

**FILED**  
**United States Court of Appeals**  
**Tenth Circuit**

**PUBLISH**

**UNITED STATES COURT OF APPEALS**  
**FOR THE TENTH CIRCUIT**

**March 11, 2024**

**Christopher M. Wolpert**  
**Clerk of Court**

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DEFENDERS OF WILDLIFE,

Petitioner - Appellant,

v.

No. 23-1093

UNITED STATES FOREST SERVICE;  
UNITED STATES FISH AND WILDLIFE  
SERVICE,

Respondents - Appellees.

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**Appeal from the United States District Court**  
**for the District of Colorado**  
**(D.C. No. 1:21-CV-02992-RM)**

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Ellen Medlin Richmond, Attorney (McCrystie Adams and W. Cory Haller, Attorneys, with her on the briefs) Defenders of Wildlife, Denver, Colorado for Appellant.

Jacob David Ecker (Todd Kim, Assistant Attorney General, and Katelin Shugart-Schmidt, Attorney, on the brief) United States Department of Justice, Denver, Colorado for Appellee.

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Before **MATHESON**, **KELLY**, and **EID**, Circuit Judges.

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**MATHESON**, Circuit Judge.

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## GLOSSARY

<b><u>Term</u></b>	<b><u>Definition</u></b>
APA	Administrative Procedure Act
BA	Biological Assessment
BiOp	Biological Opinion
2021 BiOp	2021 Biological Opinion for the 2020 Rio Grande National Forest Revised Land Management Plan
2019 BiOp	2019 Biological Opinion for the 2020 Rio Grande National Forest Revised Land Management Plan
DPS	Distinct Population Segment
ESA	Endangered Species Act
FWS	United States Fish & Wildlife Service
Ivan Study	Jake Ivan et al., <i>Predictive Map of Canada Lynx Habitat Use in Colorado</i>
LAU	Lynx Analysis Unit
NEPA	National Environmental Policy Act
Plan	2020 Rio Grande National Forest Revised Land Management Plan
RGNF	Rio Grande National Forest
SISS	Stand Initiation Structural Stage
SRLA	Southern Rockies Lynx Amendment
Squires Study	John Squires et al., <i>A Specialized Forest Carnivore Navigates Landscape-Level Disturbance: Canada Lynx in Spruce-Beetle Impacted Forests</i> , 475 <i>Forest Ecology &amp; Mgmt.</i> (2020), and related materials
2017 SSA	FWS, Species Status Assessment for the Canada Lynx Contiguous United States Distinct Population Segment (2017)
Theobald and Shenk Study	David M. Theobald & Tanya M. Shenk, <i>Areas of High Habitat Use from 1999-2010 for Radio-Collared Canada Lynx Reintroduced to Colorado</i> (2011)

USFS	United States Forest Service
VEG S	Vegetation Management Standard
WUI	Wildland Urban Interface

## INTRODUCTION

From about 2008 to 2017, a bark beetle epidemic killed nearly all the spruce trees in the Rio Grande National Forest (“RGNF”) in Colorado. In response, the United States Forest Service (“USFS”) revised its Land Management Plan (“the Plan”) for the RGNF. The USFS consulted the United States Fish and Wildlife Service (“FWS”), as required by the Endangered Species Act of 1973 (“ESA”),<sup>1</sup> to consider the Plan’s effects on Canada lynx in the contiguous United States. In 2021, the FWS issued a Biological Opinion (“2021 BiOp”) concluding the Plan would not likely jeopardize the lynx’s continued existence.

Defenders of Wildlife (“Defenders”) petitioned for review, arguing that the 2021 BiOp violated the ESA and the Administrative Procedure Act (“APA”)<sup>2</sup> and that the USFS improperly relied on the BiOp in preparing the Plan.<sup>3</sup> The district court found the 2021 BiOp complied with the ESA and the APA and dismissed Defenders’ petition.

On appeal, Defenders renews its ESA and APA challenges to the 2021 BiOp. It argues the FWS (A) failed to adequately address conclusions about the Canada lynx subpopulation in Colorado from the agency’s 2017 Species Status Assessment

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<sup>1</sup> 16 U.S.C. §§ 1531-1544.

<sup>2</sup> 5 U.S.C. §§ 551, 553-559, 701-706.

<sup>3</sup> Defenders also petitioned for review of the Plan, the Plan’s environmental impact statement, and the accompanying Record of Decision under the National Environmental Policy Act of 1969 (“NEPA”), 42 U.S.C. §§ 4321-4370h. That claim is not at issue on appeal.

(“2017 SSA”), (B) acted arbitrarily and contrary to the best available science when it described the northern part of the RGNF as “low-use” lynx habitat, and (C) inadequately analyzed the Plan’s impact on lynx in “low-use,” and (D) “high-use” habitat. Defenders also contends (E) the USFS improperly relied on the 2021 BiOp.

Exercising jurisdiction under 28 U.S.C. § 1291, we affirm. The FWS did not violate the ESA or the APA, and the USFS appropriately relied on the FWS 2021 BiOp.



Canada lynx. App., Vol. 7 at 46.

## I. BACKGROUND

### A. *Legal Background*

#### 1. National Forest Management Act

The USFS manages the national forest system under the National Forest Management Act, 16 U.S.C. §§ 1600-1687, which prescribes “a two-step process” for forest planning and management at the programmatic forest and individual project levels. *Biodiversity Conservation All. v. Jiron*, 762 F.3d 1036, 1049 (10th Cir. 2014); *see also Ohio Forestry Ass’n v. Sierra Club*, 523 U.S. 726, 729-30 (1998). At the programmatic level, the USFS develops forest-wide planning goals in a Land and Resource Management Plan, or forest plan. *Utah Env’t Cong. v. Bosworth*, 443 F.3d 732, 736-37 (10th Cir. 2006). In doing so, the USFS must “provide for multiple use and sustained yield of the products and services,” including coordination of outdoor recreation, range, timber, wildlife, and wilderness uses. *See* 16 U.S.C. § 1604(a), (e). The USFS then implements forest plans through site-specific individual projects. *Id.* § 1604(a), (i); *see also Biodiversity Conservation All.*, 762 F.3d at 1049.

All agency actions, including site-specific projects, must comply with the forest plan, *Utah Env’t Cong.*, 443 F.3d at 737; 16 U.S.C. § 1604(i), and the National Environmental Policy Act of 1969 (“NEPA”), 42 U.S.C. §§ 4321-4370h, *see Silverton Snowmobile Club v. USFS*, 433 F.3d 772, 785 (10th Cir. 2006).

#### 2. Endangered Species Act

Forest plans must comply with the ESA, which Congress enacted “to provide a means whereby the ecosystems upon which endangered species and threatened species

depend may be conserved” and “to provide a program for the conservation of such endangered species and threatened species.” 16 U.S.C. § 1531(b). The ESA “authorizes the Secretary of the Interior to list domestic or foreign species as endangered or threatened,” triggering certain protections. *People for Ethical Treatment of Prop. Owners v. FWS*, 852 F.3d 990, 995 (10th Cir. 2017) (quotations omitted). The ESA defines “species” to include subspecies, as well as “any distinct population segment” (“DPS”). 16 U.S.C. § 1532(16).<sup>4</sup>

Section 7 of the ESA requires federal agencies to consult with the relevant Secretary, here the Secretary of the Interior, to “insure that any action authorized, funded, or carried out by [an] agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species.” *Id.* § 1536(a)(2). To “[j]eopardize the continued existence” means “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.” 50 C.F.R. § 402.02 (2021).<sup>5</sup>

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<sup>4</sup> The ESA does not define DPS. The FWS and the National Marine Fisheries Service have interpreted the term to mean a population that is both discrete—either “markedly separated from other populations of the same taxon” or “delimited by” certain “international governmental boundaries”—and important “to the taxon to which it belongs.” Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act, 61 Fed. Reg. 4,722, 4,725 (Feb. 7, 1996).

<sup>5</sup> We cite the ESA regulations that were applicable when the FWS issued the 2021 BiOp.

“The ESA duty to avoid jeopardy is policed by a procedural consultation requirement,” which involves (1) an “action agency”—the agency taking an action that could affect a listed species, and (2) a “consultant agency”—either the FWS or the National Marine Fisheries Service, depending on the species involved. *W. Watersheds Project v. Haaland*, 69 F.4th 689, 699 (10th Cir. 2023) (quotations omitted). Here, the action agency is the USFS and the consultant agency is the FWS.

The agencies’ assessments of an action’s impact may trigger a formal consultation requirement. If the action agency prepares a biological assessment (“BA”) that determines the proposed action is not likely to adversely affect the listed species, formal consultation is not necessary. *See* 50 C.F.R. § 402.14(b)(1). But if the BA concludes the action “may affect listed species,” the action agency must formally consult with the consultant agency. *Id.* § 402.14(a).

After formal consultation, the consultant agency must prepare a BiOp “as to whether the action is likely to jeopardize the continued existence of [the] listed species.” *Id.* § 402.14(g)(4). The consultant agency must (1) “[r]eview all relevant information provided by the Federal agency or otherwise available”; (2) “[e]valuate the current status . . . of the listed species”; (3) “[e]valuate the effects of the action and cumulative effects on the listed species”; and (4) “use the best scientific and commercial data available.” *Id.* § 402.14(g); *see also* 16 U.S.C. § 1536(a)(2) (in making a jeopardy determination, “each agency shall use the best scientific and commercial data available”).



### 3. Administrative Procedure Act

Because the ESA does not provide a private right of action for Section 7 claims, we review such claims under the APA. *W. Watersheds Project*, 69 F.4th at 700. Under the APA, a court may overturn an agency’s decision only if it is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A); *see also W. Watersheds Project*, 69 F.4th at 700. Agency action 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 if the action “is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Motor Vehicle Mfrs. Ass’n of the U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

“We review a district court’s resolution of APA claims de novo, applying the same deferential standard toward the agency’s decisions that the district court applies.” *W. Watersheds Project*, 69 F.4th at 700 (quotations omitted). “[T]he burden is on the petitioner to demonstrate that the action is arbitrary and capricious” and to overcome the “presumption of validity” afforded to such action. *Copar Pumice Co. v. Tidwell*, 603 F.3d 780, 793 (10th Cir. 2010). “Our deference to the agency is especially strong where the challenged decisions involve technical or scientific matters within the agency’s area of expertise.” *Diné Citizens Against Ruining Our Env’t v. Haaland*, 59 F.4th 1016, 1029-30 (10th Cir. 2023) (quotations omitted).

Courts consider only the agency’s stated reasons for its decision. *See State Farm*, 463 U.S. at 43. We may not look to “*post hoc* rationalizations” offered by agency officials or counsel. *Dep’t of Homeland Sec. v. Regents of the Univ. of Cal.*, 140 S. Ct. 1891, 1909 (2020). Nor may we “attempt . . . to make up for [any] deficiencies” in the agency’s reasoning by “supply[ing] a reasoned basis for the agency’s action that the agency itself has not given.” *State Farm*, 463 U.S. at 43 (quotations omitted); *see SEC v. Chenery Corp.*, 318 U.S. 80, 95 (1943).

## ***B. Factual Background***

### **1. Canada Lynx, the DPS, and the RGNF**

The Canada lynx is a medium-sized cat adapted for hunting in deep snow. It primarily hunts snowshoe hare. The lynx lives almost exclusively in Alaska and Canada, but also in the contiguous United States.

In 2000, the FWS listed the DPS of Canada lynx in the contiguous United States as a threatened species. App., Vol. 4 at 2. The lynx DPS’s habitat is approximately 30 million acres, App., Vol. 1 at 236, across six separate geographic units, including Western Colorado, App., Vol. 6 at 10. “Colorado represents the extreme southern edge of the range of the lynx.” App., Vol. 4 at 9. The Colorado Division of Wildlife began reintroducing lynx to the State in the late 1990s because few, if any, native lynx remained then. *Id.*; App., Vol. 1 at 272.

Much of the reintroduced lynx progeny lives in the RGNF. The RGNF covers more than 1.8 million acres of south-central Colorado. App., Vol. 1 at 197. According to the FWS 2018 BA for the Plan, the RGNF “includes some of the most important lynx

habitat in Colorado”—“[o]f about 12 geographic locations in Colorado where lynx can consistently be located, at least six (50%) occur on the RGNF.” *Id.* at 65. Lynx presence in the RGNF “is associated with larger contiguous blocks of forest that [are] primarily dominated by” a “specialized [spruce-fir] forest structure.” *Id.* at 62-63. The lynx habitat in the RGNF, about 661,000 acres, amounts to about 2 percent of the DPS’s total habitat. *Id.* at 236.<sup>6</sup> The following map depicts the RGNF in Colorado.



Location of the RGNF in Colorado, shown in light green. App., Vol. 2 at 168.

<sup>6</sup> The RGNF is not currently part of the lynx DPS’s designated critical habitat. App., Vol. 1 at 62. In 2016, the United States District Court for the District of Montana found that excluding Colorado from the lynx critical habitat designation was unlawful. App., Vol. 5 at 145-53 (*WildEarth Guardians v. U.S. Dep’t of the Interior*, No. 9:14-cv-00270 (D. Mont. Sept. 7, 2016) (order)). In April 2022, the court approved a settlement agreement under which the FWS will submit a proposed critical habitat rule to the Federal Register by November 21, 2024, and will submit a final rule within the statutory timeline. See *WildEarth Guardians v. Williams*, No. 9:20-cv-00097 (D. Mont. Apr. 25, 2022) (order approving settlement agreement); Joint Mot. to Approve Settlement Agmt. at 5, *WildEarth Guardians*, No. 9:20-cv-00097 (D. Mont. Apr. 15, 2022).

## 2. Southern Rockies Lynx Amendment

When the FWS listed the lynx DPS in 2000, it noted that the then-current USFS forest plans for the RGNF and several other forests were inadequate to protect the lynx. App., Vol. 4 at 2. In 2008, the USFS adopted the Southern Rockies Lynx Amendment (“SRLA”), which applied to the RGNF and established goals, objectives, standards, and guidelines for protecting lynx against several risk factors, including logging. *Id.* at 133, 137-41. Different vegetation management standards applied depending on the conditions in a given lynx analysis unit (“LAU”). *Id.* at 142-45. An LAU is a 25-50 square-mile area designed to represent the home range of a theoretical female lynx. *Id.* at 143, 186.

## 3. Spruce Beetle Epidemic

Although the SRLA considered the effects of a “large-scale mountain pine beetle epidemic,” *id.* at 140-41, it did not anticipate the spruce beetle epidemic that swept through the RGNF in the ensuing years. App., Vol. 1 at 228 (“[T]he SRLA BiOp did not anticipate a landscape-level bark beetle epidemic, and the subsequent large-scale timber salvage activities that may follow.”); App., Vol. 5 at 210 (showing spruce beetle replacing mountain pine beetle). The spruce beetle outbreak devastated the spruce-fir ecosystem, an essential lynx habitat. App., Vol. 1 at 66. The entire overstory—the uppermost layer in the forest—died by 2017. *Id.* at 66, 225. Between 2011 and 2018, the proportion of

lynx habitat in the RGNF that was considered unsuitable grew from 0.6 percent to an average of 24 percent across all LAUs.<sup>7</sup> *Id.* at 65-66.

#### **4. 2017 Species Status Assessment, 2018 Biological Assessment, and 2019 BiOp**

In response to the spruce beetle epidemic, the USFS began to revise the RGNF forest plan. It conducted informal discussions with the FWS about lynx conservation beginning in fall 2017. Around the same time, the FWS released the 2017 SSA for the lynx DPS, which discussed the current and projected outlook for the species.

In September 2018, the USFS issued a BA concluding that the draft of the Plan “may affect and is likely to adversely affect Canada lynx” in part because it was uncertain how changes in management standards proposed in the draft would affect lynx and their prey. *Id.* at 87-88. The USFS was thus required to formally consult with the FWS. *See id.* at 170; 50 C.F.R. § 402.14(a).

In March 2019, the FWS issued a BiOp (“2019 BiOp”) concluding that the draft of the Plan was “likely to adversely affect the Canada lynx,” App., Vol. 1 at 170, but “not likely to jeopardize the continued existence” of the lynx DPS, *id.* at 189.

#### **5. 2020 Revised Forest Plan**

In May 2020, the USFS finalized the new Plan. The Plan divided the RGNF into “low-use” and “high-use” lynx habitat<sup>8</sup> and applied new management standards to each

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<sup>7</sup> The USFS redrew the LAUs in 2018 and removed two of the original LAUs for lack of lynx persistence, so this comparison is not exact. *See App.*, Vol. 1 at 182, 224, 226.

<sup>8</sup> The Plan refers to “high probability lynx use area[s] (95 percent area[s]).” App., Vol. 3 at 38. The parties and the district court refer to these areas as “high-use” and all

category, maintaining some SRLA standards but altering others. *See, e.g.*, App., Vol. 3 at 39.

The USFS based this classification largely on an RGNF-commissioned study by Dr. John Squires (“Squires Study”) and other top lynx researchers that examined how lynx were responding to the spruce beetle epidemic. *Id.* at 37-38; App., Vol. 5 at 165. The Squires Study began in 2013 and culminated with a paper published in the *Forest Ecology and Management* journal in 2020. App., Vol. 5 at 165; App., Vol. 1 at 242-56. It analyzed a southern part of the RGNF and developed a model that predicted which parts of the study area would be in the top 95 percent of any lynx’s use and which parts would be in the bottom 5 percent. App., Vol. 1 at 247, 249-51 (explaining model); *compare id.* at 244 (showing study area boundaries), *with id.* at 221 (showing RGNF boundaries).

The USFS classified the northern part of the RGNF as low-use habitat. *See* App., Vol. 3 at 37-38. The Plan explained:

Dr. Squires consulted State and Forest-level biologists before initiating the field study to ensure that the designated study area captured all primary lynx use areas on the Forest. The northern area of the Forest was deemed to support minimal consistent lynx use, both currently and historically following the reintroduction [of lynx to Colorado]. Therefore, Dr. Squires and colleagues concluded that the northern portion of the Forest supported too few Canada lynx to capture enough individuals to inform reliable modeling and mapping products.

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other areas as “low-use.” *See, e.g.*, Aplt. Br. at 3; Aplee. Br. at 32, 50; App., Vol. 7 at 247. We use the parties’ terminology.

*Id.* at 38.

## 6. 2021 BiOp

In September 2020, Defenders notified the two agencies of its intent to sue, alleging the FWS 2019 BiOp and the USFS Plan violated the ESA. App., Vol. 1 at 195; *see* 16 U.S.C. § 1540(g) (requiring such notice). In February 2021, the FWS issued the 2021 BiOp, which added analysis and reached the same no-jeopardy conclusion. App., Vol. 1 at 210-41. The USFS did not further revise the Plan.

The 2021 BiOp and some of the other materials mentioned above will be described more fully as needed in our discussion of the issues raised by Defenders.

### *C. Procedural Background*

Defenders sued the USFS and the FWS in the United States District Court for the District of Colorado, alleging violations of NEPA, the ESA, and the APA. It argued the FWS 2021 BiOp violated the ESA and the APA and that the USFS improperly relied on the BiOp in developing the Plan. As noted above, Defenders also challenged the Plan, the Plan's environmental impact statement, and the accompanying Record of Decision under NEPA. The district court found the agencies complied with all three statutes and dismissed Defenders' petition for review.

Defenders timely appealed. It reasserts only the ESA and APA claims on appeal and does not challenge the district court's NEPA decision.

## II. DISCUSSION

Defenders challenges the FWS 2021 BiOp's (A) consideration of the 2017 SSA, (B) description of the northern part of the RGNF as "low-use" lynx habitat, and

(C) analysis of the Plan’s impact in “low-use” and (D) “high-use” habitat. It also contends (E) the USFS improperly relied on the 2021 BiOp. We address these issues in turn.

***A. The 2021 BiOp’s Consideration of the 2017 Species Status Assessment***

Defenders argues the FWS inadequately addressed the 2017 SSA in the 2021 BiOp. Aplt. Br. at 23-30. We disagree.

**1. Additional Factual Background**

***a. 2017 SSA***

The 2017 SSA for the lynx DPS “evaluate[d] the current and possible future conditions for lynx in 6 geographic units”—Washington, Montana and Idaho, the Greater Yellowstone area, Colorado, Minnesota, and Maine. App., Vol. 6 at 9-10. It was intended to “inform a determination by [FWS] decision makers of whether (1) the DPS continues to warrant protection under the ESA and (2) a recovery plan is needed to guide conservation and recovery of the lynx DPS.” *Id.* at 19. It did not specifically evaluate the RGNF, which is one of seven national forests in the Colorado geographic unit.

The 2017 SSA described Colorado as “currently” having “many more resident lynx . . . than [it] likely [did] historically, and many more than were known or suspected at the time the DPS was listed.” *Id.* at 17. It determined that “the current population in Colorado” gives the DPS “greater” “redundancy . . . at least temporarily, now than it [had] historically.” *Id.* at 18, 240. It predicted that “resident lynx in [Colorado] are likely to persist at year 2025.” *Id.* at 17. But it also predicted that, compared to the projections of surveyed experts, Colorado “is less likely . . . to support a resident population at 2050



[80 percent likelihood according to experts] or at 2100 [50 percent likelihood according to experts].” *Id.* at 13, 17.

Evaluating the DPS as a whole, the 2017 SSA concluded that “[t]he current broad distribution of resident lynx in large, geographically discrete areas (redundancy) makes the DPS invulnerable to extirpation caused by a single catastrophic event.” *Id.* at 240. It predicted that lynx in each geographic unit would likely “become smaller and more patchily-distributed due largely to projected climate-driven losses in habitat quality and quantity and related factors,” but “the timing, rate, and extent of habitat decline” was “highly uncertain.” *Id.* at 241. It asserted that “[d]espite some reduced resiliency, . . . resident lynx populations are very likely to persist in all 5 [geographical] units that currently support them [including Colorado, but not the Greater Yellowstone area] in the near-term (2025) and in all or most of those units at 2050.” *Id.* The 2017 SSA predicted with “high[] uncertain[ty]” that “resident lynx populations could be functionally extirpated from some [geographic] units by the end of the century,” which “would indicate a loss of resiliency, reduced redundancy and representation, and an increased risk of extirpation of the [entire] DPS.” *Id.*

b. *2021 BiOp*

The purpose of the 2021 BiOp was to evaluate “whether the [Plan] is likely to jeopardize the continued existence of [the] listed species,” here, the lynx DPS. 50 C.F.R. § 402.14(g)(4); 16 U.S.C. § 1536(a)(2).

The 2021 BiOp said the 2017 SSA “found no reliable information indicating a substantial reduction of the current distribution and abundance of” lynx in the DPS “from

historical conditions.” App., Vol. 1 at 222. The risk was low because the lynx DPS is “resilien[t]” and the DPS has “broad distribution” in “geographically discrete areas,” making it “invulnerable to extirpation caused by a single catastrophic event.” *Id.* The 2021 BiOp also noted, based on the 2017 SSA, that the Colorado subpopulation provides “increased redundancy in the DPS, at least temporarily,” compared to historical trends. *Id.* at 223.

Citing other sources, the 2021 BiOp explained that “[t]he current size of the resident lynx population in Colorado is unknown but thought to number between 100 and 250” and that “the long-term persistence of the introduced population remains uncertain.” *Id.* Of the estimated 100 to 250 lynx in Colorado, it reported that only about 10 lynx were thought to be present in the Squires Study area—the southern part of the RGNF. *Id.* (citing *id.* at 244).

The 2021 BiOp concluded the Plan was “not likely to appreciably reduce the likelihood of both survival and recovery of the Canada lynx” because “the RGNF . . . is just one of seven national forests within the southern Rockies geographic area, and those other forests would be unaffected by the [Plan],” and “the RGNF makes up just over two percent of the total lynx habitat [for the DPS].” *Id.* at 236-37.

## 2. Analysis

Defenders contends the 2021 BiOp’s analysis of the Plan’s impact on the lynx DPS failed to adequately consider the 2017 SSA. It argues the FWS “failed to analyze the consequences for the lower-48 DPS if . . . the Colorado population deteriorates or it disappears altogether,” Aplt. Br. at 25, including “ignor[ing] the [2017 SSA’s] extirpation

projection,” Aplt. Reply Br. at 3. It argues the FWS needed to analyze the risks to the Colorado subpopulation because “subpopulation extirpation . . . must be considered as part of jeopardy analysis” and failure to do so overlooks an “important aspect[] of the problem.” Aplt. Br. at 23.

For two reasons, Defenders has failed to show an APA violation. First, the FWS’s task under the ESA was to assess whether the Plan’s implementation in the RGNF would likely jeopardize the lynx DPS. The FWS reasonably carried out this task in the 2021 BiOp. Second, Defenders relies on *Wild Fish Conservancy v. Salazar*, 628 F.3d 513 (9th Cir. 2010), which is not binding and both legally and factually inapposite.

a. *The FWS’s no-jeopardy analysis*

Defenders’ criticism of the 2021 BiOp misses the mark. The FWS’s focus in the 2021 BiOp was on the relationship between the RGNF and the lynx DPS. Section 7 of the ESA required the FWS to consider whether the Plan was “likely to jeopardize the continued existence of any endangered species or threatened species,” here, the lynx DPS. 16 U.S.C. § 1536(a)(2). By contrast, the FWS’s focus in the 2017 SSA was on the relationship between the six geographic units in the DPS and the overall lynx DPS.

To the extent the 2017 SSA’s analysis of the lynx subpopulation in Colorado was relevant to the RGNF Plan’s impact on the lynx DPS, the 2021 BiOp considered it and was not arbitrary or capricious in doing so. It explained:

- The 2017 SSA showed the DPS was at minimal risk and was “invulnerable to extirpation caused by a single catastrophic event.” App., Vol. 1 at 222.

- The Colorado and RGNF subpopulations were relatively small and nonessential to the DPS. *See id.* at 223. But it also recognized “the long-term persistence of the introduced [lynx] population [in Colorado] remains uncertain.” *Id.*
- The Plan would affect no more than 50,000 acres of RGNF lynx habitat, compared to 661,000 acres of lynx habitat in the RGNF, 7,000,000 acres in the southern Rockies, and 30,000,000 acres in the DPS. *Id.* at 236.

The 2021 BiOp concluded that because the Plan affected only 7.5 percent of a forest that makes up only 2 percent of the DPS lynx habitat, the Plan would not likely jeopardize the lynx DPS. *Id.* at 236-37.

Defenders argues the FWS failed to consider the Plan’s impact on “the Colorado population,” which Defenders characterizes as “struggling” based on the 2017 SSA. Aplt. Br. at 24-25. The FWS’s job was to consider the Plan’s impact on the DPS. When the record shows a subpopulation is particularly important to the species, the FWS may need to consider how the agency action affects that subpopulation to give a reasoned jeopardy opinion. *See W. Watersheds Project*, 69 F.4th at 707-08; *Wild Fish*, 628 F.3d at 528; *Save Our Cabinets v. FWS*, 255 F. Supp. 3d 1035, 1050-51 (D. Mont. 2017). But as we further explain, the record does not support that (1) the Colorado subpopulation plays such a role within the DPS or (2) the RGNF plays such a role within the Colorado subpopulation.

First, the 2017 SSA showed the Colorado subpopulation was a fraction of the estimated DPS population. *See App.*, Vol. 6 at 15-17 (estimating “750-1,000” lynx in Maine; “50 to 200” in Minnesota; “200-300” in Montana and Idaho; “30-35” in Washington; “0-10” in the Greater Yellowstone area; and “100-250” in Colorado). It did not identify a single DPS geographic unit or factor influencing lynx viability that was

necessary to its determination that by 2100 “resident lynx populations could be functionally extirpated from some [geographic] units,” which “would indicate a loss of resiliency, reduced redundancy and representation, and an increased risk of extirpation of the DPS.” *Id.* at 241. Consistent with the foregoing information and the 2017 SSA’s statement that “the current population in Colorado” gives the DPS “greater” “redundancy . . . at least temporarily, now than it [had] historically,” *id.* at 240, the 2021 BiOp discussed the historically small size of the Colorado subpopulation. It stated that “[t]he best available information indicates that the lynx population in Colorado is, and likely has always been low.” App., Vol. 1 at 223.<sup>9</sup>

Second, the 2021 BiOp refuted Defenders’ assertion that “the fate of the Colorado population likely turns on the ability of the [RGNF] to support lynx.” Aplt. Br. at 25. The BiOp pointed to the RGNF’s small lynx population relative to the Colorado population. App., Vol. 1 at 223 (estimating 10 lynx in the Squires Study area but “between 100 and 250” lynx in Colorado). Although the FWS 2018 BA for the Plan stated that the RGNF “includes some of the most important lynx habitat in Colorado,” *id.* at 65; *accord id.* at 244 (Squires Study), it did not conclude the RGNF subpopulation was integral to the Colorado population. The 2021 BiOp concluded that the Plan would not affect the six other “national forests within the southern Rockies geographic area.”

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<sup>9</sup> Defenders’ arguments about the Colorado subpopulation’s importance to the lynx in the face of climate change, Aplt. Br. at 22; Aplt. Reply Br. at 4, fail to account for the 2017 SSA’s recognition of “projected climate-driven losses in habitat quality and quantity” in all six lynx DPS geographic units, App., Vol. 6 at 241.

*Id.* at 236. And all seven Colorado forests are likely home to lynx. App., Vol. 6 at 120; *see also* App., Vol. 1 at 65 (reporting that half of the “geographic locations in Colorado where lynx can consistently be located” are outside the RGNF).

The 2021 BiOp’s consideration of the 2017 SSA’s analysis of the Colorado subpopulation was reasonable.

b. *Defenders’ reliance on Wild Fish*

Defenders argues the 2021 BiOp was arbitrary or capricious in light of the Ninth Circuit’s opinion in *Wild Fish*, but it again misses the mark.

In *Wild Fish*, the Ninth Circuit reviewed an FWS BiOp’s consideration of a project’s impact on bull trout. The bull trout species, broken down into increasingly smaller geographic units, consists of (1) “interim recovery units,” which include (2) “geographic ‘core areas,’” which include (3) local populations. 628 F.3d at 519. The project at issue in *Wild Fish* affected “one of seven” local populations in the Wenatchee River core area, which itself was one of 90 core areas within the Columbia River interim recovery unit. *Id.* A regulation required the FWS to “conduct[] its jeopardy determinations for the bull trout at the interim recovery unit level” rather than the species level. *Id.*; *see* Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for Bull Trout in the Coterminous United States, 64 Fed. Reg. 58,910, 58,930 (Nov. 1, 1999).

The BiOp in *Wild Fish* noted that “[t]he Wenatchee River core area is particularly important to the recovery unit because it is a relative stronghold for bull trout” and “the [affected] local population is important to the core area because its location . . . could

insulate th[e] population from disturbances . . . that would affect most of the other[] [local populations].” 628 F.3d at 529 (quotations omitted). The BiOp then found that local population reductions due to the project would “improve . . . the [population’s] contribution . . . to the survival of the bull trout.” *Id.* at 528. The Ninth Circuit concluded it was irrational for the BiOp to say reductions in one local population could somehow improve the overall survival of the interim recovery unit. *Id.* at 528-29.

*Wild Fish* is nonbinding and legally and factually distinguishable.

First, Defenders’ contention that under *Wild Fish*, the ESA requires an agency to consider “subpopulation extirpation . . . as part of jeopardy analysis,” Aplt. Br. at 23, fails as a legal matter. It ignores that *Wild Fish* turned on a bull trout regulation that required the FWS to “conduct[] its jeopardy determinations . . . at the interim recovery unit level.” *Wild Fish*, 628 F.3d at 519. No comparable regulation applies here. As explained, the FWS’s no-jeopardy determination properly addressed the Plan’s effect on lynx at the DPS species level. *See, e.g.*, App., Vol. 1 at 212, 222. Also, as discussed above, the 2021 BiOp reasonably considered the 2017 SSA’s analysis of the Colorado subpopulation.

Second, *Wild Fish* is factually inapposite. Unlike in *Wild Fish*, the FWS never concluded in the 2017 SSA or the 2021 BiOp that reductions in the RGNF subpopulation, let alone the Colorado subpopulation, would improve the survival or recovery of the lynx DPS. More importantly, the FWS never concluded that Colorado, in contrast to the “core area” in *Wild Fish*, was “particularly important” or a “relative stronghold” for the DPS. *Wild Fish*, 628 F.3d at 529. Nor did it conclude that the RGNF, in contrast to the local population in *Wild Fish*, could “insulate” the Colorado subpopulation “from disturbances

. . . that would affect” the other six national forests in the southern Rockies. *Id.* (quotations omitted); *see also Save Our Cabinets*, 255 F. Supp. 3d at 1050-51 (relying on the “essential role” and “importance of the local populations at issue” to conclude that the FWS’s no-jeopardy conclusion was arbitrary). Although “particular small population units” can in theory be significant to the FWS’s consideration of an “overall population,” Aplt. Reply Br. at 5 (quoting Aplee. Br. at 27), the record does not show this was so with the Colorado or RGNF subpopulations.

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The FWS did not arbitrarily fail to consider the 2017 SSA in the 2021 BiOp.<sup>10</sup>

**B. *The 2021 BiOp’s Description of Northern Part of the RGNF as “Low Use”***

Defenders argues the FWS 2021 BiOp (a) arbitrarily assumed the northern part of the RGNF was a low-use area because the Squires Study excluded the northern part of the RGNF from its study area,<sup>11</sup> and (b) did not rely on the best available science in

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<sup>10</sup> In one sentence, Defenders asserts that “the SSA’s conclusion that lynx would persist in Colorado until the end of the century was based on FWS’s assumption that the SRLA protections would remain in place—an assumption the Plan upends.” Aplt. Br. at 25. We agree with the Government that “Defenders does not actually support [this] claim.” Aplee. Br. at 29. Defenders’ discussion of this issue in its reply brief is no more illuminating. *See* Aplt. Reply Br. at 7. “[P]erfunctory” allegations of error that “fail[] to frame and develop an issue” are insufficient to “invoke appellate review.” *Kelley v. City of Albuquerque*, 542 F.3d 802, 819 (10th Cir. 2008) (quotations omitted); *see also United States v. Cooper*, 654 F.3d 1104, 1128 (10th Cir. 2011) (“It is well-settled that arguments inadequately briefed in the opening brief are waived.” (alterations and quotations omitted)). We decline to consider this issue.

<sup>11</sup> Neither party defines the term “northern part of the RGNF,” but it appears to refer to the LAUs that do not overlap with the Squires Study area: 4-Mile to La Garita Creek, Bonanza, Carnero, Cochetopa, Creede, Embargo, Groundhog Park, La Garita



determining the area was low use. *Aplt. Br.* at 18-19, 31-39. Under the APA’s deferential standard of review, the FWS did not act arbitrarily and did not err under the ESA’s best-available-science standard.

## 1. **Additional Factual Background**

### a. *2021 BiOp*

Like the Plan, the 2021 BiOp concluded the northern part of the RGNF is likely low-use lynx habitat. *App.*, Vol. 1 at 226, 230. It explained:

Dr. John Squires and [his] colleagues . . . focused their [study on] . . . the areas known to support Canada lynx on a consistent basis. Dr. Squires consulted State and Forest-level biologists before initiating the field study, to ensure that the designated study area captured all primary lynx use areas on the RGNF. Based on these discussions, the northern area of the RGNF was deemed to support little consistent to no lynx use . . . . Therefore, Dr. Squires and colleagues concluded that the northern portion of the RGNF supported too few Canada lynx to . . . inform reliable modeling and mapping products. Instead, they focused their resources on the southern portion of the RGNF . . . (P. McDonald pers comm. December 2020). We conclude, based on this information, that even though lynx habitat is present on the northern part of the Forest, it likely does not provide high quality lynx habitat, and likely never has, and is unlikely to develop into high quality lynx habitat.

*Id.* at 226. Dr. Squires helped write this text.<sup>12</sup> Later in the 2021 BiOp, the FWS stated:

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Wilderness, Saguache Park, Sangre De Cristo North, and Sangre De Cristo South. *See App.*, Vol. 1 at 221, 230.

<sup>12</sup> The administrative record includes the “(P. McDonald pers. comm. December 2020)” referenced in the quoted text. *Dist. Ct. Doc.* 16-1, at FWS00153-54. This refers to an email from a USFS employee to a FWS employee that says: “I put together the below paragraph [the same paragraph that was included in the 2021 BiOp] with [Dr.] Squires’ help to help respond to concerns raised . . . about failure to include lynx in

Based on Squires et al. 2020, we believe that habitat in . . . LAUs [not included in the Squires Study] is unlikely to provide sufficient high quality habitat to support high numbers of lynx. Mapping of lynx habitat on the RGNF, based upon Squires et al. (2020), indicate[s] that lynx occupancy of these LAUs is unlikely because the habitat conditions they prefer is lacking.

*Id.* at 230.

b. *Squires Study*

The Squires Study did not discuss how it determined the study area boundaries, which did not cover the full RGNF. Within the study area, researchers captured 10 adult lynx—“most individuals present”—and equipped them with GPS collars to gather hourly location data. *Id.* at 244. The researchers used the location data to build a model that predicted the relative probability that lynx used an area. They displayed the findings in several maps, which were designed in part to guide forest management decisions about timber salvage. Contrary to the researchers’ initial predictions, the study concluded that lynx were not avoiding areas affected by spruce beetles, though areas with live trees remained important. *Id.* at 251.

The Squires Study was the latest in a series of Canada lynx studies in Colorado. Two others are relevant here.

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the northern part of the forest in Squires Study or the habitat management direction in the new forest plan.” *Id.*

c. *Theobald and Shenk Study*

In 2011, David Theobald and Tanya Shenk released a report documenting “habitat use for the 218 Canada lynx that were reintroduced to Colorado from 1999 to 2006.” App., Vol. 4 at 209. Based on location data from a filtered set of 118 lynx, the researchers produced distribution maps and models that determined where lynx were most likely to be found and what habitat characteristics were associated with those places. *Id.* at 210-27. The study concluded that its analysis was “consistent with previous reports that the Canada lynx reintroduced to Colorado have primarily used high elevation spruce-fir and aspen vegetation types as habitat.” *Id.* at 222.

d. *Ivan Study*

Jake Ivan and his coauthors—including Theobald and Shenk—built on the Theobald and Shenk Study.<sup>13</sup> Theobald and Shenk “provide[d] valuable information regarding the types of areas that were *known* to be used by lynx from 1999 to 2010,” and the Ivan Study “extend[ed] th[at] work . . . by producing a map of *predicted* lynx use on a *statewide* scale.” *Id.* at 228. The model predicted lynx use based on habitat characteristics and “[a]rbitrarily defin[ed] the top 20% of predictions as high quality lynx

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<sup>13</sup> Defenders argues the record version of the Ivan Study includes no date, but that the record also “makes clear that this study is from 2012.” Aplt. Br. at 37 n.10. Defenders also notes that the 2021 BiOp cited “‘Ivan et al. 2017,’” which Defenders says “seems to refer to the same (2012) study described here.” *Id.* (quoting App., Vol. 1 at 67, 69, 70). The Government argues the study is from 2011 but refers to the study as the “2012 Ivan study” to “avoid confusion.” Aplee. Br. at 39 n.13. The index to the administrative record filed in district court identified the study as “undated.” Dist. Ct. Doc. 16 at 8. We need not resolve the date of the study, which all parties agree was completed before the 2020 Squires Study.

habitat.” *Id.* at 233. The study acknowledged “shortcomings”—imprecise location data for certain landscape features and a lack of “important vegetation data.” *Id.* at 233-34. But “[d]espite these weaknesses, the predictive maps . . . ha[d] a distinct strength in that they were constructed objectively from rigorous mathematical models based on empirical data collected from wild lynx” and were “the first such maps for Colorado.” *Id.* at 234. The maps showed a relatively high probability of observing lynx across Colorado, including on the RGNF. *See id.* at 241-42.

## 2. Analysis

### a. *Arbitrary and capricious challenge*

Defenders argues the 2021 BiOp arbitrarily justified its “significant exclusion” of the northern part of the RGNF from high-use classification based on “[i]nformal and unexplained discussions.” *Aplt. Br.* at 33. Defenders has not met its burden.

#### i. Legal background

An agency “ha[s] discretion to rely on the reasonable opinions of its own qualified experts,” but “[w]hen specialists express conflicting views,” we “carefully review[] the record and satisfy[] [our]selves that the agency has made a reasoned decision.” *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 378 (1989). Even in the face of conflicting expert views, an agency generally “has made a reasoned decision,” *id.*, if other record evidence supports the agency’s decision or if the record is consistent with the agency’s expert’s assertions.<sup>14</sup>

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<sup>14</sup> *See Colo. Wild v. USFS*, 435 F.3d 1204, 1217 (10th Cir. 2006) (holding agency’s use of staff’s “personal observations” to conclude projects at issue “did not have

ii. Application

The record shows the agency made a reasoned decision to describe the northern part of the RGNF as a “low-use” area.

1) Squires Study

In addition to the consultations involving Dr. Squires and other state and federal government biologists, the habitat analysis in the Squires Study supported the “low-use” description. The 2021 BiOp reasoned that the LAUs outside of the Squires Study area (which include the northern RGNF LAUs) that are known to contain lynx habitat are “unlikely to provide sufficient high quality habitat to support high numbers of lynx” because “[m]apping of lynx habitat on the RGNF, based upon Squires et al. (2020), indicate[s] . . . the habitat conditions they prefer [are] lacking” in these areas. App., Vol. 1 at 230; *see also id.* at 235 (stating the USFS used the 2020 published version of the Squires Study and a 2018 interim report “to remap lynx habitat on the [RGNF], identifying those areas where there is a high probability of lynx use and areas where lynx are far less likely to use”); App., Vol. 3 at 37 (Plan explaining habitat characteristics of

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significant environmental impacts” was permissible because “[t]he record fully demonstrate[d] the factors the [staff] considered . . . , the monitoring techniques they employed (personal observations, measurements, photo-point, etc.), and the resulting data”); *Forest Guardians v. FWS*, 611 F.3d 692, 709 (10th Cir. 2010) (upholding agency’s decision where petitioner questioned studies but did not “point to any [physical] evidence in the record indicating” the FWS’s conclusion was infirm); *San Luis & Delta-Mendota Water Auth. v. Locke*, 776 F.3d 971, 996 (9th Cir. 2014) (directing courts to “defer[] to the agency’s scientific conclusions when those conclusions are fairly traceable to the record”); *Nw. Motorcycle Ass’n v. USDA*, 18 F.3d 1468, 1475 (9th Cir. 1994) (upholding agency’s conclusion where personal “experiences of [USFS] personnel” were “not the only basis” for it).

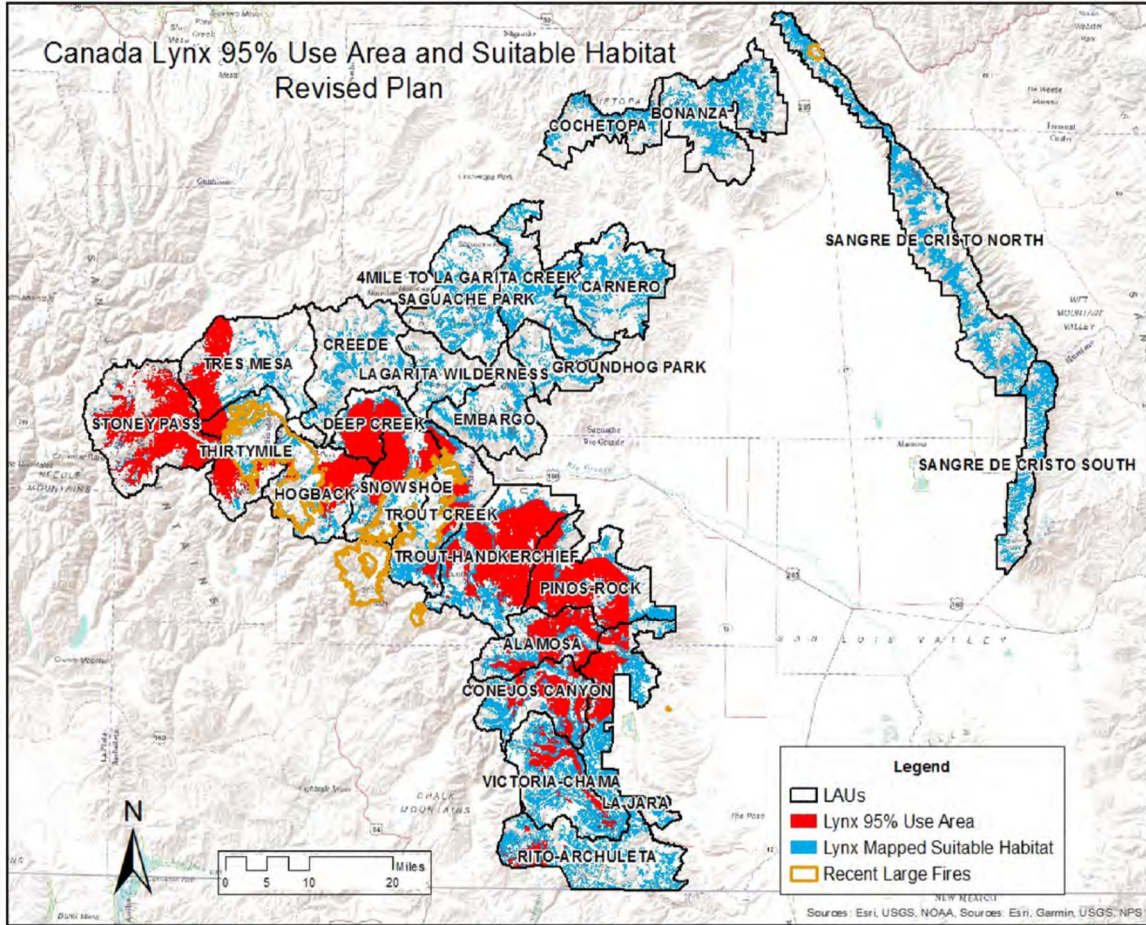
high-use areas). The FWS thus “believe[d] lynx [are] unlikely to establish home ranges in this area.” App., Vol. 1 at 230. The FWS reasonably read the Squires Study as developing a set of preferential habitat qualities and determined these northern LAUs lacked such qualities.

2) Administrative record

In determining whether the agency’s stated position is reasonable under the *Marsh* and *State Farm* standards, we can and should look to the entire administrative record. See, e.g., *San Luis & Delta-Mendota Water Auth. v. Locke*, 776 F.3d 971, 994, 996 (9th Cir. 2014). The administrative record is consistent with the FWS’s position.

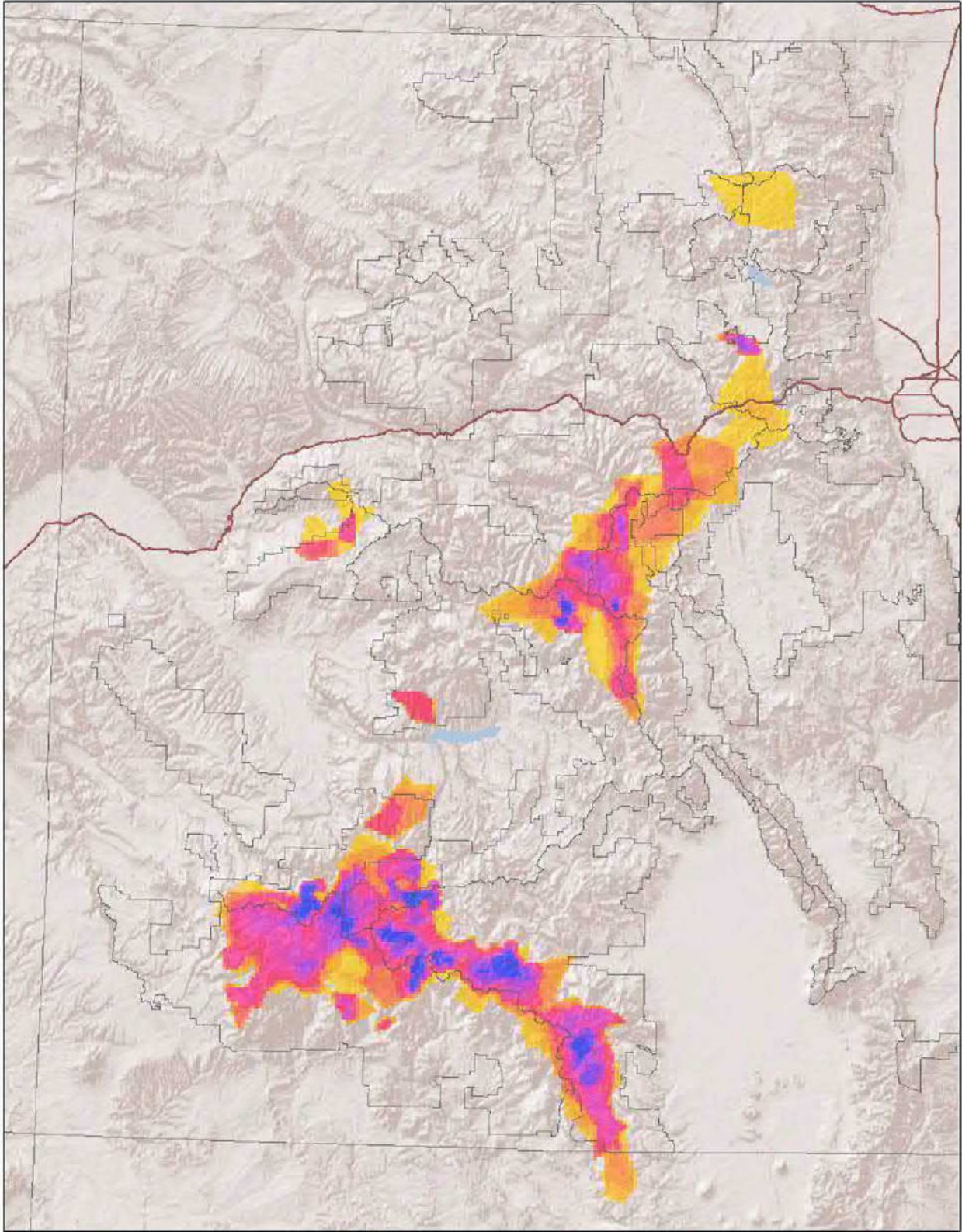
a) Theobald and Shenk Study map

The 2021 BiOp’s description of the northern part of the RGNF as low use for lynx is consistent with the Theobald and Shenk Study, as two maps show. The first map appears in the 2021 BiOp. It depicts the low- and high-use area designations that the USFS adopted in the BA and the Plan. The LAUs in the northern part of the RGNF are considered low-use and labeled “Lynx Mapped Suitable Habitat.” App., Vol. 1 at 221; see also *id.* at 230 (listing LAUs “outside of the 95 percent lynx use area . . . [that] contain lynx habitat”).



2021 BiOp map showing low- and high-use lynx habitat determinations in the RGNF.  
App., Vol. 1 at 221 (2021 BiOp); *id.* at 74 (same map in USFS BA).

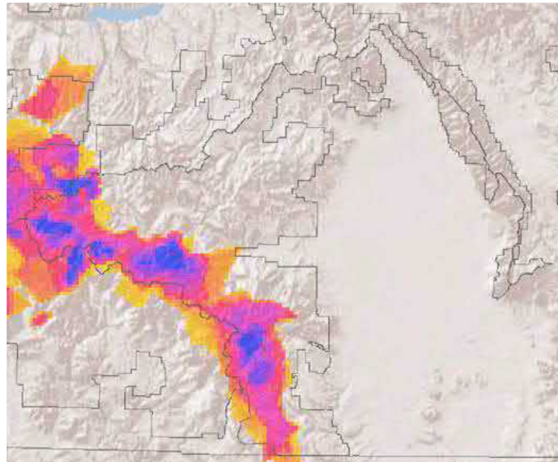
The second map is from the Theobald and Shenk Study, which tracked lynx across most of Colorado. The color-coded areas on the map show intensity of lynx use—low (yellow), moderate (orange), and high (blue). *See App., Vol. 4 at 219.* A faint outline of the RGNF boundary is visible at the bottom right of the map. This map shows little or no lynx use in the northern part of the RGNF from 1999-2010, which is consistent with the FWS’s habitat determinations in the 2021 BiOp, as depicted in the first map.



Theobald and Shenk Study map with forest service administrative boundaries (including the RGNF) and lynx distribution (1999-2010), with low-intensity use shown in yellow, moderate in orange, and high in blue. App., Vol. 4 at 223.



A cropped version of the map showing only the RGNF makes this more clear:



Cropped version of Theobald and Shenk Study map from above.

Defenders argues the Government’s reference in its brief to the Theobald and Shenk Study is an “improper *post hoc*” rationalization. Aplt. Reply Br. at 13. It is not. “The basic rule here is clear: An agency must defend its actions based on the reasons it gave when it acted.” *Regents of the Univ. of Cal.*, 140 S. Ct. at 1909. “[The FWS]’s stated rationale for its agency action,” *Def. of Wildlife v. Everson*, 984 F.3d 918, 941 n.10 (10th Cir. 2020), was that the Squires Study researchers determined that areas outside of their study area were not routinely used by lynx and that the Squires Study’s habitat-preference analysis showed that habitat outside of the study area would not support high lynx use. App., Vol. 1 at 226, 230; *see also id.* at 235. The Government’s statement that the Theobald and Shenk Study “generally aligns with the Squires Study’s delineation of the 95% high probability use area,” Aplee. Br. at 34, is not a new rationale. It rebuts Defenders’ argument that the record is devoid of additional support for the agency’s position, and “does not render the substance of the [Government]’s response a post hoc rationalization.” *Everson*, 984 F.3d at 941 n.10.

## b) Home ranges and linkage areas

The FWS’s “low-use” description is also consistent with record evidence about the development of lynx home ranges and the importance of linkage areas—areas that “provide[] landscape connectivity between blocks of lynx habitat . . . separated by intervening areas of non-lynx habitat.” App., Vol. 4 at 186. The FWS reasoned that the northern parts of the RGNF, while not high-use areas, could still be used for “exploratory and dispersal movements,” App., Vol. 1 at 230—exactly the kind of activities that characterize “linkage areas,” *see, e.g.*, App., Vol. 3 at 202; App., Vol. 4 at 72.

Defenders argues the Ivan Study, which predicted habitat use across the RGNF, and the Squires Study tracking data, which showed lynx traveling outside study area, both conflict with describing the northern part of the RGNF as low-use habitat. Aplt. Br. at 36. But this evidence, which shows some potential habitat or movement of lynx beyond the Squires Study boundaries, reinforces the FWS’s conclusion that “even though lynx habitat is present on the northern part of the [RGNF]” and lynx may travel there, the northern part of the RGNF “likely does not provide high quality lynx habitat.” App., Vol. 1 at 226, 230. The nature of the habitat in the northern part of the RGNF, the FWS observed, makes lynx unlikely to “establish [their] home ranges” there. *Id.* at 230; *see also id.* at 236, 226. Defenders has not pointed to any data to show lynx home range development in northern part of the RGNF. *See Forest Guardians v. FWS*, 611 F.3d 692, 709 (10th Cir. 2010) (deferring to the agency where petitioner advanced a contrary view of the same science the agency reviewed).

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Defenders has not identified record evidence that counters the Government’s position, demonstrates the agency entirely failed to consider an important aspect of the problem, or shows the FWS’s determination “is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *State Farm*, 463 U.S. at 43.

b. *Best-available-science challenge*

i. Legal background

“The obvious purpose of the requirement that each agency ‘use the best scientific and commercial data available’ is to ensure that the ESA not be implemented haphazardly, on the basis of speculation or surmise.” *Bennett v. Spear*, 520 U.S. 154, 176 (1997) (quoting 16 U.S.C. § 1536(a)(2)).

This standard requires the agency to “seek out and consider all existing scientific evidence relevant to the decision” and to not “ignore existing data.” *Ecology Ctr., Inc. v. USFS*, 451 F.3d 1183, 1194 n.4 (10th Cir. 2006) (quotations omitted). We afford especially strong deference to the agency’s choice of “which data are the most accurate, reliable, and relevant, . . . but it still must [use] good science—that is reliable, peer-reviewed, or otherwise complying with valid scientific methods.” *Id.* (quotations omitted); *San Juan Citizens All. v. Stiles*, 654 F.3d 1038, 1045 (10th Cir. 2011) (“The deference we give agency action is especially strong where the challenged decisions involve technical or scientific matters within the agency’s area of expertise.” (quotations omitted)); *see also, e.g., Miccosukee Tribe of Indians of Fla. v. United States*, 566 F.3d

1257, 1264-65 (11th Cir. 2009); *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 103 (1983).

An agency may “not disregard available scientific evidence that is in some way better than the evidence it relies on.” *Locke*, 776 F.3d at 995 (alterations and quotations omitted); *accord Defs. of Wildlife v. U.S. Dep’t of the Interior*, 931 F.3d 339, 346 (4th Cir. 2019); *see* 16 U.S.C. § 1536(a)(2) (requiring use of the “best scientific and commercial data available”). “Absent superior data, occasional imperfections do not violate the ESA best available standard.” *San Luis & Delta-Mendota Water Auth. v. Jewell*, 747 F.3d 581, 602 (9th Cir. 2014) (alterations and quotations omitted).

Further, the statute refers to the best “available” data. 16 U.S.C. § 1536(a)(2). An agency does not need to “collect new data,” *Ecology Ctr.*, 451 F.3d at 1194 n.4, or conduct additional studies when a decision can be made based on existing evidence, *Sw. Ctr. for Biological Diversity v. Babbitt*, 215 F.3d 58, 60 (D.C. Cir. 2000); *accord Heartwood, Inc. v. United States*, 380 F.3d 428, 436 (8th Cir. 2004); *Defs. of Wildlife*, 931 F.3d at 345.

ii. Application

Defenders argues the Ivan Study expressly analyzed the northern part of the RGNF. Aplt. Br. at 36. But that does not make the Ivan Study better. In *Forest Guardians*, we said a litigant could not “rel[y] on the *conclusion* drawn from scholarly articles . . . that [is] contrary to the *conclusion* drawn by the FWS” without “point[ing] to any [contrary physical] evidence in the record.” 611 F.3d at 709. The Ivan Study does not provide such data. It created a model based on the Theobald and Shenk Study data.

The Squires Study, by contrast, provided new tracking data (updated post-beetle-epidemic) and new habitat modeling. The Squires Study did not track lynx outside the study area, but the record shows that Dr. Squires and his colleagues considered that part of the RGNF to be so low use as to be useless in “inform[ing] reliable modeling and mapping products.” App., Vol. 1 at 226.<sup>15</sup>

The Ivan Study does not offer comparative advantages to the Squires Study. For one, the Squires Study is peer-reviewed, and the Ivan Study is not. *See Ecology Ctr.*, 451 F.3d at 1194 n.4. Although the FWS has cited the Ivan Study in some analyses,<sup>16</sup> the agency has not recognized it as high-quality science and has repeatedly said the study had major shortcomings.

Defenders contends the “2017 SSA . . . used the Ivan study to create its habitat map for the Colorado population unit.” Aplt. Br. at 36. But the 2017 SSA used the Ivan Study only to inform its calculation of the total potential habitat in the Southern Rockies. App., Vol. 6 at 169. It did not use the Ivan Study to determine high or low use of those

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<sup>15</sup> As the Government notes, “Dr. Ivan was a co-investigator of the later in time Squires study,” Aplee. Br. at 41 (citing App., Vol. 1 at 242), so it is arguably reasonable to conclude Dr. Ivan did not disagree with exclusion of the northern part of the RGNF for lack of lynx presence.

<sup>16</sup> The Government argues the Ivan Study was cited in the “Biological Assessment that the [USFS] provided to [the] FWS,” along with several other papers on which Ivan was a coauthor. Aplee. Br. at 40. It was cited in the BA for the proposition that “hare densities in spruce-beetle killed forest on the RGNF are on average the highest in Colorado,” and that “[w]hether lynx can persist in such conditions has not been rigorously evaluated through science-based methods and was a primary research need identified on the Rio Grande National Forest.” App., Vol. 1 at 67; *see also id.* at 69-70.

areas, and it noted the study’s shortcomings. *See id.* One shortcoming was that the study “[a]rbitrarily defin[ed] the top 20% of predictions as high quality lynx habitat,” App., Vol. 4 at 233, which excluded many of the “spruce-fir habitats” that are important to lynx, App., Vol. 6 at 169. Similarly, the USFS 2013 Canada Lynx Conservation Assessment and Strategy, which Defenders claims “attest[ed] to the importance of [the Ivan] stud[y],” Aplt. Br. at 38, relied on the study only to say it “produc[ed] a statewide map of predicted lynx use”—“the first such maps for Colorado”—and that it had several “shortcomings,” App., Vol. 5 at 57-58.

The 2021 BiOp’s treatment of the Ivan Study is consistent with the study’s self-imposed limitations. The Ivan Study stated it should be used only as a “compliment [*sic*] to expert opinion and existing maps produced by other means.” App., Vol. 4 at 234. The Squires Study, by contrast, stated without limitation that its “goal was to provide forest managers with conservation insights and tools that distinguish forest stands essential to the conservation of Canada lynx from those stands that were less important and therefore available for timber salvage with little impact to this federally-listed species.” App., Vol. 1 at 243; *see also id.* at 251.

The FWS did not err in failing to rely on the Ivan Study for its analysis of lynx use in the northern part of the RGNF.

**C. *The 2021 BiOp’s Assessment of the Plan’s Impact on Lynx in Low-Use Areas***

Defenders argues the FWS 2021 BiOp “failed to adequately analyze the Plan decision to abandon SRLA protections against logging for . . . ‘low-use’ habitat,” Aplt. Br. at 19, including failing to analyze the effects of changes between the SRLA and the

Plan, *id.* at 41. The FWS’s only role was to analyze in the 2021 BiOp whether changes in management standards would jeopardize the lynx DPS. It did so in a reasonable manner.

### 1. Additional Factual Background

The following information provides relevant background for this issue (impacts in low-use areas) and the next issue (impacts in high-use areas).

#### a. *SRLA management standards*

As noted above, in 2008 the SRLA established goals, objectives, standards, and guidelines for protecting against several risk factors to the lynx. App., Vol. 4 at 139-41. Four of the “standards”—“management requirements designed to meet the objectives”—are relevant here: three “VEG” standards, which set requirements for vegetation management, and one “ALL” standard, which set requirements for habitat connectivity. *Id.* at 44-45, 141.

**VEG S1** provided that if more than 30 percent of lynx habitat in an LAU was in an “unsuitable condition,” certain activities were prohibited in that LAU. *Id.* at 143. An “unsuitable condition” meant “in a stand initiation structural stage [(‘SISS’)] . . . not yet tall enough to provide winter snowshoe hare habitat.” *Id.* An SISS “generally develops after a . . . disturbance by fire, insects[,] or regeneration timber harvest,” and is characterized by a “new single-story layer of shrubs, tree seedlings, and saplings” that “reoccupy[] the site.” *Id.* at 188.

Prohibited activities in the affected LAUs included “vegetation management projects,” *id.* at 143, e.g., “prescribed fire or timber harvest,” *id.* at 188-89, that “move additional acres into a stand initiation stage,” *id.* at 143, or that “regenerate forested

stands,” *id.* at 176 (footnote omitted), by “cutting [including clearcutting] trees and creating an entire new age class,” *id.* at 187. *See also id.* at 177 (prohibiting habitat “regenerat[ion] by vegetation management projects”).

**VEG S2** prohibited “[t]imber management projects” from “regenerat[ing] more than 15 percent of lynx habitat . . . within an LAU in a ten-year period,” *id.* (footnotes omitted), to “limit the rate of management-induced change in lynx habitat,” *id.* at 143. This standard also provided that salvage harvest—“commercial timber sale of dead, damaged, or dying trees,” *id.* at 188—“d[id] not add to the 15 percent, unless the harvest treatment would cause the lynx habitat to change to an unsuitable condition.” *Id.* at 177.

**VEG S6** was designed to protect the best lynx habitat. *See id.* at 145-46, 88. It prohibited “[v]egetation management projects that reduce winter snowshoe hare habitat in multi-story mature” forest stands, except near certain manmade structures, for research, for incidental removal during salvage harvest, and where management was designed to encourage “multi-story attributes.” *Id.* at 179 (footnotes omitted).

All three VEG standards included a limited exemption for fire management actions in the wildland urban interface (“WUI”)—areas adjacent to at-risk communities. *Id.* at 176-79, 189.

**ALL S1** provided that “[n]ew or expanded permanent developments and vegetation management projects must maintain habitat connectivity in an LAU and/or linkage area.” *Id.* at 175 (footnotes omitted). As noted above, a “linkage area” “provides landscape connectivity between blocks of lynx habitat . . . separated by intervening areas of non-lynx habitat.” *Id.* at 186.



b. *Plan management standards*

The Plan made two relevant modifications to the SRLA.

First, it added a new **VEG S7** standard. VEG S7 “applies to salvage harvest activities conducted in conifer forests that have lynx habitat attributes, but no longer meet the definition for standard VEG S6 due to tree mortality and associated forest structural changes.” App., Vol. 3 at 37.<sup>17</sup>

Second, the Plan made VEG S1 and S2 applicable only to LAUs that overlap “wholly or partially” with high-use areas—and thus removed them from low-use areas. *Id.* at 39. The other SRLA standards continue to apply in low-use areas. *Id.*; App., Vol. 1 at 219.

**2. Analysis**

a. *The 2021 BiOp’s consideration of management standard changes for RGNF low-use areas*

The FWS reasonably considered how changes in the management standards for low-use areas would affect the lynx DPS. The 2021 BiOp acknowledged that removal of VEG S1 and S2 in low-use areas could lessen protection for lynx. It said:

By removing these standards, forest management within these LAUs could result in SISS condition[s] that exceed 30 percent, or could result in more than 15 percent LAU conversion to SISS conditions within 10 years. In addition, removal of these standards could result in additional conversion to SISS conditions in LAUs that currently exceed these standards.

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<sup>17</sup> We will describe the specific VEG S7 standards for high-use areas below.

App., Vol. 1 at 230-31. The FWS then appropriately analyzed the effect of these changes on lynx. It concluded the management standard changes for the low-use areas are not likely to adversely affect the lynx because (1) as discussed previously, lynx do not often use the low-use areas, *see, e.g., id.* at 231, 234-36; and (2) projects in these areas would be small, *id.* at 231.

The FWS justified the latter prediction by “assum[ing]” that because “little forest management occur[red] within the LAUs in the low lynx use area” between 2010 and 2020 and “the [RGNF] did not propose significant increased vegetation management on this part of the forest,” “future vegetation management w[ould] be similar in scope and scale to the preceding 10-year period.” *Id.* “Even if vegetation management exceeds historic levels in the low use area[s],” the FWS concluded that “the consequences of such actions” will not “appreciably reduce the likelihood of survival and recovery of lynx on the RGNF.” *Id.* at 236. Defenders’ challenges to this conclusion are not persuasive.

First, Defenders argues the FWS could not justify its project-size prediction based on 2010-2020 logging data because that data “predated peak tree mortality and the increased incentive for salvage logging.” Aplt. Br. at 47. But as Defenders asserts, the “spruce beetle outbreak swept through the [RGNF] in the years after the SRLA’s adoption, peaking around 2014.” *Id.* at 13 (citing App., Vol. 5 at 210; App., Vol. 1 at 87). And as the Government explains, “By 2017, overstory mortality in the [RGNF]’s spruce-fir habitat had reached 100%.” Aplee. Br. at 6 (citing App., Vol. 1 at 66). So the 2010-2020 estimates overlap “peak tree mortality,” Aplt. Br. at 47, and they cover nearly the entire beetle epidemic.

Second, Defenders argues logging data from the 2017 La Garita Hills Restoration Project<sup>18</sup> “undercut[s]” the FWS’s projection. *Id.* at 47-48. The record shows otherwise. The project authorized approximately 94,000 acres of logging on the RGNF, including 38,000 acres of salvage logging. *See App.*, Vol. 2 at 55. But as the Government explains, Aplee. Br. at 50, the project minimized impacts to lynx habitat by leaving “[l]arge percentages [of] the spruce-fir/spruce-mixed conifer vegetation zones in both the Carnero and Four Mile LAUs [the two LAUs affected by the project] . . . unharvested (90 and 74 percent, respectively)” to “retain a mosaic of stand conditions across each LAU,” *App.*, Vol. 2 at 59; *see also id.* at 45 (identifying Carnero and Four Mile LAUs as the only affected LAUs); *id.* at 64 (Record of Decision noting that “potentially not all the acres proposed will be harvested in suitable lynx habitat” and that “[t]he best lynx/hare habitat would be protected by [project design criteria], standards and guidelines, and during unit layout”).

The project was designed to follow the SRLA, and its Record of Decision explained that “[i]t was always intended that this project would be updated to be consistent with the revised forest plan, as needed.” *Id.* at 54. A project that promised future updates to comply with the Plan does not undermine the Plan. The FWS did not

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<sup>18</sup> The La Garita Hills Restoration Project proposed vegetation management projects across approximately 180,000 acres of the RGNF. *App.*, Vol. 2 at 53. It was designed to “manag[e] vegetation and fuels to reduce risk . . . ; foster[] resilient and adaptive ecosystems and mitigate[e] wildfire risk; and address[] the widespread bark beetle epidemics considering human safety, recovery, and resiliency.” *Id.*; *see also id.* at 6.

“offer[] an explanation for its decision that runs counter to the evidence before the agency.” *State Farm*, 463 U.S. at 43.

b. *Defenders’ other arguments*

First, Defenders asserts that the “FWS[’s] fail[ure] to acknowledge that the removal of VEG S1 and VEG S2 protections for so-called ‘low-use’ areas represents a fundamental shift in approach from the SRLA.” Aplt. Br. at 41; *see also id.* at 42-44. It also disputes the Plan’s decision to use the ALL S1 standard in low-use areas. It argues ALL S1 is “vague and difficult to enforce,” is “not as protective as VEG S1 and S2,” and improperly puts off jeopardy analysis until the project level. *Id.* at 45. We agree with the Government that these arguments are challenges to the USFS Plan and not to the FWS 2021 BiOp. Aplee. Br. at 45.

Second, Defenders also seems to challenge the FWS’s analysis of landscape connectivity in low-use areas as arbitrary, arguing it deferred jeopardy analysis to specific projects. Aplt. Br. at 45-46. We disagree. The 2021 BiOp stated that because ALL S1 requires maintenance of habitat connectivity and because of the low risk of “genetic isolation,” the FWS “anticipate[d]” that the Plan would not likely “result in adverse impacts to lynx connectivity.” App., Vol. 1 at 234. It thus did not defer analysis.

The FWS added that it would determine “site-specific effects of projects proposed under the revised Forest Plan that could influence connectivity” later, “during project-specific consultation.” *Id.* It was reasonable for the FWS to anticipate that development of additional safeguards would be needed at a later stage, especially when nothing in the record shows the FWS could have made a site-specific determination when evaluating the

Plan. 50 C.F.R. § 402.14(a) (requiring consideration of impacts at “the earliest possible time”); *see N.M. ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 717-19 (10th Cir. 2009) (holding that NEPA’s direction to consider impacts at the earliest practicable point required an analysis of site-specific impacts where “concrete [site-specific] plans” were available at the time of the programmatic decision).

The FWS reasonably analyzed the Plan’s impacts on lynx in low-use areas.

**D. *The 2021 BiOp’s Assessment of the Plan’s Impact on Lynx in High-Use Areas***

Defenders argues the FWS allowed an arbitrary amount of salvage logging in high-use areas under VEG S7, failed to adequately analyze the effects of that logging allowance or the hazard tree exemption to VEG S7, and failed to adequately analyze the effects of VEG S7’s logging permissions outside the USFS’s suitable timber base. *Aplt. Br.* at 19, 49-55. The first contention challenges the USFS Plan, not the FWS 2021 BiOp. As to the latter challenges, the FWS did not act arbitrarily or capriciously in evaluating the impact of the USFS’s changes in management standards on lynx in high-use areas.

**1. The USFS’s Design of the VEG S7 Standard**

Defenders argues that “[t]he record provides no scientific basis for the 7% standard,” *id.* at 49, and that the FWS should have considered that VEG S7 “opens a far bigger percentage of the best habitat to logging than [VEG S6] did,” *id.* at 52. It says the “FWS failed to provide any rationale for choosing this threshold.” *Id.* at 49.

But the FWS did not choose the threshold, the USFS did. Defenders’ petition for review did not challenge the USFS’s design of the VEG S7 standard. *See App.*, Vol. 1 at 34-37. Defenders argues it can still challenge the 7-percent allowance because without

a reasoned standard, the “FWS would lack [a] scientific basis for its effects analysis.” Aplt. Reply Br. at 22. But it cites no authority, and we fail to see any merit to the argument.

## 2. The FWS’s Analysis of VEG S7’s Impact in High-Use Areas

For high-use areas, VEG S7 creates management rules for three types of habitat. First, within the suitable timber base and in LAUs that do not exceed 30 percent SISS, it permits salvage logging in up to 7 percent of the overlapping high-use and suitable timber base areas, with exemptions for hazard and WUI tree removal. App., Vol. 1 at 229-32. Second, within the USFS’s suitable timber base and in LAUs that exceed 30 percent SISS, VEG S7 limits vegetation management to “WUI actions exempted by the SRLA and the [VEG S7] proposed hazard tree exemption.” *Id.* at 231; *see also id.* at 229-30. And third, outside the suitable timber base, it permits vegetation management to “proceed consistent with the SRLA.” *Id.* at 232; *see also id.* at 229. Defenders asserts the FWS acted arbitrarily in its assessment of each category’s impact. We disagree.

### a. *Salvage logging allowance*

Defenders argues the “FWS failed to analyze the effects of the arbitrary 7% standard on the lynx.” Aplt. Br. at 51. The FWS calculated the maximum amount of salvage logging under the 7-percent allowance to be 4,265 acres. App., Vol. 1 at 231-32. The 2021 BiOp explained that the Plan as a whole—the three VEG S7 provisions for high-use areas and logging allowances in low-use areas—could lead to “approximately 50,000 acres” of vegetation management over the 15-year life of the Plan, *id.* at 236, including the 4,265 acres from the 7-percent allowance. *See id.* at 232. The FWS did not

discern an overall adverse potential impact on lynx in high-use areas because (a) VEG S7 also prohibits any salvage logging in LAUs with greater than 30 percent SISS, allowing those LAUs to “recover from the beetle epidemic” and “support continual lynx presence within the action area,” and (b) 50,000 acres is not a significant percentage of the DPS’s total habitat. *Id.* at 236-37. We fail to see how the FWS ignored the impact of the 7-percent standard on the lynx DPS.

The FWS also explained that VEG S7 is more protective of lynx because it fills a gap in salvage logging protections under the SRLA. Because VEG S7 avoided “unlimited salvage potential” possible under the SRLA, the 2021 BiOp concluded that the standard was “likely to reduce effects to lynx on the RGNF compared to the SRLA alone.” *Id.* at 233. Defenders argues the FWS did not connect this statement to how the standard would “affect the survival and recovery of the” lynx DPS and that “any limiting standard” compared to the SRLA would not be the appropriate test because conditions in the RGNF had changed. *Aplt. Br.* at 51. We disagree with Defenders’ description of the FWS’s conclusion. The FWS concluded that even with VEG S7’s logging allowance—which provided more protection than the SRLA—the Plan still would not cause jeopardy for the reasons stated above.

b. *Hazard tree removal exemption*

Defenders argues the “FWS did not examine the effects of” the hazard tree removal exemption (applicable in suitable timber base areas), nor did the agency justify “its apparent conclusion that the uptick in logging under these [exemptions] will not

adversely affect lynx.”<sup>19</sup> *Id.* at 53-54. But the FWS did not fail to consider the impact of the hazard tree exemption. It analyzed the likely use of the exemption in detail, concluded that adverse impacts were possible, stated it lacked the data to determine the impact conclusively, and then set up future safeguards. That is hardly an APA violation.

The FWS acknowledged that (1) the potential acreage open to logging via the exemption was up to 17,896 acres, (2) there might be “adverse consequences to lynx where hazard tree treatments occur in those LAUs where existing conditions exceed VEG S1 (30 percent SISS),” App., Vol. 1 at 232, and (3) there might be “additional [habitat] fragmentation,” *id.* at 233. But the FWS had difficulty “quantify[ing]” the effects on lynx “at this programmatic scale” because not all trees in open acres would be logged and there was “uncertainty [in] the timing, location, size, and extent of future actions.” *Id.* at 234; *see also id.* at 233. The timing of future projects would be particularly important because whether the 7-percent salvage allowance applies depends on the “habitat conditions within the LAU at the time” of the project—which varies based on human-caused, as well as natural disturbances. *Id.* at 232. To account for this uncertainty, the 2021 BiOp directed that “all subsequent actions that affect lynx are subject to future section 7 analysis and consultation requirements.” *Id.* at 234.

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<sup>19</sup> Defenders uses the plural “exemptions” but seems to challenge only the hazard tree exemption and not the WUI exemption. Aplt. Br. at 53. The 2021 BiOp stated it calculated the acreage potentially affected by “[h]azard [t]ree [r]emoval r[oa]d & [s]ite [b]uffers,” App., Vol. 1 at 232, but this calculation appears to determine the impact of the hazard tree exemption alone, *see id.* at 230; App., Vol. 3 at 38, not multiple “exemptions for road buffers, ‘hazard trees,’ and the like,” as Defenders contends, Aplt. Br. at 53.



Acknowledging uncertainty does not make the FWS's no-jeopardy conclusion unreasonable. *Swan View Coalition, Inc. v. Turner*, 824 F. Supp. 923 (D. Mont. 1992), is instructive. There, the court held the FWS did not need to determine whether "future timber production equalling [*sic*] the levels proposed in the [land and resource management plan's] production objectives would jeopardize listed species." *Id.* at 935. It reasoned that the FWS must implement consultation at "later stages of development" and "the safeguards already built into the plan guarantee[d] that such jeopardy would be averted before such levels of production were ever reached." *Id.* The same is true here.

Although an agency may not defer analysis to the project stage when analysis is possible earlier, 50 C.F.R. § 402.14(a) ("Each Federal agency shall review its actions at the earliest possible time to determine whether any action may affect listed species or critical habitat."), the FWS recognized that complete analysis is not possible at this time. We owe deference to that careful consideration. *See, e.g., Balt. Gas & Elec. Co.*, 462 U.S. at 103 ("[When] the [agency] is making predictions, within its area of special expertise, at the frontiers of science," we "must generally be at [our] most deferential."); *Rural Cellular Ass'n v. FCC*, 588 F.3d 1095, 1105 (D.C. Cir. 2009) ("In circumstances involving agency predictions of uncertain future events, complete factual support in the record for the [agency]'s judgment or prediction is not possible or required . . . . [W]e require only that the agency acknowledge factual uncertainties and identify the considerations it found persuasive." (quotations and citations omitted)). The FWS's analysis of the hazard tree exemption was reasonable.

*c. Analysis of areas outside the suitable timber base*

Defenders also argues the FWS’s analysis of potential logging outside the suitable timber base was arbitrary. Aplt. Br. at 52-53. The FWS reasoned that in high-use areas outside the suitable timber base (and therefore not subject to any salvage-logging cap), salvage harvest is likely to be minimal because data from 2005-2020 indicated that the RGNF forest managers “usually focus[] salvage activity within the[] suitable timber base.” App., Vol. 1 at 232. Defenders contends the 2005-2020 data are “not reliable” because most of those years “predated the height of the beetle kill that made salvage harvest a key [RGNF] objective.” Aplt. Br. at 53.

The FWS acted reasonably. The 2005-2020 range includes some years that predated the beetle epidemic, but also includes some years during and post-peak-epidemic. The record does not show significantly more logging in years after the height of the beetle epidemic. *See* Suppl. App. at 2 (showing breakdown of 2005-2020 data by year). Nor does it show that after the height of the beetle epidemic, a significant amount of salvage harvest outside the suitable timber base was in high-use areas. Rather, of the 344,536 acres of high-use habitat, *id.* at 4, “a total of 118 acres have been salvage harvested in areas not suitable for timber,” *id.* at 2. Further, this minimal logging took place in “2007 (3 acres), 2008 (31 acres), and 2009 (84 acres)”—before or just as the beetle epidemic was beginning but not after. *Id.*

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In the 2021 BiOp, the FWS reasonably analyzed the Plan’s impacts on lynx in high-use areas.

**E. *The USFS's Reliance on the 2021 BiOp***

Because the FWS did not violate the ESA or the APA, the USFS did not act arbitrarily in relying on the FWS 2021 BiOp for its Plan.

**III. CONCLUSION**

We affirm the district court's denial of the petition for review.