Id.* at 18,097–98. For both, the Service determined that there was substantial information indicating that the "status" prong may be met—that is, the bi-state sage grouse in those portions is either in danger of extinction or likely to become so in the foreseeable future.[2] *Id.* The Service then screened the "significance" prong and found that neither portion had substantial information indicating the prong may be met. *Id.* at 18,098. The Pine Nut and White Mountains PMUs have "similar habitat use and behaviors to sage-grouse in the remainder of the Bi-State DPS; thus, there is no unique observable environmental usage or behavioral characteristics attributable to just this area's population." *Id.* Both have "unique genetic characteristics . . . , including haplotypes not present elsewhere in the DPS." *Id.* But because other PMUs also have unique genetic characteristics, the characteristics of the Pine Nut and White Mountains PMUs do not "represent a unique or significant adaptive

[2] The Service noted that risks to the White Mountains PMU may be overestimated; the area is geographically remote and the Service infers that the population is undercounted. (*See* AR 35,314 (Coates 2020).) Although available data may "over represent the probability of extirpation to some degree," "out of an abundance of caution" the Service "proceeded under the premise that this portion of the range meets the screening criteria" of the "status" prong. 85 Fed. Reg. 18,098. At oral argument, Defendants reiterated that the White Mountains population may be undercounted and therefore the "status" prong may not be met on initial screening, rendering irrelevant the "significance" prong. Because the 2020 SPR Analysis proceeded under the premise that the White Mountains PMU meets the status prong on initial screening, the Court cannot conclude otherwise. *See Motor Vehicles Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 50 (1983) ("[A]n agency's action must be upheld, if at all, on the basis articulated by the agency itself.").

capacity compared to the remainder of the DPS." *Id.* The Service also noted that both are small subpopulations, such that while they "provide[] some contribution to the DPS's overall ability to withstand catastrophic or stochastic events (redundancy and resiliency, respectively), and to adapt to changing environmental conditions (representation), . . . this contribution is very limited in scope due to [their] small population size and isolation from other populations." *Id.* Because the "significance" prong was not met on initial screening, the 2020 SPR Analysis ended there. *Id.* at 18,099.

Plaintiffs contend that the 2020 SPR Analysis is arbitrary and capricious because it is too vague and because it depends on the portion's contributions to the general population in violation of *Norton*. (Dkt. No. 33 at 24–30; *see* Dkt. No. 36 at 29–37.) They argue that the Service: (1) incorrectly concluded that Pine Nut and White Mountains are not significant; (2) should have considered two or more PMUs together as a potential portion of the range; and (3) should have considered other PMUs and subpopulations as potential portions. The Service's interpretation is entitled to *Chevron* deference. *See Defs. of Wildlife v. U.S. Fish & Wildlife Serv.*, Nos. 21-cv-00344-JSW, 21-cv-00349-JSW, 21-cv-00561-JSW, 2022 WL 499838, at *10 (N.D. Cal. Feb. 10, 2022), *appeals filed*[3]; *Desert Survivors I*, 321 F. Supp. 3d at 1072; *Ctr. for Biological Diversity v. Jewell*, 248 F. Supp. 3d 946, 955–56 (D. Ariz. 2017), *as amended*, 2017 WL 8788052 (Oct. 25, 2017).

A. Pine Nut and White Mountains

After finding substantial information indicating that the Pine Nut and White Mountains PMUs are portions where the bi-state sage grouse is likely to become in danger of extinction, the Service did not provide a rational basis for its determination that the two portions are not significant. As for Pine Nut, the Service found that "unique genetic characteristics have been documented in the PMU's birds, including haplotypes not present elsewhere in the DPS." 85 Fed. Reg. 18,098. The Service then went on:

> [W]e note that each of the five other populations in the DPS also exhibit unique genetic characteristics and haplotypes. So although

[3] (Nos. 22-15529, 22-15532, 22-15534, 22-15535, 22-15536, 22-15626, 22-15627, 22-15628).

> there is genetic differentiation between the Pine Nut PMU and other PMUs, we found no information indicating that the Pine Nut PMU's genetic characteristics represent a unique or significant adaptive capacity compared to the remainder of the DPS.

Id. The Service engaged in the same reasoning as to White Mountains:

> [U]nique genetic characteristics have been documented in the PMU's birds, including haplotypes not present elsewhere in the DPS. However, although there is genetic differentiation between the White Mountains PMU and other PMUs, we found no information indicating that the White Mountains PMU's genetic characteristics represent a unique or significant adaptive capacity compared to the remainder of the DPS.

Id. (citation omitted). The existence of other subpopulations with their own unique genetic characteristics is not a rational basis to find that Pine Nut and White Mountains' unique genetic characteristics are not significant. That other subpopulations have *different* unique characteristics is not a rational basis for concluding that the unique genetic characteristics of Pine Nut and White Mountains do not "represent a unique or significant adaptive capacity compared to the remainder of the DPS." *Id.* They may not, but the Service did not explain why. *See Norton*, 258 F.3d at 1145 ("[T]he Secretary must at least explain her conclusion that the area in which the species can no longer live is not a 'significant portion of its range.'"); *Defs. of Wildlife*, 2022 WL 499838, at *10 ("[T]he significance standard provides no threshold for determining what makes any one of the factors of resiliency, representation, and redundancy 'meaningful' such that the population could be considered 'significant.'").

Defendants' reliance on *Tucson Herpetological Society* is not persuasive. There, the Service determined that the flat-tailed horned lizard had lost 23% of its baseline range from 100 years prior and "offered a set of reasons for discounting the significance" of that loss. 566 F.3d at 877. "Taking these reasons together," the Ninth Circuit upheld the determination that the portions were not significant, including: the lizard's persistence corroborated the conclusion that the lost portions "[did] not provide any unique or critical function for the well-being of the species"; the lost portions did not represent "a critical pathway for maintenance of genetic diversity"; and the lost portions were not recoverable and therefore could not support long-term survival. *Id.* at 877–78.

> In essence, the Secretary determined that the Coachella Valley is

> home to a very small (in comparison with the three other segments of the lizard's remaining domestic range) non-unique lizard population. As such, the demise of the Coachella Valley population would not be significant within the meaning of the ESA. This is a reasonable approach to assessing the significance of threatened range.

Id. at 881. Here, by contrast, the Service conceded that the Pine Nut and White Mountains PMUs have unique genetic characteristics, but simply dismissed that diversity.

B. Two or More PMUs

As an initial matter, the Court rejects Plaintiffs' interpretation that *Desert Survivors I* required the Service, on remand, to analyze two or more PMUs combined as a potential "portion" of the range. *See* 321 F. Supp. 3d at 1074–76. However, the Court agrees that the Service did not provide a rational basis for considering only separately whether Pine Nut or White Mountains was significant. Noting that "[t]he range of a species can theoretically be divided into portions in an infinite number of ways," the Service opted to consider "whether any of the threats acting on the DPS are geographically concentrated in any portion of the range at a biologically meaningful scale." 85 Fed. Reg. 18,097. That general criterion, using threats identified earlier in the listing decision, had a rational basis. But while the Service was not required to choose to analyze PMUs in every combination out of an infinite array of choices, it was required to at least explain why it chose to analyze the two PMUs with a greater than 50% chance of extirpation only separately as if only one or the other would extirpate, but not both. A piecemeal approach runs the risk of underestimating significance because the loss of multiple somewhat significant subpopulations may well amount to a loss of great significance. Accordingly, that approach requires a meaningful explanation. *See Norton*, 258 F.3d at 1145; *Defs. of Wildlife*, 2022 WL 499838, at *11 ("Because the Service has not provided any threshold for meaningfulness, the Court cannot assess whether the Service's interpretation gives independent meaning to the phrase [SPR] or has again implemented an interpretation that renders it redundant or superfluous.").

C. Other PMUs

Finally, the Service adequately supported its determination that Pine Nut and White Mountains were the only "potential" portions to screen under the 2020 SPR Analysis. 85 Fed. Reg. 18,097. The Service identified which threats it considered and explained that Pine Nut is

"experiencing a concentration of . . . threats" and White Mountains "may be experiencing a disproportionate response to threats." *Id.* at 18,097–98. "Although these threats are not unique to this PMU area, they are acting at a greater intensity here . . . , either individually or in combination, than elsewhere in the range." *Id.* at 18,097. The significance prong focused on the 3Rs, which indicate that "[i]n general, the more resilient and redundant a species is and the more representation it has, the more likely it is to sustain populations over time, even under changing environmental conditions." *Id.* at 18,065. In light of this definition of "significant," greater intensity and geographical concentration of identified threats was a rational basis to analyze Pine Nut and White Mountains, and to decline to analyze other configurations among an infinite array.

* * *

The 2020 SPR Analysis was arbitrary and capricious because it did not provide a rational basis for determining that the Pine Nut and White Mountains PMUs were not "significant" and that they should be analyzed only separately. The Service did, however, have a rational basis for determining that those were the only two potential "portions" at issue.

III. POLICY FOR EVALUATION OF CONSERVATION EFFORTS

The Policy for Evaluation of Conservation Efforts ("PECE") explains how the Service "determin[es] whether a formalized conservation effort contributes to forming a basis for not listing a species, or for listing a species as threatened rather than endangered." 68 Fed. Reg. 15,114 (Mar. 28, 2003); *see* 85 Fed. Reg. 18,081; (AR 254). "The underlying premise of [the] PECE is that the ESA requires the Service to consider both current actions that affect a species' status and sufficiently certain future actions—either positive or negative—that affect a species' status." *Desert Survivors I*, 321 F. Supp. 3d at 1020 (cleaned up). "An agreement or plan may contain numerous conservation efforts, not all of which are sufficiently certain to be implemented and effective. Those conservation efforts that are not sufficiently certain to be implemented and effective cannot contribute to a determination that listing is unnecessary or a determination to list as threatened rather than endangered." 68 Fed. Reg. 15,115. The Service "evaluate[s] whether the conservation effort improves the status of the species" by "contribut[ing] to the elimination or adequate reduction of one or more threats to the species identified" in the listing analysis. *Id.* at

15,114–15.

The PECE involves two factors: "(1) for those efforts yet to be implemented, the certainty that the conservation effort will be implemented and (2) for those efforts that have not yet demonstrated effectiveness, the certainty that the conservation effort will be effective." *Id.* at 15,114. There are nine criteria to evaluate the certainty of implementation, of which Criterion A.8 is: "[a]n implementation schedule (including incremental completion dates) for the conservation efforts." *Id.* at 15,115. There are six criteria to evaluate the certainty of effectiveness, Criteria B.1–B.6:

> 1. The nature and extent of threats being addressed by the conservation effort are described, and how the conservation effort reduces the threats is described.
>
> 2. Explicit incremental objectives for the conservation effort and dates for achieving them are stated.
>
> 3. The steps necessary to implement the conservation effort are identified in detail.
>
> 4. Quantifiable, scientifically valid parameters that will demonstrate achievement of objectives, and standards for these parameters by which progress will be measured, are identified.
>
> 5. Provisions for monitoring and reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the conservation effort are provided.
>
> 6. Principles of adaptive management are incorporated.
>
> These criteria should not be considered comprehensive . . . . We will consider all appropriate factors in evaluating formalized conservation efforts. The specific circumstances will also determine the amount of information necessary to satisfy these criteria.

Id.

The 2015 Withdrawal PECE primarily considered measures from the 2012 Bi-State Action Plan ("BSAP"), a conservation plan developed by biologists from the Service, Bureau of Land Management, U.S. Forest Service, Natural Resources Conservation Service, U.S. Geological Survey, Nevada Department of Wildlife, and California Department of Fish and Game. *See Desert Survivors I*, 321 F. Supp. 3d at 1023–24, 1052–58. The *Desert Survivors I* court held that the 2015 Withdrawal PECE appropriately determined that conservation measures were sufficiently

certain to be implemented, *id.* at 1059–60, but erroneously determined the measures were sufficiently certain to be effective, *id.* at 1060–66. In particular, the court held that with respect to removal of pinyon-juniper and cheatgrass, there was no evidence establishing "the likely *impact* of the planned conservation measures and whether they will actually improve the status of the Bi-State DPS enough to justify withdrawal." *Id.* at 1061.

The 2020 Withdrawal stated that "wildfire and altered fire regimes, and nonnative invasive and native woodland succession" are "the threats with the highest impact" to the bi-state sage grouse. 85 Fed. Reg. 18,081. "Threats from urbanization and habitat conversion; infrastructure; mining; grazing and rangeland management; climate change; predation, and small population size and population isolation are also occurring." *Id.* "All of these threats are exacerbated by the population isolation and discontinuous population structure." *Id.* The 2020 Withdrawal PECE[4] primarily relies on the same conservation measures at issue in *Desert Survivors I*, those formalized in the 2012 BSAP. Plaintiffs now challenge the 2020 Withdrawal PECE on the grounds that it did not show certainty of effectiveness and that it lacks incremental progress objectives.[5] (Dkt. No. 33 at 20–24; *see* Dkt. No. 36 at 21–29.) The parties focus on two conservation measures: removal of pinyon-juniper and cheatgrass. *See Desert Survivors I*, 321 F. Supp. 3d at 1061 (same). The PECE requires that each "formalized conservation effort" used in a listing decision must be sufficiently certain to be effective. 68 Fed. Reg. 15,115.

A. Certainty of Effectiveness

1. Pinyon-Juniper Removal

a. Background

The 2020 Withdrawal PECE identified removal of pinyon-juniper as a conservation

[4] This term refers to the PECE summary in the 2020 Withdrawal, 85 Fed. Reg. 18,081–86, and to the full PECE, (AR 254–323).

[5] The latter argument could be construed to refer to certainty of implementation Criterion A.8: "[a]n implementation schedule (including incremental completion dates) for the conservation efforts." 68 Fed. Reg. 15,115. However, because the *Desert Survivors I* court held that the 2015 Withdrawal PECE appropriately determined that the same conservation measures were sufficiently certain to be implemented, 321 F. Supp. 3d 1059–60, the Court construes this argument to refer to certainty of effectiveness Criteria B.2, B.3, and B.5. *See* 68 Fed. Reg. 15,115.

measure. 85 Fed. Reg. at 18,084. Pinyon-juniper is a native woodland species that has encroached on the sagebrush ecosystem in which bi-state sage grouse live. (*See* AR 16,734.) About 40% "of the historically available sagebrush habitat has been usurped by woodland succession over the past 150 years," with variation among the PMUs. (AR 16,735.) "[E]cologists have developed clear and effective recommendations to target appropriate phases of encroachment . . . to ensure restoration occurs in sagebrush and sage-grouse habitat areas that are most meaningful (e.g., critical brood-rearing habitat, corridors in fragmented areas)." 85 Fed. Reg. 18,084. "As of December 2018, pinyon and juniper removal has taken place on more than 18,700 ha (46,400 ac) within or adjacent to sage-grouse habitat . . . to expand available sage-grouse habitat and enhance existing conditions within nesting, brood-rearing, and winter habitats." *Id.*

In the 2015 Withdrawal PECE, the Service was "not aware of any study documenting a direct correlation between [pinyon-juniper removal] treatments and sage-grouse population response." *Desert Survivors I*, 321 F. Supp. 3d at 1063 (quoting 2015 Species Report). Thus, the main support for the proposition that pinyon-juniper removal would positively impact the bi-state sage grouse population was data showing that pinyon-juniper presence negatively impacted the population. *See id.* ("[T]his negative inference is simply a guess; it is not based on any scientific evidence linking pinyon-juniper removal to improvement as measured by population trends."); *cf. Tucson Herpetological Soc'y*, 566 F.3d at 879 ("If the science on population size and trends is underdeveloped and unclear, the Secretary cannot reasonably infer that the absence of evidence of population decline equates to evidence of persistence."). The 2020 Withdrawal PECE discussed three new studies on the effectiveness of this measure that were not available during the 2015 Withdrawal. 85 Fed. Reg. 18,084. Each studied greater sage grouse generally, not bi-state sage grouse specifically. *See id.*

> Sage-grouse readily nest in conifer treatment sites after trees had been removed [Severson 2017]; woodland treatments increased suitable available breeding habitat and enhanced nest and brood success [Sandford 2017]; and removal of pinyon-juniper trees encroaching into sagebrush vegetation communities can increase sage-grouse population growth through improving juvenile, yearling, and adult survival as well as improving nest survival [Olsen 2019]. Additionally, sage-grouse population growth was 11.2 percent higher in treatment versus control sites within 5 years of conifer removal

> [Olsen 2019]. Thus, we conclude that pinyon-juniper removal is effective in restoring areas impacted by woodland succession such that they become suitable and productive for sage-grouse, reducing the magnitude of the threat on the species.

Id.; (*see* AR 16,734–35).

b. Discussion

Plaintiffs take issue with the three new studies. They also contend that pinyon-juniper removal does not have a "track record" of success, largely because, in Plaintiffs' estimation, the bi-state sage grouse population has continued to decline despite partial implementation of the conservation measure.

The new data discussed in the 2020 Withdrawal PECE met the Service's burden to show that pinyon-juniper removal is sufficiently certain to be effective. The data supplied exactly what the *Desert Survivors I* court observed was missing: a reasonable inference that the measure "will actually have a beneficial impact." 321 F. Supp. 3d at 1063. The three studies showed that the measure resulted in increased nesting, enhanced nest and brood success, and improved survival at several life stages. *See* 85 Fed. Reg. 18,084. These results supported a finding that pinyon-juniper removal will improve the bi-state sage grouse population by reducing the high-impact threat of native woodland succession.[6] *See id.* at 18,081; 68 Fed. Reg. 15,115 (explaining that certainty of effectiveness depends in part on "[t]he nature and extent of the threats being addressed" and "how the conservation effort reduces the threats"); *see also Desert Survivors I*, 321 F. Supp. 3d at 1061 ("While a track record of success is not an absolute requirement under PECE . . . , evidence that past conservation efforts have achieved measurable success with respect to the status of the species may support a finding of sufficient certainty of effectiveness." (cleaned up)). Plaintiffs do not identify other studies or conflicting evidence. Moreover, the data provided a rational basis for the Service to "consider the magnitude of the impact on the species that the measure[] can be expected to achieve." *Desert Survivors I*, 321 F. Supp. 3d at 1065; *see* 68 Fed. Reg. 15,115 (Criterion B.1). Olsen 2019 reported that, after some areas were treated with pinyon-juniper removal measures, greater sage grouse population growth "steadily increased" in those areas

[6] The 2020 Withdrawal PECE also indicated that pinyon-juniper removal can reduce the high-impact threat of wildfires. (AR 296–97.)

relative to control areas "and was 11.2% higher" four years later. (AR 45,786.) Additionally, the Service's analysis estimated that while pinyon-juniper encroachment exceeded the amount of habitat being restored as of 2013, as of 2020 pinyon-juniper removal was "on par with the rate of expansion." (AR 295.) Together, these findings provided a rational basis for the Service's conclusion that pinyon-juniper removal can be expected to reduce the underlying threat enough to justify withdrawal. *See* 85 Fed. Reg. 18,084.

Plaintiffs argue that some of the studies were limited to a life stage and did not consider the full life cycle of greater sage grouse. (*See* AR 48,068 (Sandford 2017: "We caution that we analyzed probability of nest and brood success, not survival. Thus, we only report the increased probability of successfully hatching a nest or raising at least one chick to independence; we cannot report whether nest and/or brood survival rates increase."), 48,242 (Severson 2017: "[We] monitored . . . until incubation was terminated (e.g., hatched, depredated).").) But it was not manifestly irrational for the Service to infer that increased nesting in treated areas, increased nest success (i.e. at least one egg hatched), and increased brood success (i.e. chick survived at least 50 days) is likely to improve the status of the population overall. (*See* AR 48,065, 48,240); *cf. Greater Yellowstone Coal.*, 665 F.3d at 1026 ("Based on the evidence of a relationship between reduced whitebark pine seed availability, increased grizzly mortality, and reduced grizzly reproduction, it is logical to conclude that an overall decline in the region's whitebark pine population would have a negative effect on its grizzly bear population."). The Court defers to the Service's expertise on the *implications* of the scientific data. *See Zinke*, 900 F.3d at 1067 ("Agency decisions deserve the highest deference when the agency is making predictions, within its area of special expertise," so long as they have "substantial basis in fact." (cleaned up)). Additionally, Olsen 2019 reasonably compensated for the limitations of the other studies because it reported "increasing sage-grouse population growth rates" "driven by increases in juvenile, adult, first nest, and yearling survival." (AR 45,786.)

Finally, Plaintiffs' argument with respect to continuing population decline is not persuasive in the PECE context. They assert a 25% population decrease in the past decade, but their calculation is not reasonable: they compare the 2013 estimated median of 4,625, within the

considerable range of 1,833–7,416, with the 2018 estimated median of 3,305. Coates 2020 provides a more thorough and scientifically sound basis to estimate a 9.6% population decrease in the last decade. (AR 35,279.) Moreover, Plaintiffs' calculation does not engage with the data indicating population cycling, discussed above. The population decrease, properly understood, does not cast significant doubt on the potential success of pinyon-juniper removal as a conservation measure.

2. Cheatgrass Removal

a. Background

The 2020 Withdrawal PECE also identified removal of cheatgrass as a conservation measure. 85 Fed. Reg. 18,084. Cheatgrass is a nonnative invasive species that has degraded the bi-state sage grouse's sagebrush habitat. (*See* AR 16,731.) It influences nesting and population performance, and "can create long-term changes in ecosystem processes, such as fire cycles . . . and other disturbance regimes that persist even after an invasive plant is removed." (AR 16,731–32.) "Cheatgrass is considered a low level threat across four PMUs (i.e., White Mountains, South Mono, Bodie, and Desert Creek-Fales), a moderate threat in the Mount Grant PMU and a high threat in the Pine Nut PMU." (AR 16,732.)

Reviewing the 2015 Withdrawal PECE, the *Desert Survivors I* court found that cheatgrass removal was insufficiently certain to be effective. 321 F. Supp. 3d at 1064–65. The conservation measures at issue were "meager . . . (based on acreage alone)" and there was no evidence to support a finding that they were "sufficient to result in a beneficial impact," especially because the Service described the measures' effectiveness as "mostly unproven and experimental." *Id.* at 1065.

The 2020 Species Report again described the effectiveness of cheatgrass removal as "unproven and experimental." (AR 16,733.) It "anticipate[d] a challenging scenario into the future," with several areas of the bi-state sage grouse habitat vulnerable to cheatgrass invasion. (AR 16,733–34.) "The greatest defense against cheatgrass and other nonnative invasive species is to maintain habitat in a competitive condition by ensuring native understory species remain healthy and viable, especially following disturbance events such as fire and drought." (AR

16,733.) The 2020 Withdrawal PECE stated:

> Although invasive, nonnative plants are widespread in the west and within the Bi-State area, reduction of other threats to the Bi-State DPS and its habitat (e.g., pinyon-juniper encroachment, impacts to critical brood-rearing habitat) are a higher priority (overall) at this time. As a result, conservation efforts related to invasive, nonnative plants will occur only in specific areas that may be most meaningful to the Bi-State DPS (e.g., targeting invasive species that are impacting critical brood rearing habitat) as opposed to widespread treatments.

(AR 295.) Thus, the limited cheatgrass removal efforts targeted the Pine Nut PMU (where cheatgrass is a high threat) in addition to Desert Creek-Fales. (AR 295.) On cheatgrass removal, the 2020 Withdrawal PECE concluded:

> In conclusion, all of these future efforts to treat increasing nonnative invasive and native plants are expected to significantly contribute to two of the three currently identified most significant concerns for the DPS into the foreseeable future (i.e., reducing impacts by protecting and restoring critical brood-rearing habitat, and removing/restoring habitat impacted by nonnative, invasive species and native increasing species).

(AR 296.)

b. Discussion

Plaintiffs challenge the Service's reliance on cheatgrass removal as a conservation measure. Defendants counter that the Service was not required to explain why cheatgrass removal alone was sufficiently certain to be effective, but rather, that it was part of the overall conservation measure addressing "nonnative invasive and native increasing plants." (AR 294.)

The 2020 Withdrawal PECE did not adequately support a finding that cheatgrass removal was sufficiently certain to be effective. It suffered from the same inadequacies as the 2015 Withdrawal PECE: small, targeted measures that are, according to the 2020 Species Report, not proven to be effective. *See Desert Survivors I*, 321 F. Supp. 3d at 1064–65. To be sure, the Service can implement conservation measures that are not sufficiently certain to be effective but that may improve a population on the margins. But a conservation measure that is not sufficiently certain to be effective "cannot contribute to a determination that listing is unnecessary or a determination to list as threatened rather than endangered." 68 Fed. Reg. 15,115. The Service stated that "all of these future efforts," including removal of nonnative invasive plants (primarily

cheatgrass) and native succession plants (primarily pinyon-juniper) "are expected to significantly contribute to" reducing two significant threats. (AR 296.) The Service erred in considering the contributions of cheatgrass removal in its listing decision.

If the Service had disregarded any contribution from cheatgrass removal, it might well have concluded that pinyon-juniper removal alone was sufficiently certain to be effective in reducing the identified threats and that a "threatened" listing was unnecessary. But the Service stated otherwise, and the Court's review is limited to "the basis articulated by the agency itself." *Motor Vehicles Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 50 (1983); *see Greater Yellowstone Coal.*, 665 F.3d at 1027 n.4 ("[T]he Service . . . did not adequately connect the dots in the Rule such that its path may reasonably be discerned." (cleaned up)).

3. Incremental Objectives

a. Background

There is no standalone requirement that the Service provide incremental objectives for the PECE conservation measures. Criteria B.2–B.5 for certainty of effectiveness are:

> 2. Explicit incremental objectives for the conservation effort and dates for achieving them . . . .
>
> 3. The steps necessary to implement the conservation effort . . . .
>
> 4. Quantifiable, scientifically valid parameters that will demonstrate achievement of objectives, and standards for these parameters by which progress will be measured . . . .
>
> 5. Provisions for monitoring and reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the conservation effort . . . .

68 Fed. Reg. 15,115. Yet, each criterion is not an absolute requirement:

> These criteria should not be considered comprehensive . . . . We will consider all appropriate factors in evaluating formalized conservation efforts. The specific circumstances will also determine the amount of information necessary to satisfy these criteria.

Id.

The 2020 Withdrawal PECE stated that pinyon-juniper removal was a "[c]urrent identified priorit[y] . . . funded and planned for implementation from 2015-2024," (AR 264), by several of

the agencies that participate in the 2012 BSAP, (AR 264–71). It continued: "Although the . . . comprehensive project database and the agency implementation schedules have limited descriptions of any incremental objectives and schedules, we are satisfied that the purpose of this criterion has been met." (AR 303.) It explained that some of the conservation measures "do not require incremental objectives or schedules," but many do have such incremental objectives. (AR 303–04.) It also described the 2012 BSAP as "a living document" that is discussed and updated as needed by implementing agencies two to four times per year, and the conservation measures of which are reprioritized as needed. (AR 303–05.)

> As of December 2018, nearly 350 projects have been completed that address impacts associated with wildfire, invasive weeds, pinyon-juniper encroachment, urbanization, and dispersed recreation . . . . This demonstrates a high level of assurance that there has been and will continue to be a conservation investment from the various agencies to ensure that the BSAP's goals and objectives will be achieved into the future.

(AR 303.)

b. Discussion

The 2020 Withdrawal PECE sufficiently analyzed the certainty of effectiveness criteria, including Criteria B.2, B.3, and B.5. The Service's experience in successfully implementing many components of the 2012 BSAP, in productive collaboration with the other agencies involved, provided a rational basis for its conclusion that "the purpose of [Criterion B.2] has been met." (AR 303); *cf. Desert Survivors I*, 312 F. Supp. 3d at 1060 ("[T]hese same agencies had a history of involvement in the conservation[] efforts under the 2012 BSAP. This is a permissible basis to find that there is a high level of certainty that they will continue to be involved in this effort and to abide by the commitments in their Commitment Letters."). The 2012 BSAP, together with the agencies' years-long collaboration in implementing it, provided a rational basis for the Service's conclusion that "[t]he steps necessary to implement the conservation effort" were well-documented (Criterion B.3) and that "[p]rovisions for monitoring and reporting progress on implementation" were adequate (Criterion B.5). 68 Fed. Reg. 15,115.

* * *

In the 2020 Withdrawal PECE, the Service adequately supported its conclusion that

pinyon-juniper removal is sufficiently certain to be effective in reducing the high-impact threat of native woodland succession. *See* 85 Fed. Reg. 18,084 (identifying threat). However, it did not do so with respect to cheatgrass removal. Thus, while pinyon-juniper removal was sufficiently certain to be implemented and effective, cheatgrass removal was only sufficiently certain to be implemented. *See Desert Survivors I*, 321 F. Supp. 3d at 1059–60 (analyzing certainty of implementation). Of the two, only pinyon-juniper removal could "contribute to a determination that listing is unnecessary or a determination to list as threatened rather than endangered." 68 Fed. Reg. 15,115. Finally, the Service reasonably considered incremental objectives as a potential indicator, though not a requirement, and had a rational basis to conclude that "all appropriate factors" regarding certainty of effectiveness criteria were met. *Id.*

IV. HARMLESS ERROR

The APA provides that "the court shall review the whole record or those parts of it cited by a party, and due account shall be taken of the rule of prejudicial error." 5 U.S.C. § 706. The "harmless error doctrine may be employed only when a mistake of the administrative body is one that clearly had no bearing on the procedure used or the substance of decision reached." *Tucson Herpetological Soc'y*, 566 F.3d at 880 (cleaned up); *see Paulsen v. Daniels*, 413 F.3d 999, 1008 (9th Cir. 2005) (explaining that courts "must exercise great caution in applying the harmless error rule in the administrative rulemaking context . . . to avoid gutting the APA's procedural requirements" (cleaned up)).

As analyzed above, the Service erred in: analyzing the data on extirpation of smaller PMUs; concluding that the effective population size was above the minimum threshold for viability; determining that the bi-state sage grouse is not likely to become an endangered species within the foreseeable future throughout a significant portion of its range; and determining that cheatgrass removal was sufficiently certain to be effective as a conservation measure, although the conclusion about cheatgrass removal may not change the outcome here. These combined errors undercut the Service's broader conclusion that the bi-state sage grouse population is stable, that the portions where it is likely to be extirpated are not significant, and that its conservation measures will reduce one or more threats enough so that the bi-state sage grouse is not threatened.

Thus, these errors go to the heart of the Service's listing decision and are not harmless. *See Desert Survivors I*, 321 F. Supp. 3d at 1066.

CONCLUSION

The Court concludes that the 2020 Withdrawal was arbitrary and capricious. Accordingly, the Court VACATES the 2020 Withdrawal, *see* 85 Fed. Reg. 18,054; REINSTATES the 2013 Proposal, *see* 78 Fed. Reg. 64,358; and REMANDS to the Service to issue a new final listing decision. *See Paulsen*, 413 F.3d at 1008 ("Ordinarily when a regulation is not promulgated in compliance with the APA, the regulation is invalid. . . . The effect of invalidating an agency rule is to reinstate the rule previously in force." (cleaned up)); *Desert Survivors*, 336 F. Supp. 3d at 1133 (remedy order) (vacating 2015 Withdrawal, reinstating 2013 Proposal, and remanding).

This Order disposes of Docket Nos. 33, 36.

IT IS SO ORDERED.

Dated: May 16, 2022

JACQUELINE SCOTT CORLEY
United States District Judge

United States District Court
Northern District of California